

**MULTIDIMENSIONAL POVERTY AND ANTI-POVERTY  
STRATEGIES IN URBAN CHINA: A MIXED-METHODS STUDY OF  
SHANDONG PROVINCE**

By

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## **ABSTRACT**

### **MULTIDIMENSIONAL POVERTY AND ANTI-POVERTY STRATEGIES IN URBAN CHINA: A MIXED-METHODS STUDY OF SHANDONG PROVINCE**

**Zhao Bo**

Over the past few decades, China has made remarkable strides in its battle against poverty. However, these efforts have been primarily concentrated in rural areas, while urban poverty has been neglected to some extent. China has not established specific poverty standards for urban areas, nor has it implemented unified measures for urban poverty as it has for rural areas. This research aims to comprehensively explore the overarching landscape and key contributing factors of multidimensional urban poverty in Shandong Province and investigate the lived experiences of its poor households, in order to provide recommendations for urban anti-poverty strategies in the region.

This research employs a mixed-methods approach. The quantitative research utilizes a Dual Cutoff method to examine the overarching landscape of urban poverty in Shandong Province and applies logistic regression analysis to identify its contributing factors. Building upon the quantitative findings and

relevant literature, the qualitative research employs an interpretative phenomenological approach to investigate the challenges faced by urban poor households in Shandong Province, as well as their coping strategies and poverty alleviation needs. The quantitative and qualitative research findings were then compared and discussed.

The quantitative data analysis reveals that the overall reduction in urban poverty in Shandong Province over the past few years is primarily due to the decrease in the incidence of poverty rather than the intensity of poverty. Logistic regression analysis identified low educational attainment, chronic disease, large household size, gender, and poor surrounding environment as the primary factors contributing to urban poverty. Through qualitative data analysis, this research unveiled that urban poor households mainly faced challenges related to financial hardship, health dilemmas, poor housing conditions, and ineffective government administration. The qualitative findings supplemented the quantitative results by emphasizing the role of government administration in urban poverty. By integrating the findings of quantitative and qualitative research, this study offers targeted recommendations for effectively addressing urban poverty in the region.

**Keywords:** Shandong Province, urban poverty, multidimensional poverty, mixed-methods study, anti-poverty strategies

**Subject Area:** HN1-995 Social reform

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## LIST OF ABBREVIATIONS

ADB	Asian Development Bank
BMI	Body Mass Index
CFPS	China Family Panel Studies
EU	The European Union
HDI	Human Development Index
ILO	International Labour Organization
IPA	Interpretative Phenomenological Analysis
MDGs	Millennium Development Goals
MPI	Multidimensional Poverty Index
OPHI	Oxford Poverty and Human Development Initiative
PPP	Purchasing Power Parity
SDGs	Sustainable Development Goals
SOEs	State-Owned Enterprises
SPSS	Statistical Package for the Social Sciences
SRH	Self-Rated Health
UK	The United Kingdom
UNDP	United Nations Development Programme
UN-Habitat	United Nations Human Settlements Programme
VIF	Variance Inflation Factor
WHO	World Health Organization

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Research Background**

##### **1.1.1 Poverty as A Global Issue**

Poverty is a global issue (United Nations, 2015; World Bank, 2022c).

Both the United Nations and the World Bank have pronounced ending poverty as the top priority of their 2030 development goals (United Nations, 2015; World Bank, 2013). Over the past two centuries, the world has experienced unprecedented advancements in science, technology, and economy, leading to significant improvements in living standards (International Monetary Fund, 2000; Nakicenovic, 2009). However, poverty remains a persistent and challenging issue (United Nations, 2023a). According to the World Bank (2023), the world's population living in extreme poverty was 8.5% in 2023, which means 659 million people lived on less than 2.15 USD per day in Purchasing Power Parity (PPP) terms, and 1,831 million people lived under the World Bank's poverty line for lower-middle-income countries, which is 3.65 USD per day (World Bank, 2023b). Furthermore, since 2020, global efforts to alleviate poverty have experienced their most significant setback in decades due to the

impact of the COVID-19 pandemic. For the first time, the number of people living in extreme poverty increased by nearly 90 million compared to previous forecasts (United Nations, 2023a). These changes reflect the severity and urgency of global poverty alleviation efforts.

Over half of the global population now resides in urban areas, and this figure is expected to reach 70% by 2050 (United Nations, 2023a). As urbanization progresses, the proportion of the poor living in urban areas is rising (Nakamura et al., 2024; Ravallion, 2016; United Nations Human Settlements Programme [UN-Habitat], 2022). In 2020, approximately 1.1 billion urban residents lived in slum-like environments, and UN-Habitat predicts this number will reach 3 billion by 2050 (United Nations, 2023a). Urbanization aids rural-to-urban migrants in escaping poverty, contributing positively to overall poverty reduction (Y. Zhang, 2016). However, urbanization over the past few decades, especially in developing countries, has often lacked comprehensiveness and inclusiveness, such as in public services and infrastructure. This has exacerbated inequality and poverty in urban areas (Asian Development Bank [ADB], 2014; Chatterjee, 2021; Rath, 2022; United Nations, 2023; Y. Zhang, 2016). Given that global urbanization continues to evolve, the development of urban poverty is likely to accelerate (ADB, 2014; Lavell et al., 2023).



Despite the challenging situation, most social assistance programs in developing countries have traditionally concentrated on the rural poor; urban poverty was largely underestimated compared with rural poverty (ADB, 2014; Hatcher, 2024; Mukim & ChUNET, 2022). The primary reason is that, compared with rural poverty, urban poverty is more characterized by multidimensional deprivation; traditional monetary-based poverty measurement is insufficient to measure urban poverty (ADB, 2014; Hatcher, 2024; Lucci et al., 2018). Urban poverty extends beyond monetary income or expenditure; it encompasses various deprivations such as inadequate housing, lack of access to infrastructure and public services, poor living conditions, and limited employment opportunities (ADB, 2014; Hatcher, 2024). In order to achieve the United Nations' (2015) Sustainable Development Goals (SDGs) of "end poverty in all its forms everywhere," it is essential to adopt multidimensional measures to address this multifaceted challenge effectively.

### **1.1.2 Urban Poverty in China**

The emergence of urban poverty in China can be traced back to the economic structural reforms implemented in the 1990s (S. Li & Kight, 2002). Prior to these reforms, poverty was predominantly a rural phenomenon (Guan, 2019b; Hussain, 2003; Riskin & Gao, 2010). This disparity stems from the rigid economic divide between rural and urban regions. Urban residents benefited

from food rations and full employment, which included job security. Although the incomes of urban households were modest, they were stable (Riskin & Gao, 2010). Additionally, urban workers also enjoyed comprehensive benefits provided by employers, including medical insurance, pensions, and maternity benefits (G. Chen et al., 2006; B. Li & Zhong, 2009).

China's urban poverty originated from the market-oriented reforms of the economic system and the restructuring of State-Owned Enterprises (SOEs) in the 1990s (S. Li & Kight, 2002). During the reform, the number of SOEs in China decreased from 442,000 to 119,000 between 1996 and 2006, and the number of SOE employees decreased from 112.61 million to 64.88 million (National Bureau of Statistics of China, 2006a). These laid-off workers lost their sources of livelihood and fell into poverty (Hussain, 2003). Concurrently with economic reform, traditional occupation-based welfare began to weaken, while a comprehensive urban social security system, incorporating the subsistence allowance, had not been fully implemented (Guan, 2019b; Y. Guo & Gu, 2018). This economic transitional phase exacerbated urban poverty in China (S. Li & Kight, 2002).

### **1.1.3 Urban and Rural Poverty Dynamics in China**

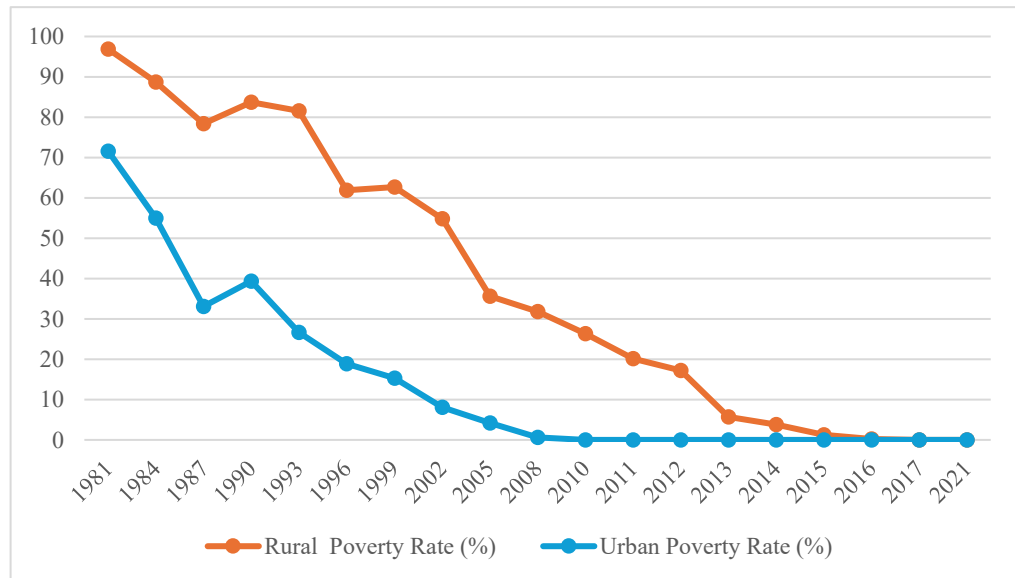
To contextualize China's urban poverty challenges, it is critical to examine the evolving patterns of poverty distribution between urban and rural

areas. To systematically analyze these dynamics, this study evaluates poverty rates under three World Bank poverty lines: the extreme poverty line (2.15 USD per day), the lower-middle-income poverty line (3.65 USD per day), and the upper-middle-income poverty line (6.85 USD per day) (World Bank, 2023b). These thresholds reveal distinct patterns of urban-rural poverty patterns and the evolving nature of poverty in China. The data used to analyze urban and rural poverty dynamics in China over the past decades were sourced from the Poverty and Inequality Platform, a World Bank initiative providing open-access data and tools for measuring poverty and inequality globally (World Bank, 2022a). The poverty estimates are expressed in 2017 PPP.

Using the World Bank's extreme poverty line of 2.15 USD per day, China has made remarkable strides in eradicating extreme poverty, as shown in Figure 1.1. In 1981, 96.9% of the rural population and 71.6% of the urban population lived below this threshold (World Bank, 2025). By 2010, urban extreme poverty had been completely eliminated (0.0%), while rural poverty rates had fallen to 26.4% (World Bank, 2025). By 2020, both urban and rural extreme poverty rates had reached zero, marking a historic milestone in China's poverty alleviation efforts (State Council Information Office of China, 2021; World Bank, 2025). This achievement is largely attributed to the Chinese government's targeted poverty reduction initiatives (M. Liu et al., 2020; State Council Information Office of China, 2021; J. Sun & Xia, 2019).

**Figure 1.1**

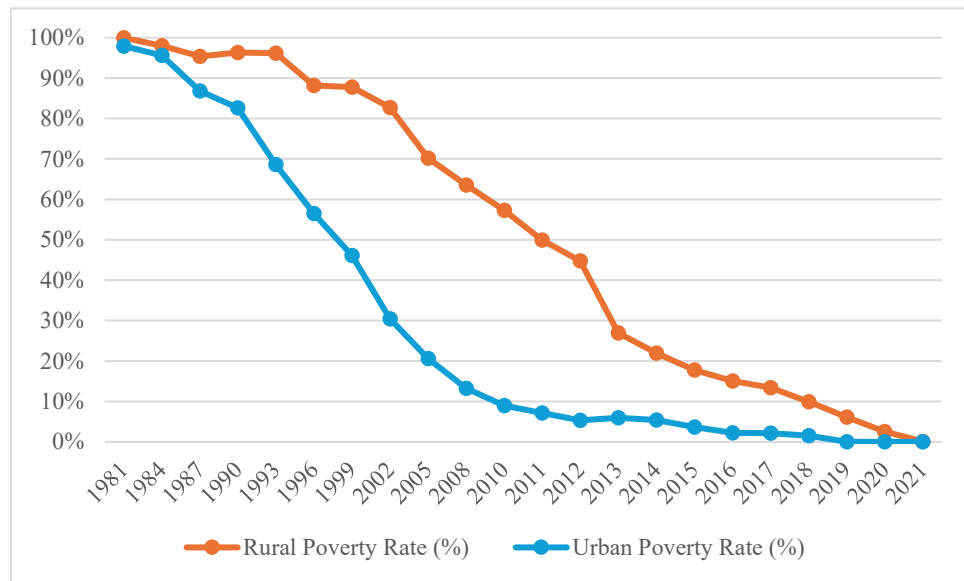
*Rural and Urban Poverty Trends in China Under 2.15 USD per Day (1981–2021)*



However, this achievement masks persistent challenges under higher poverty thresholds. Figure 1.2 highlights a more nuanced picture of China's poverty situation under the Lower-Middle-Income Poverty Line (3.65 USD per day). In 2002, 82.69% of rural residents and 30.42% of urban residents lived below this threshold. By 2020, rural poverty under this line declined to 2.55%, while urban poverty nearly vanished (0.06%). Despite this progress, the rural-urban gap remains significant: rural areas still face residual poverty while cities have largely addressed deficiencies in basic needs (World Bank, 2023c).

**Figure 1.2**

*Rural and Urban Poverty Trends in China Under 3.65USD per Day (1981–2021)*

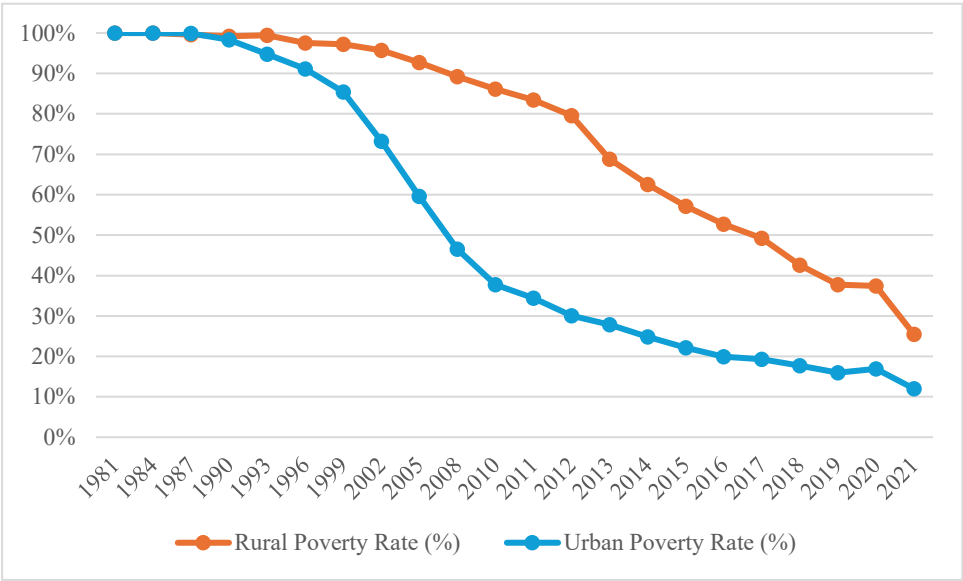


The most striking disparities emerge under the upper-middle-income poverty line (Figure 1.3). In 2002, 95.73% of rural and 73.24% of urban populations fell below this threshold. By 2020, these rates declined to 37.41% (rural) and 16.95% (urban), yet over one-third of rural residents and nearly 17% of urban residents remained in poverty under this higher standard. While extreme poverty in urban China has largely been alleviated, adopting higher standards reveals the persistent and complex nature of urban poverty (ADB, 2014; Hatcher, 2024; UN-Habitat, 2022). To further address this issue, it is insufficient to focus solely on absolute poverty under current measures. Establishing new, elevated poverty thresholds that reflect urban realities, coupled with targeted poverty alleviation initiatives, is essential for

comprehensively resolving urban poverty challenges (Z. Huang et al., 2019; J. Sun & Xia, 2019).

**Figure 1.3**

*Rural and Urban Poverty Trends in China Under 6.85 USD per Day (1981–2021)*



### 1.1.4 Characteristics of Urban Poverty in China

Absolute poverty has been largely eliminated in urban areas of China (Gustafsson & Sai, 2020). The urban subsistence allowance standard in 2023 is set at 770 CNY per capita per month, far exceeding the rural poverty line in China (Ministry of Civil Affairs of China, 2024). Urban households with per capita incomes below the standard can receive financial subsidies from the government, significantly contributing to the elimination of absolute poverty (Guan, 2019b). However, despite significant strides in eradicating absolute poverty, inequality within urban areas has been rapidly escalating (Appleton et

al., 2010; Gustafsson & Sai, 2020; S. Lin, 2015). Sen (1983, p. 162) argues that such inequality translates into absolute capability deprivation. While absolute poverty often indicates the inability to secure certain basic functionings necessary for survival and dignity, relative poverty reflects shortfalls in the capabilities or resources required for meaningful participation in society, which vary according to social norms and standards (Sen, 1983, p. 161; Townsend, 1979, p. 59). Increasing relative poverty indicates widening disparities in people's well-being, which can intensify social injustice, exacerbate conflicts, and undermine social stability (Østby, 2016; Sen, 1992, p. 72). Studying urban poverty contributes to fostering social harmony, resolving conflicts, and maintaining social stability (D. Chen & Chen, 2016).

#### **1.1.5 Urban Poverty Alleviation Efforts in China**

Following the economic reforms initiated in 1978, China has witnessed significant strides in poverty alleviation. According to the World Bank's international poverty line, there were 835 million people living in absolute poverty in China in 1981, comprising 84% of the total population (World Bank, 2022b). At that time, only four countries, Cambodia, Burkina Faso, Mali, and Uganda, had a higher poverty rate than China (Ravallion, 2010). However, by the end of 2019, the incidence of absolute poverty had decreased to 0.6% in China (World Bank, 2022b). In 2020, China declared the elimination of rural

poverty based on its threshold of an annual per capita income of 2300 CNY (323 USD) (2010 constant prices), equivalent to 2.20 USD per day in PPP terms (State Council Information Office of China, 2021).

Although China has made remarkable achievements in poverty alleviation, it still has a long way to go in its fight against poverty (Xi, 2019). The milestone in poverty alleviation only eliminated absolute poverty. China has implemented a series of anti-poverty strategies in rural areas, namely the Targeted Poverty Alleviation initiatives, to lift all rural poor out of poverty under current standards (The State Council of China, 2016). In contrast to its focus on rural poverty, China has overlooked urban poverty to some extent. It has not taken unified actions against urban poverty as in rural areas (World Bank, 2018a). Additionally, China has only set poverty standards for rural areas and has not established specific poverty standards for urban areas (Guan, 2019b; X. Wang, 2022b).

In addition, the COVID-19 pandemic commenced in 2020 has significantly reduced the income of vulnerable groups, including migrant workers and manufacturing workers in China, potentially causing tens of millions of people to fall back into poverty. This has further exacerbated the issue of urban poverty (Ge et al., 2022; C. Huang et al., 2023; Lai et al., 2023). With rural poverty eradicated under current standards in China, urban poverty,



which is characterized by inequality and multidimensional deprivation, has become increasingly prominent and requires urgent attention (Z. Chen et al., 2019; Hatcher, 2024; J. Sun & Xia, 2019; UN-Habitat, 2022; Yu, 2019).

## **1.2 Problem Statement**

Compared with rural poverty, the Chinese government neglected urban poverty to some extent (Fang & Zhang, 2021; Guan, 2019b; World Bank, 2018a). China's poverty alleviation efforts have primarily targeted rural poverty while neglecting urban poverty to some extent (Y. Liu et al., 2018). To meet the objective of eliminating rural poverty according to its poverty thresholds, China has implemented a series of strategies, specifically the Targeted Poverty Alleviation initiatives, to alleviate rural poverty (The State Council of China, 2016). However, in contrast, local governments have not adopted the goal of "lifting everyone out of poverty" in their urban anti-poverty efforts as they have in rural areas (B. Liang, 2021). Furthermore, the Chinese government has solely established poverty standards for rural regions, with no corresponding standards for urban areas. Instead, it permits local governments to determine subsistence allowances with standards varying according to local conditions (Q. Gao, 2017; Gustafsson & Sai, 2020). This reflects China's insufficient attention to urban poverty issues and a lack of comprehensive planning to eliminate urban poverty (Wang et al., 2016; Zhou & Shen, 2017). In the context that rural absolute

poverty in China has been eradicated, urban poverty, characterized by economic inequality and multidimensional deprivation, has become more prominent and urgently needs to be addressed (ADB, 2014; Hatcher, 2024; UN-Habitat, 2022).

Furthermore, China's poverty standards primarily target absolute poverty, aiming to meet the most basic survival needs, including clothing, food, shelter, transportation, education, and healthcare. However, the complexity of poverty extends far beyond merely basic survival needs (S. Chen & Ravallion, 2021; M. Liu et al., 2020). As highlighted by the United Nations (1998), poverty includes not only basic health and survival but also dimensions of insecurity, powerlessness, and social exclusion. The World Bank (2000) that poverty encompasses vulnerability and a lack of agency, advocating for the incorporation of a broader range of social and cultural indicators. However, China continues to assess poverty primarily through monetary measures, which inadequately reflect its complex and multifaceted nature (Z. Chen et al., 2019; X. Wang & Feng, 2020).

Moreover, the current urban subsistence allowance is frequently criticized for its low standards (Guan, 2019b). As of the end of 2023, the annual national average subsistence allowance for urban residents was 9,240 CNY per capita (Ministry of Civil Affairs of China, 2024). However, the annual median per capita disposable income of urban residents in 2023 was 47,122 CNY

(National Bureau of Statistics of China, 2024c). The urban subsistence allowance accounted for only 19.6% of the median per capita disposable income for urban residents. This figure is notably lower than the relative poverty line in the European Union (EU), which is set at 60% of the median national income, and in the OECD, where the poverty line is 50% of the median national income (Ferreira & Sánchez-Páramo, 2017). Although the subsistence allowance has effectively alleviated absolute poverty, its effect on reducing relative poverty remains limited (Z. Chen & Wen, 2020). Therefore, with absolute poverty being largely eradicated, establishing new poverty thresholds is essential.

In addition, the economic structure, demographic composition, and development level of Shandong Province mirror those of China, indicating the representativeness of Shandong Province within the country. Shandong Province is in the midst of an economic transition, pivoting away from conventional growth engines towards embracing new drivers of economic progress (The State Council of China, 2022). This economic restructuring could potentially worsen urban poverty. Therefore, it is crucial to take proactive measures to address urban poverty in Shandong Province (Yan, 2018).

### **1.3 Research Objectives**

This research aims to explore strategies to alleviate multidimensional poverty among urban poor households in Shandong Province. Through

quantitative data analysis, this research seeks to comprehensively explore the overarching landscape and key contributing factors of multidimensional urban poverty. Additionally, through qualitative data analysis, the research aims to explore the lived experiences of urban poor households, providing a foundation for developing targeted recommendations to alleviate urban poverty in Shandong Province. The specific research objectives of this study are as follows:

RO1. To examine the incidence and intensity of multidimensional poverty among urban poor households in Shandong Province.

RO2. To identify the factors contributing to multidimensional poverty among urban poor households in Shandong Province.

RO3. To explore the lived experiences of urban poor households regarding multidimensional poverty in Shandong Province.

#### **1.4 Research Questions**

The study formulates research questions aligned with each of the research objectives. The research questions are as follows:

To address RO1, this research aims to assess the incidence and intensity of multidimensional poverty among urban poor households in Shandong Province. The specific research questions related to this objective are as follows:

RQ1. What is the incidence of multidimensional poverty among urban poor households in Shandong Province?

RQ2. What is the intensity of multidimensional poverty among urban poor households in Shandong Province?

To identify the factors contributing to multidimensional urban poverty in Shandong Province, this research formulated the following research question:

RQ3. What are the factors contributing to multidimensional poverty among urban poor households in Shandong Province?

To explore the lived experiences of multidimensional urban poor households, the following research question is formulated:

RQ4. What are the lived experiences of urban poor households regarding multidimensional poverty in Shandong Province?

### **1.5 Research Significance**

This study carries both theoretical and practical significance. Theoretically, it refines existing poverty measurement frameworks and adopts a mixed-methods approach to enhance poverty research methodologies. Practically, by employing improved research methods, it facilitates a more precise identification of urban poor households and their specific needs. Furthermore, this study contributes to the establishment of new multidimensional poverty standards in China and provides targeted recommendations to address the challenges faced by urban poor households.

### **1.5.1 Theoretical Significance**

#### **1.5.1.1 Enhancing Existing Poverty Measurement Methods**

Accurate poverty measurement serves as the cornerstone for crafting effective anti-poverty policies (Gibson, 2016; Mueller, 2021). This research improves existing multidimensional poverty measurement methods. It revises the Global Multidimensional Poverty Index (MPI) established by the United Nations Development Programme (UNDP) to make it more relevant and representative of Shandong Province and China. Furthermore, this research refines the methodology for setting weights and thresholds in multidimensional poverty measurement. It also employs diverse approaches to strengthen the robustness of the measurement methods, aiming for more precise targeting of urban poor households.

#### **1.5.1.2 Improving Poverty Research Methodologies**

Moreover, current poverty studies are mainly based on large-scale quantitative surveys, with relatively limited qualitative research on poverty (Jones & Tvedten, 2019; Kura & Sulaiman, 2012). This research employs a phenomenological approach to explore the lived experiences of urban poverty households regarding poverty, discovering their implicit meanings. This research also adopts a mixed-methods approach to combine the strengths of

quantitative and qualitative research, thus gaining an in-depth and comprehensive understanding of urban poverty (Patton, 2014). Therefore, it provides valuable insights for future research on multidimensional poverty.

### **1.5.2 Practical Significance**

#### **1.5.2.1 Improving Targeting of Urban Poor Households**

This study enhances current multidimensional poverty measurement methods by refining the selection of poverty dimensions and indicators, establishing poverty thresholds, and adjusting the weighting of indicators to better identify urban poor households in Shandong Province. Additionally, it introduces qualitative field research and employs a phenomenological approach to investigate the specific challenges these households face, their coping strategies, and their distinct needs, which explain and expand upon the quantitative findings. The integration of qualitative and quantitative data contributes to a more in-depth and comprehensive understanding of urban poverty in Shandong Province, thus helping to better target urban poor households.

#### **1.5.2.2 Establishing New Urban Poverty Standards**

China's current subsistence allowance is formulated based on the minimum income required to sustain a basic standard of living (S. Chen &

Ravallion, 2021; M. Liu et al., 2020). However, poverty is a complex and comprehensive concept that cannot be measured in monetary dimension alone (UNDP & Oxford Poverty and Human Development Initiative [OPHI], 2019). It encompasses not only material deprivation but also factors such as limited access to education and healthcare, vulnerability to risks, inability to express one's needs, lack of participation opportunities, etc. (World Bank, 2000). If poverty is measured solely in monetary dimension, it may not help those deprived in education, health, or other related dimensions (World Bank, 2022c). Therefore, this research employs a multidimensional method to measure poverty, which can not only broaden understanding but also offer more accurate and effective poverty alleviation measures for the poor.

#### **1.5.2.3 Recommendations for Urban Poverty Alleviation**

China has eradicated rural poverty under the current poverty standards. However, such achievements only mean the eradication of absolute poverty (Y. Huang et al., 2023; H. Sun et al., 2022). China's poverty alleviation efforts mainly focused on rural areas, with insufficient attention given to urban areas (Fang & Zhang, 2021; World Bank, 2018a). Through the utilization of a mixed-methods approach, this research attains a more comprehensive and nuanced comprehension of urban poverty. Consequently, it serves as a foundation for the development of targeted anti-poverty strategies tailored to urban areas within



Shandong Province. Furthermore, given the representativeness of Shandong Province within China, the recommendations for Shandong Province also hold guiding significance to urban poverty alleviation endeavors across China.

## **1.6 Research Limitations**

This study acknowledges several important limitations that should be considered when interpreting the results. First, the quantitative data covers only from 2012 to 2020, with qualitative data collected in 2022, creating a temporal gap exacerbated by the COVID-19 pandemic. To address this limitation, this study employed a longitudinal approach to identify trends that might extend beyond 2020, thereby mitigating the asynchrony between the quantitative and qualitative data.

Second, the China Family Panel Studies (CFPS) data used for Shandong Province lacks provincial self-representativeness as it was designed for national-level analysis. To address this concern, multiple hypothesis tests were conducted comparing CFPS Shandong data with official provincial statistics, confirming the sample's representativeness. Additionally, sensitivity analysis of multidimensional poverty indices with and without national sampling weights showed no significant distortion in provincial-level estimates.

Third, while CFPS provides panel data, this research employs cross-sectional analysis to examine aggregate poverty trends rather than household-level dynamics. While panel data could offer deeper insights into individual changes, cross-sectional data is appropriate given the study's focus. Future research could incorporate panel methods for a more dynamic analysis.

Fourth, the Dual Cutoff method used for multidimensional poverty measurement involves researcher judgment in selecting dimensions, indicators, weights, and thresholds. To mitigate this limitation, the study referenced widely recognized frameworks, such as the UNDP's Human Development Index (HDI) and Global MPI, adapting them to local contexts and conducting sensitivity analyses to ensure the robustness of the poverty measurement results.

Finally, this study treated the conversion factors from Sen's Capability Approach as independent variables in the regression model. While there is debate on whether these factors should be considered moderators (Burchi & De Muro, 2016; Walker, 2019), research suggests that conversion factors such as infrastructure, environment, social norms, and political frameworks can directly influence poverty without interacting with other variables. To provide clear, actionable policy recommendations to the government, a straightforward and interpretable model is preferred. Thus, conversion factors are treated as independent variables in the regression model.

## **1.7 Definition of Terms**

### **1.7.1 Urban and Rural Areas**

Debates persist regarding the definition of urban and rural areas, with various countries employing diverse criteria such as settlement size, population density, or economic structure (Andersson et al., 2009; Dijkstra et al., 2020; Wineman et al., 2020). In China, it is generally assumed that urban areas are dominated by secondary industry and commerce, while rural areas are dominated by agriculture (H. Zhu et al., 2011). Some researchers consider household registration (hukou) as the dividing standard (K. W. Chan, 2019; X. Wang, 2020; X. Wu & Zheng, 2018). Among these opinions, the most authoritative standards are the *Provisions for the Statistical Division of Urban and Rural Areas* issued by the National Bureau of Statistics of China (2006b), and these provisions are updated every year (National Bureau of Statistics of China, 2023b). According to the provisions, the administrative divisions in China include City, County, Township, and Village, of which the central districts of the cities and the central districts of the counties belong to urban areas, other districts, and the townships and villages belong to rural areas. However, the provisions have the disadvantage of being overly rigid, potentially failing to adapt to the actual prevailing conditions (X. Wang, 2020). Therefore, this study mainly relied on the household registration of the respondents, supplemented

by their workplace or place of residence, to identify whether the respondents were rural or urban residents. If there is inconsistency among the three, this research followed the Institute of Social Science Survey, Peking University (2018), and the National Bureau of Statistics of China (2022), taking residential area as the determining criteria.

### **1.7.2 Targeted Poverty Alleviation**

Targeted poverty alleviation is an innovative anti-poverty strategy introduced by China in 2015 (Y. Guo et al., 2022; The State Council of China, 2015). It departed from China's previous extensive poverty alleviation policies by adopting poverty alleviation measures tailored to the specific circumstances of different impoverished regions and households (Xi, 2021). Targeted Poverty Alleviation involves strategies of precise identification, precise assistance, precise management, and precise evaluation of poor households or anti-poverty efforts. Precise identification means accurately identifying the poor households and determining the causes of their poverty and their specific needs. Accurate assistance involves implementing poverty alleviation policies tailored to the specific causes of poverty faced by the poor. Accurate management entails targeted and dynamic management of poverty alleviation projects, funding, and personnel. Precise evaluation strengthens the effectiveness of policies through accurate assessment of poverty alleviation work (Y. Gong & Tu, 2020; Y. Guo

et al., 2022; L. Li, 2018). The goal of the Targeted Poverty Alleviation is to ensure that genuinely impoverished households and individuals benefit from poverty alleviation efforts, thereby eliminating poverty under the current standards in China by 2020 (Davie et al., 2021a).

## **1.8 Shandong Province**

Shandong Province is a key economic region located on the Northeastern coast of China. Geographically positioned on the Eastern periphery of the North China Plain and along the lower reaches of the Yellow River, it borders the Bohai Sea to the north and the Yellow Sea to the South. Its strategic location offers a unique coastal interface with the Korean peninsula (Ministry of Commerce of China, 2007). The province has a substantial population of 101.65 million and covers an area of 157,100 square kilometers (Shandong Provincial Statistics Bureau, 2023a).

The economic indicators of Shandong Province are comparable to the national average in China. Shandong Province's GDP per capita in 2022 stood at 87,435 CNY, slightly surpassing the national average of 85,698 CNY (National Bureau of Statistics of China, 2023a; Shandong Provincial Statistics Bureau, 2023b). The per capita disposable income of urban residents in 2022 was 49,050 CNY, while the per capita consumption expenditure of urban residents was 28,555 CNY, both marginally below the national average in China

(Shandong Provincial Statistics Bureau, 2023b).

The industrial structure of Shandong Province closely aligns with that of China. In 2020, the shares of the tertiary, secondary, and primary industries in the GDP of Shandong Province were 53.6%, 39.1%, and 7.3%, respectively, while the corresponding figures for China were 54.5%, 37.8%, and 7.7% (National Bureau of Statistics of China, 2021a; Shandong Provincial Bureau of Statistics, 2021). The similarity in these distributions highlights Shandong's economic representativeness. Additionally, Shandong Province serves as a representative case of regional development disparities in China. The eastern coast cities in Shandong Province are more developed, while the western inland cities are relatively backward (H. Zhang et al., 2023). These regional disparities in Shandong Province mirror those of China (Q. Meng, 2017; J. Zhang & Li, 2021). Furthermore, Shandong is undergoing a critical transition from an old growth model to a new one, a period of economic restructuring that may exacerbate urban poverty (The State Council of China, 2022). This further reinforces its economic representativeness in China (Yan, 2018).

In terms of population demographics, according to the Seventh National Population Census (National Bureau of Statistics of China, 2021b), the average annual population growth rate from 2010 to 2020 was 0.53% nationwide, while in Shandong Province, it was 0.58%. The average household size in China was

2.62 people, compared to 2.70 in Shandong. The national gender distribution was 51.24% male and 48.76% female, with a total ratio of 105.07 males per 100 females, whereas Shandong's gender ratio was 102.67 (Shandong Provincial Statistics Bureau, 2021). Moreover, in terms of population structure, 17.95% of China's population was aged 0-14 years, 63.35% were 15-59 years old, and 18.70% were 60 years and above. In Shandong, these proportions were 18.78%, 60.32%, and 20.90%, respectively, indicating that the province had a slightly higher proportion of both children and elderly individuals compared to the national average (Shandong Provincial Statistics Bureau, 2021).

Among key social development indicators, Shandong's education level is slightly lower than the national average, with an average of 9.75 years of schooling for individuals aged 15 and above, compared to 9.91 years nationwide. The province's illiteracy rate (3.26%) is also marginally higher than the national average (2.67%) (National Bureau of Statistics of China, 2021b; Shandong Provincial Statistics Bureau, 2021). In the health sector, Shandong exhibited a higher density of practicing physicians in 2022, with 34.47 per 10,000 people, exceeding the national figure of 31.68. The availability of hospital beds per 1,000 people was comparable between Shandong (6.83) and the national level (6.92). Furthermore, the province had a greater number of general practitioners (3.51 per 10,000 people vs. 3.28 nationwide) and a lower under-five mortality rate (3.18‰ vs. 4.2‰ in urban China). However, the average life expectancy in

Shandong (78.18 years) was slightly below the national average (80.88 years) (Department of Planning, Development, and Informatization, 2023; Health commission of Shandong Province, 2023). In terms of living conditions, the per capita urban housing area in Shandong was 39.5 square meters in 2022, closely aligning with the national average of 38.6 square meters (based on the 2020 Census data), indicating similar levels of housing availability.

Moreover, in realm of poverty alleviation practices, Shandong Province has implemented various innovative policies, such as industrial-based poverty alleviation, tourism-driven poverty alleviation, e-commerce poverty alleviation, photovoltaic poverty alleviation, and asset-income-based poverty alleviation (Wu et al., 2021). These initiatives are part of China's Ten Targeted Poverty Alleviation Projects (Xinhua News Agency, 2015) and serve as valuable references for poverty alleviation efforts in other regions of China.

Overall, by analyzing the case of Shandong Province through a comprehensive examination of its economic development, industrial structure, regional disparities, demographics characteristics, and key social development indicators such as education, healthcare, and living standards, this study provides valuable insights and empirical references for China's national poverty alleviation policies.



## **1.9 Summary**

This chapter commences by introducing the research background, covering the urban poverty situation in China, the emergence of urban poverty, and its characteristics. It then discusses the research problems, stating that urban poverty in China is being neglected compared to rural poverty. Following this, the research objectives and questions are presented. The chapter also discusses the theoretical and practical significance of the research, highlighting its potential to refine existing poverty measurement methods, enhance research methodologies on poverty, improve targeting of urban poor households, establish new urban poverty standards, and inform future urban anti-poverty strategies. To ensure a comprehensive understanding, key terms such as “urban,” “rural,” and “Targeted Poverty Alleviation” are defined. Finally, this research introduced the study area, the Shandong Province of China.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter first discusses the concept of poverty by reviewing the evolution of the concept of poverty and examining the differences between absolute poverty, relative poverty, and multidimensional poverty. This chapter also evaluates various poverty measurement methods, with a particular focus on multidimensional approaches, aiming to enhance existing multidimensional poverty measurement frameworks. In addition, this chapter discusses the contributing factors of multidimensional poverty and formulates the research hypotheses. Finally, it establishes the conceptual framework for this research.

The databases used in this study were primarily from China National Knowledge Infrastructure, Elsevier, JSTOR, PubMed, Sage Journals, ScienceDirect, Scopus, Springer, and Web of Science. This research also referred to the documents and data from the Chinese government as well as international organizations such as the ADB, United Nations, World Bank, and World Health Organization (WHO). The literature referred to in this study mostly dates from 2015 onwards. Absolute poverty, relative poverty, multidimensional poverty, urban poverty, measurement of poverty, and

contributing factors of poverty were among the keywords searched.

## **2.2 Concept of Poverty**

Poverty is a dynamic and evolving concept. As stated by British scholar Oppenheim (1993), “Poverty itself is a vague concept; it is not certain, and it changes with time and space and people’s ideas.” The concept of poverty has evolved from absolute to relative, from unidimensional to multidimensional, and from income to capability (Ravallion, 2016b; Shen, 2022; Thorbecke, 2013).

### **2.2.1 Absolute Poverty**

Research on poverty was pioneered by the groundbreaking livelihood surveys conducted by Booth and Rowntree in the late 19th and early 20th centuries (Haughton & Khandker, 2009, p. xvii; Sen, 1983; Townsend, 1954, p. 130). Through his research conducted in the English city of York in 1899, Rowntree (1902, p. 10) defined poverty as “a level of total earnings insufficient to obtain the minimum necessities for the maintenance of ‘merely physical efficiency’ including food, clothing, fuel, rent, and household sundries.” To measure poverty, Rowntree developed a “shopping basket” of essential goods, designed to meet the basic requirements for physical well-being. The poverty line was calculated by determining the total cost of these items based on local market prices (Haughton & Khandker, 2009). Rowntree’s approach was

groundbreaking for its methodological rigor and emphasis on minimum living standards grounded in physical needs

While the shopping basket approach considers multiple dimensions of poverty, such as nutrition, living standards, and shelter, it is primarily structured to address basic needs and remains centered on income as the primary measure of poverty. This method calculates the cost of goods and services required to meet fundamental living needs—such as food, clothing, housing, healthcare, and education—and defines the poverty line as the minimum income necessary to fulfill these requirements (Hick, 2014; Niemietz, 2011; P. Saunders, 2018). However, many non-income dimensions of poverty, such as cultural factors and social dynamics, cannot be translated into monetary terms (Li & He, 2024; Townsend, 1979, p. 34). Consequently, the shopping basket approach risks oversimplifying poverty by focusing primarily on basic material needs, underscoring the necessity of more comprehensive frameworks that capture its multidimensional nature (Niemietz, 2011; P. Saunders, 2018).

The World Bank, using the shopping basket approach, has established three absolute poverty lines. The international poverty line of 2.15 USD per day was introduced to measure extreme poverty. This approach is most relevant for low-income countries. For higher-income countries, two elevated lines are more relevant for measuring poverty, specifically, 3.65 USD for lower-middle-

income countries and 6.85 USD for upper-middle-income countries (World Bank, 2022e). These poverty lines reflect the minimum expenditure required to meet basic living needs in each respective country (World Bank, 2022c).

### **2.2.2 Relative Poverty**

Despite the establishment of the post-war welfare state in the United Kingdom (UK), research conducted by Brian Abel-Smith and Peter Townsend between 1953 and 1954 revealed a significant level of poverty persisting throughout the 1950s. Their findings challenged the prevailing assumption that poverty had been eradicated in Britain following the introduction of social welfare programs (Gazeley et al., 2017; Townsend, 1979, p. 116). One reason for this shift was that views on poverty had changed. Poverty was no longer seen solely as a lack of basic necessities but rather as a comparison to the average standard of living in society (Gazeley et al., 2017; Glennerster, 2004; Niemietz, 2011).

Townsend (1979, p. 31) proposed the concept of relative deprivation and defined it as “lacking the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary or are at least widely encouraged or approved, in the societies to which they belong.” He contended that absolute poverty overlooks the social and cultural aspects of “human needs” (Y. Wang et al., 2024a). Townsend (1979, p. 250)

developed a deprivation index comprising sixty indicators that reflect various aspects of living conditions. He later streamlined these indicators into 12 key items, capturing the essential dimensions of dietary, household, familial, recreational, and social deprivation (Townsend, 1979, p. 250). Townsend's relative poverty measure offers a more comprehensive perspective on understanding poverty. It highlights the multidimensional nature of poverty and the influence of social contexts on its manifestation (Glennerster, 2004; Hick, 2014; Zhong & Lin, 2020).

In practice, relative poverty is generally measured by a certain proportion of the median or average income in a country (World Bank, 2024). For example, the EU set its poverty line at 60% of the national median equivalized disposable income (Eurostat, 2023). The UK set its poverty line at 60% of the median national equivalised disposable household income (Department for Work & Pensions, 2024). This method emphasizes the relative deprivation within a society, focusing on how individuals compare to others in terms of their economic standing.

### **2.2.3 Weakly Relative Poverty Measures**

According to Sen (1983, p. 161), poverty has an absolute core rooted in capabilities, even though it often manifests in a relative form when measured in terms of commodities or characteristics. A sharp decline in overall prosperity

could lead to phenomena such as starvation or hardship being overlooked by the view of poverty “as an issue of inequality” if the relative distribution of income remains unchanged (Sen, 1983, p. 157). For example, if all incomes in a society decrease proportionally, the relative poverty line (often defined as a percentage of median income) would also decrease, potentially resulting in the same poverty incidence. This characteristic contradicts the weak relativity axiom proposed by Ravallion and Chen (2011), which states that If all incomes increase (decrease) by the same proportion then an aggregate poverty measure must fall (rise).

To combine the advantages of both absolute and relative poverty, Ravallion and Chen (2011) proposed a weakly relative poverty measure. This approach introduces two poverty lines: the absolute poverty line and the weakly relative poverty line. It begins with a fixed absolute poverty line, typically based on the minimum income required to meet basic living needs, such as the World Bank’s IPL of 2.15 USD a day (Ravallion & Chen, 2011). Subsequently, a weakly relative poverty line is established, tailored to the specific conditions of each country. Unlike the traditional strongly relative poverty line, which sets the poverty line as a fixed proportion of average or median income—causing it to increase proportionally with overall economic growth—the weakly relative poverty line adjusts gradually over time, with its growth rate slower than that of the strongly relative poverty line (Klasen et al., 2016). Specifically, the

elasticity of the weakly relative poverty line to the median is less than 1 (Datt & Lanjouw, 2023). This addresses the limitation of relative poverty measures that fail to satisfy the weakly relative axiom (S. Chen & Ravallion, 2013; Ravallion & Chen, 2011).

The strength of this approach lies in its ability to integrate the features of both absolute and relative poverty measures. It ensures a basic standard of living while simultaneously acknowledging the influence of inequality and relative deprivation within society, while also avoiding an overemphasis on relative deprivation (Decerf, 2023; Ravallion & Chen, 2011). The weakness of this approach lies in the arbitrariness of calibrating the elasticity of the weakly relative poverty line, as the researchers did not provide a clear method for its definition. This lack of clarity could introduce researcher bias into the measurement process.

#### **2.2.4 Capability Approach**

Another breakthrough in poverty research began with the pioneering work of Amartya Sen, the Nobel Laureate in Economics. Sen (1985, Chapter 2) introduced the concept of capability and proposed the theoretical framework of Capability Approach. The Capability Approach comprises three fundamental concepts: functionings, capabilities, and resources (Burchi & De Muro, 2016; Robeyns, 2017, pp. 7–10; Verd & López Andreu, 2011). Functionings denote



the achievements that a person values, such as being well-nourished, having shelter, being able to receive education, and participating in community social activities (Robeyns, 2017, pp. 38–41; Verd & López Andreu, 2011). Capabilities refer to the ability or freedom that a person has to achieve certain functionings they value (Burchi & De Muro, 2016; Robeyns, 2017, pp. 38–41). In Sen’s framework, resources, such as income, goods, and commodities, serve merely as the means to well-being, not the ends (Robeyns, 2017, pp. 145–147). The resources are transformed into capability through “conversion factors,” which encompass three types: personal factors, such as physical condition, gender, and skills; social factors, such as public policies and social norms; and environmental factors, which emerge from the physical or built environment in which a person lives (Burchi & De Muro, 2016; Walker, 2019).

According to Sen (2000, p. 87), the cause of poverty is the deprivation of capability, not low income. Sen’s Capability Approach has significantly influenced the development of multidimensional poverty research. Building on this framework, the concept of multidimensional poverty gained traction during the Millennium Development Goals (MDGs) era. Many international organizations began incorporating it into their policies, recognizing that poverty extends beyond income deprivation. For instance, both the United Nations (1998) and the World Bank (2000) define poverty as a denial of choices and opportunities. According to them, poverty means not only a lack of food and

shelter, limited access to education and health care, and inadequate clean water and sanitation; it also means insecurity and powerlessness, exclusion from society and state institutions, and vulnerability to adverse events such as violence. Therefore, a monetary dimension alone is insufficient to measure poverty (United Nations, 1998; World Bank, 2000).

#### **2.2.4.1 Critiques and Adaptations of the Capability Approach**

The Capability Approach has received criticism from multiple perspectives. The most significant criticism focuses on its lack of specificity in defining the capabilities and their relative importance, making it difficult to operationalize and compare across contexts (Chiappero-Martinetti et al., 2020; D. A. Clark & Manchester, 2005; Cohen, 1990; Egdell & Robertson, 2021; Fleurbaey, 2006; Reddy & Pogge, 2010; Robeyns, 2017; Roemer, 1998). Several critics argue that Sen failed to provide a clear list of valuable capabilities within his framework, leaving uncertainty regarding which capabilities are essential and how they should be prioritized (M. Nussbaum, 1988; Qizilbash, 1998). Other scholars like Cohen (1990) have criticized the capability approach for not providing enough information about individual well-being, arguing that it should focus more on the actual outcomes or “functionings” rather than just capabilities. In response to these critiques, Sen (2005) argued that those are ethical and political decisions for the society itself to make.

To address these limitations, some researchers have extended Sen's theory by developing lists of basic capabilities. For instance, Nussbaum (2003, 2007, 2011, p 19), emphasizing individual human dignity, proposed a set of ten central capabilities, which include life, bodily health, bodily integrity, senses, imagination and thought, emotion, practical reason, affiliation, other species, play, and control over one's environment. However, these categories remain highly abstract, making them difficult to translate into practical policy actions (Prabhu, 2003; Robeyns, 2017).

Robeyns (2003) proposed a more down-to-earth list, with a focus on gender inequality, that includes life and physical health, mental well-being, bodily integrity and safety, social relations, political empowerment, education and knowledge, domestic work and non-market care, paid work and other projects, shelter and environment, mobility, leisure activities, time-autonomy, respect, and religion. It is important to note that these lists have been criticized for being developed within Western contexts and may not necessarily apply to other regional or cultural settings (Prabhu, 2003).

Another critique regarding the operationalization of the Capability Approach is that Sen did not assign relative weights to different capabilities, leaving their importance and prioritization undefined (Fleurbaey, 2006; Roemer, 1998). This lack of weighting can lead to discrepancies in well-being

assessments, as individuals may disagree on the relative importance of different capabilities (Egdell & Robertson, 2021; Qizilbash, 2011). Moreover, the value and significance of capabilities can vary significantly across different cultural and social contexts (Anderson, 2010; Cohen, 1990), further limiting the practical applicability and effectiveness of the approach (Beitz, 1986). In response, Sen (Sen, 2011, p. 104) advocated for maintaining flexibility and pluralism in evaluation. He argued that the ranking of capabilities should vary depending on the specific objectives being pursued (Sen, 2004). Furthermore, he emphasized the importance of democratic deliberation in determining the relative weights of different capabilities (Sen, 2005, 2011, p. 241).

Some researchers argued that the capability approach is too individualistic and neglects the role of social and political structures in shaping people's capabilities, did not consider the issues of distribution, inequality, and political freedoms, which are also important for well-being and development (Chiappero-Martinetti et al., 2020; Fraser, 1995, 2001; M. Nussbaum, 2003). Beyond concerns about individualism, scholars such as Crocker (2008), Nussbaum (2013), Robeyns (2005b), and Sugden (2006), have raised concerns about the potential for paternalism in the capability approach. They argue that this approach allows policymakers to decide which capabilities are most important, which may lead to restrictions on individual freedom and limitations on personal autonomy.

Despite these limitations, the Capability Approach represents a significant advancement over the narrow definitions of poverty used in the past (Ballet, 2023; Bartolomei et al., 2024). It emphasized that the focus should be on what individuals are able to do (their capabilities) rather than merely on the resources they have (Dang, 2014; Robeyns, 2017; Wells, 2012). The Capability Approach highlights the essential role of individual freedom and agency in shaping personal well-being, which closely aligns with the core values of the human development approach articulated by the UNDP (1990). According to the UNDP (1990), the core values of human development include a focus on people, opportunities, and choices. Likewise, the Capability Approach centers on individual freedoms and choices, reinforcing its alignment with the foundational principles of human development (Deneulin, 2009; Fukuda-Parr & Cid-Martinez, 2019; Nussbaum, 2013; Stewart, 2013).

From an operational perspective, while the Capability Approach may lack specificity in defining valuable capabilities and their relative importance, it also provides considerable flexibility, enabling it to adapt to various cultural and social contexts (Burchardt & Hick, 2016; D. A. Clark & Manchester, 2005). This strength enables the approach to incorporate local values and preferences when assessing well-being, making it well-suited for developing a framework to investigate welfare conditions across different regions (Dang, 2014; Egdell & Robertson, 2021; Robeyns, 2003, 2017; White et al., 2016). Building on the

operational flexibility of the Capability Approach, the UNDP (1990, 2010) has developed two frameworks to assess global poverty and well-being: the HDI and the MPI. The HDI encompasses three key dimensions: a long and healthy life, access to knowledge, and a decent standard of living (UNDP, 1990). In contrast, the MPI measures poverty across three dimensions—health, education, and standard of living—utilizing ten specific indicators within these categories (UNDP, 2010).

#### **2.2.5 Multidimensional Poverty**

Poverty is a complex and multifaceted phenomenon that extends beyond monetary deprivation (Alkire et al., 2015, p. 201; United Nations, 1998; UNDP & OPHI, 2019; World Bank, 2000). Traditional poverty measures, particularly those focusing on absolute poverty, primarily assess income or expenditure to determine deprivation levels (Alkire et al., 2015, p. 128; Alkire & Foster, 2011b). However, poverty also encompasses non-monetary dimensions, including social exclusion, vulnerability, human rights, etc., which are not adequately captured by income-based metrics (Klasen, 2000; P. Saunders, 2018). Multidimensional poverty measures integrate a broader set of indicators to provide a more comprehensive understanding of poverty and its various manifestations (Hasell et al., 2024; UNDP & OPHI, 2019).

Inspired by Sen's Capability Approach, which emphasizes human freedoms and opportunities, the UNDP introduced several multidimensional human well-being indices, including the HDI and the MPI (UNDP, 2015; UNDP & OPHI, 2019). The HDI measures human well-being across three key dimensions: a long and healthy life, knowledge, and a decent standard of living (UNDP, 2010). Building upon the HDI's framework, the UNDP, in collaboration with the OPHI, launched the Global MPI in 2010. The MPI goes beyond income poverty to capture deprivations across ten key indicators within three dimensions: health, education, and living standards. The MPI provides a more nuanced understanding of poverty by identifying and weighing multiple deprivations faced by individuals and households in over 100 countries worldwide (Alkire & Santos, 2010).

The concept of multidimensional poverty is frequently employed in developing countries to tackle the challenges of measuring poverty at the bottom. Latin American countries, including Brazil, Chile, Colombia, El Salvador, and Mexico, as well as Southeast Asian nations, including Vietnam and Malaysia, have published official MPIs. In contrast, relative poverty is more commonly used in developed countries where absolute poverty has largely been addressed, and poverty measurement is mainly focused on monitoring social inequality (Ravallion, 2010). Both the EU and the UK have employed relative poverty lines as their official benchmarks. Although China has eliminated

extreme poverty under the World Bank’s poverty line of 2.15 USD a day, many individuals still lack access to basic capabilities such as clean drinking water and cooking fuel, and continue to struggle with poor living standards (State Council Information Office of China, 2021; World Bank, 2023b). Therefore, this research employs a multidimensional approach to measure urban poverty in China. The concepts of poverty are summarized and presented in Table 2.1.

**Table 2.1**

*Concepts and Classification of Poverty*

Classification	Concept	Characteristics	Example
Absolute Poverty	To maintain the minimum or subsistence level of living (P. Saunders, 2018).	Absolute poverty is commonly used in underdeveloped or developing countries (Ravallion, 2010).	The World Bank’s (2023) poverty line is 2.15 USD a day.
Relative Poverty	Relative Poverty is defined in comparison with the average living standards of society (Gazeley et al., 2017).	Relative poverty is measured by a certain income ratio (World Bank, 2024). It is more commonly used in developed countries (Ravallion, 2010).	The EU set its poverty line at 60% of the national median equivalized disposable income (Eurostat, 2023)
Multidimensional Poverty	Multidimensional poverty attributes poverty to the deprivation of capability (Sen, 2000, p. 87).	Multidimensional poverty measures poverty across multiple dimensions, such as health, education, and a basic standard of living (UNDP, 2019).	The UNDP (2010) introduced the Global MPI in 2010.



## **2.3 Theoretical Perspectives on the Root Causes of Poverty**

The root causes of poverty are generally categorized into three categories: behavioral, structural, and political (Addae-Korankye, 2014; Brady, 2019; Calnitsky, 2018; Spicker, 2014).

The behavioral perspective posits that poverty arises from individual behaviors and decisions, encompassing both individualistic and cultural explanations (Brady, 2019). The individualistic explanation asserts that poverty is caused by the personal shortcomings of poor individuals, such as lacking skills or moral or physical inadequacies (Cano, 2019). The cultural explanation posits that poverty stems from the cultural norms, values, and behavioral patterns shared within specific communities or demographic groups (Sameti et al., 2012). These norms and values, such as low regard for education, pessimistic attitudes toward life, and poor financial habits, can lead to the intergenerational transmission of poverty (M. Bell et al., 2015; McDermott & Vossoughi, 2020; Small et al., 2010). Nevertheless, critics argue that the culture of poverty harbors negative biases against the poor, leading to stigmatization and reflecting a blaming-the-victim approach (Addae-Korankye, 2019; M. Bell et al., 2015; Seale, 2020).

Structural explanations attribute poverty to broader social and economic structures, such as social inequality, inadequate public services, limited

opportunities, and discrimination, rather than attributing it to individuals (Brady, 2019). The structural causes of poverty primarily originate from structural functionalism and conflict theory, two classic sociological approaches (Barkan, 2020; W. Zhang, 2023). Conflict theory asserts that poverty stems from the inequality and conflict inherent in social structures, including factors like unequal distribution of resources, class conflict, and labor exploitation. (W. Zhang, 2023). Structural functionalism posits that all aspects of society, including poverty, play essential roles in societal functions, such as promoting social stability, maintaining order, facilitating cooperation among individuals and groups (Barkan, 2020; W. Zhang, 2023). Structural functionalism has faced criticism for its tendency to overlook social conflicts and changes while placing excessive emphasis on social stability and consensus, which may lead to the perpetuation of existing power structures and inequalities, inhibiting efforts to address social problems (Kitchen, 2016).

Based on conflict theory, perspectives such as class-based explanations and social exclusion theory have emerged (Spicker, 2014; W. Zhang, 2023). Class-based explanation, rooted in Marxism, asserts that poverty stems from the unequal ownership of the means of production in capitalism (Özgün, 2022). Social exclusion describes a situation where individuals or groups are systematically marginalized or prevented from participating in normal societal activities, including social, cultural, economic, and political activities (Özgün,

2022; Sameti et al., 2012). This highlights the importance of social factors in the causes of poverty. Social dynamics, such as discrimination, unequal power distribution, and cultural marginalization, which may lead to poverty. In turn, poverty further reinforces social exclusion, creating a self-perpetuating cycle (Byrne, 2008; Gallie et al., 2003; García & Sánchez, 2017; Silver, 2010).

The advantage of the social exclusion theory lies in its multidimensional nature, encompassing social, cultural, economic, and political dimensions. The criticisms of social exclusion primarily include its oversimplification of the complexity of poverty, as it fails to consider factors such as individual choices, cultural norms, and macroeconomic conditions. Additionally, it overlooks the agency, resilience, and motivations of the poor, portraying them as passive victims (Adam & Potvin, 2017; Arthurson & Jacobs, 2004).

Political explanations attribute poverty to power dynamics, policies, and institutional structures (Brady, 2019, 2023; Olsen, 2021). Political explanations assert poverty results from an uneven distribution of resources rather than scarcity (Rylko-Bauer & Farmer, 2017). The key distinction between structural and political explanations lies in their emphasis: structural explanations highlight demographic and labor market contexts, while political explanations center on policies, power, and institutions (Brady, 2023).

Both behavioral and structural explanations have their strengths and weaknesses. While behavioral explanations tend to “blame the victims,” structural explanations attribute responsibility to society (Addae-Korankye, 2019; Barkan, 2020; Brady, 2019; Panday, 2020; Sarlo, 2019). Neither approach should be entirely dismissed (Calnitsky, 2018; Sameti et al., 2012). The Sen’s capability approach utilized in this research incorporates both behavioral and structural explanations of poverty. Within the framework of the capability approach, social factors influence the process of converting resources to functionings and the act of choice to achieve functionings through capabilities (Robeyns, 2017). Furthermore, the capability approach emphasizes the crucial role of individual agency, which refers to the ability to make choices based on one’s own values and preferences (Burchi & De Muro, 2016; Verd & López Andreu, 2011; Walker, 2019). Therefore, the capability approach provides a comprehensive perspective on poverty, encompassing both individualistic and structural explanations of the causes of poverty.

## **2.4 Measurement of Multidimensional Poverty**

The measurement of poverty is the basis for developing effective anti-poverty policies (Gibson, 2016; Mueller, 2021). Both absolute poverty and relative poverty are generally measured using monetary indicators such as income and expenditure. However, poverty is a complex and multifaceted

concept; it cannot be measured from a monetary dimension alone (United Nations, 1998; World Bank, 2000). Multidimensional poverty measures help better target urban poor households by providing an understanding of the varied challenges faced by the urban poor as well as enabling policymakers to design targeted policies that address the specific needs of different groups (Alkire & Santos, 2010; Seth & Alkire, 2017). Therefore, this research selects multidimensional methods to measure poverty.

Along the path of Sen's capacity approach, numerous researchers have developed various poverty measures, including the Fuzzy Set method proposed by Cerioli and Zani (1990), the Totally Fuzzy and Relative method introduced by Cheli and Lemmi (1995), the Foster–Greer–Thorbecke approach put forward by Foster et al. (1984), and the Dual Cutoff method devised by Alkire and Foster (2011). The strengths and weaknesses of these methods are explained in the following paragraphs.

#### **2.4.1 Foster-Greer-Thorbecke Approach**

The Foster-Greer-Thorbecke (FGT) class of poverty measures was introduced by Foster, Greer, and Thorbecke (1984), building on the Poverty Gap Index developed by Sen (1976). The FGT approach framework comprises three primary indices: Headcount Ratio ( $FGT_0$ ), which measures the proportion of the population living below the poverty line. It is calculated as:

$$FGT_0 = \frac{H}{N}$$

where  $H$  represents the number of poor individuals, and  $N$  denotes the total population. The Poverty Gap ( $FGT_1$ ) captures the average shortfall of the incomes of the poor from the poverty line. It is calculated as

$$FGT_1 = \frac{1}{N} \sum_{i=1}^H \left( \frac{z - y_i}{z} \right)$$

In the equation,  $z$  represents the poverty line, and  $y_i$  denotes the income of the  $i$ -th poor individual. Squared Poverty Gap ( $FGT_2$ ) emphasizes inequality among the poor by assigning greater weights to individuals with larger shortfalls through squaring the gaps. Its equation is:

$$FGT_2 = \frac{1}{N} \sum_{i=1}^H \left( \frac{z - y_i}{z} \right)^2$$

where  $\alpha$  is a parameter that determines the sensitivity of the index to poverty. When  $\alpha = 0$ , the index becomes the headcount ratio ( $FGT_0$ ). When  $\alpha = 1$ , it becomes the poverty gap index ( $FGT_1$ ). When  $\alpha = 2$ , it becomes the squared poverty gap index ( $FGT_2$ ). These measures provide a comprehensive understanding of poverty by considering not only the incidence of poverty but also the intensity and inequality among the poor (Foster et al., 2010).

The FGT measures exhibit desirable mathematical properties, such as decomposability—allowing poverty to be analyzed at subgroup levels—and

comparability — enabling meaningful cross-regional and temporal analyses. These features make the FGT framework a valuable tool for policymaking and performance evaluation. However, the FGT measures are unidimensional, relying on shortfalls in a single variable (e.g., income or consumption) to reflect poverty and thus failing to capture the multidimensional nature of poverty comprehensively (Foster et al., 2010, p. 22). To address these limitations, the Dual Cutoff method extends the FGT framework by incorporating multiple dimensions of poverty, offering a more comprehensive understanding of poverty and guiding targeted interventions across diverse aspects of deprivation (Alkire & Foster, 2011a).

#### **2.4.2 Fuzzy Set Method**

To address the subjectivity in establishing a single poverty threshold, Cerioli and Zani (1990) introduced the Fuzzy Set method. This approach views poverty as a matter of degree rather than a binary categorization into poor and non-poor groups (Pratesi, 2016). In this framework, each individual is assigned a membership function  $\mu_i$  that quantifies their degree of poverty. The membership function is defined as:

$$\mu_i = (1 - F_x(x_i))^{\alpha-1}$$

Here,  $F_x(x_i)$  represents the cumulative distribution function of income,  $x_i$  is the income of individual  $i$ , and  $\alpha$  is a parameter that adjusts the sensitivity of the measure to income disparities (Cerioli & Zani, 1990).

This methodology employs both an upper and a lower poverty threshold, with an individual's degree of poverty determined by their distance from the upper poverty line. This approach acknowledges that poverty is not a dichotomous condition but exists along a spectrum, allowing for a more precise assessment of an individual's deprivation level (Cerioli & Zani, 1990). However, the Fuzzy Set Approach has been critiqued for its inherent subjectivity in determining the two poverty thresholds. Alkire et al. (2015, pp. 108–109) highlight that the selection of these thresholds can significantly influence poverty measurements, introducing a degree of subjectivity into the process. Similarly, Betti and Verma, (2008) discuss the challenges associated with setting these thresholds, noting that different choices can lead to varying assessments of poverty. This subjectivity underscores the need for a transparent and methodologically sound approach to defining poverty thresholds to ensure the reliability and validity of poverty measurements.

#### **2.4.3 Totally Fuzzy and Relative Method**

The Totally Fuzzy and Relative (TFR) method, developed by Cheli and Lemmi (1995), extends the Fuzzy Set approach by incorporating relative



deprivation across multiple dimensions. This method evaluates the cumulative distribution function of each dimension to determine the degree of relative deprivation (Q. Li & Xu, 2019; Pratesi, 2016). The TFR index for individual  $i$  is calculated as:

$$I_i = \prod_{j=1}^m \left(1 - F_{x_j}(x_{ij})\right)^{\alpha_j}$$

In this equation,  $m$  denotes the number of dimensions,  $F_{x_j}(x_{ij})$  is the cumulative distribution function for dimension  $j$  and individual  $i$ ,  $x_{ij}$  is the achievement of individual  $i$  in dimension  $j$ , and  $\alpha_j$  is a weight assigned to dimension  $j$ .

However, this approach still entails a degree of subjectivity. A key limitation of the TFR method is that it still involves a certain degree of subjectivity. When applying this approach, researchers must choose the type of membership function (e.g., triangular, trapezoidal, Gaussian, etc.), a decision largely influenced by their expertise and interpretation of the data. Since different functional forms can produce varying poverty assessment outcomes, this introduces an element of variability into the measurement process (Batista & Romero, 2013; Betti et al., 2020; Janková & Rakovská, 2022; Porebski, 2022; Sadollah, 2018).

Another limitation of the TFR method is its inability to assess absolute poverty. In measuring deprivation within dimensions, it replaces fixed thresholds with membership functions. While the use of membership functions helps avoid the dichotomy in defining deprivation status, they can only capture an individual's relative status within a given population, making it difficult to provide a clear assessment of absolute poverty levels (Alkire & Foster, 2011a; Fang & Zou, 2012). Due to this limitation, the TFR method can only be disaggregated by dimensions or indicators and not by population subgroups, as it reflects an individual's relative deprivation in comparison to other members within the same group. Without a common benchmark, directly comparing the TFR indices of two different subgroups may lead to misleading conclusions (Filippone et al., 2001). This limitation reduces the effectiveness of the TFR approach in guiding anti-poverty policies aimed at specific population groups.

#### **2.4.4 Dual Cutoff Method**

The Dual Cutoff Method was proposed by Alkire and Foster (2011). This method encompasses five variables to measure poverty: dimensions, indicators, deprivation threshold, poverty threshold, and weights. The deprivation threshold identifies household poverty within each indicator, while the poverty threshold determines the minimum deprivation score required for a household to be considered poor (Alkire et al., 2015, p. 100).

The Dual Cutoff method has several advantages. It is highly flexible and can be adapted to diverse local contexts and customs (Alkire & Foster, 2011b; Glassman, 2021; Ismail et al., 2022; Shi et al., 2022). Moreover, it measures not only the incidence of poverty but also the intensity of poverty (Alkire & Foster, 2011a). Furthermore, it can be disaggregated by poverty dimensions or population subgroups, allowing for the identification of each factor's contribution to overall poverty (Alkire & Foster, 2011a; C. Wang et al., 2021). Therefore, this research chose to utilize the Dual Cutoff method.

The UNDP adopted the Dual Cutoff method and introduced the Global MPI in 2010 to measure multidimensional poverty worldwide. The index encompasses three dimensions: health, education, and standard of living. Each dimension comprises a set of indicators, with specific deprivation thresholds set for the indicators. Equal weights are assigned to each dimension, and the weights between indicators within each dimension are also equal. The poverty threshold was established at  $1/3$ , which is equivalent to the deprivation of one dimension (Diaz-Bonilla et al., 2023; UNDP & OPHI, 2019).

While the Dual Cutoff method offers several advantages, it is also subject to certain controversies in several areas, including the selection of dimensions and indicators, the assignment of weights, the determination of deprivation thresholds, and the establishment of poverty thresholds (Nájera

Catalán & Gordon, 2020; Ravallion, 2011). Nonetheless, normative choices in multidimensional poverty measurement are nearly inevitable, as the construction of a composite poverty index inherently involves some level of value judgment (Alkire et al., 2015, Chapter 6; Betti et al., 2020).

## **2.5 Normative Choices in Multidimensional Poverty Measurement**

Multidimensional poverty measurement inherently involves value judgments (Alkire et al., 2015, Chapter 6; Betti et al., 2020). These normative choices primarily arise in the selection of dimensions and indicators, the assignment of weights, and the determination of thresholds (Alkire et al., 2015, Chapter 6; Alkire & Kanagaratnam, 2021). To enhance the rigor in constructing a multidimensional poverty index, common approaches include expert assessment, empirical evaluation, public participation, theoretical analysis, and policy relevance (Alkire et al., 2015, Chapter 6).

### **2.5.1 Normative Choices in Dimensions and Indicators**

According to Alkire et al. (2015, Chapter 6), and Betti et al. (2020), value judgments in selecting the dimensions and indicators are unavoidable. When selecting dimensions and indicators, scholars and policymakers should take a comprehensive approach, considering multiple factors, including policy objectives, relevant literature, theoretical arguments, and international or

regional examples. (UNDP & OPHI, 2019, p. 58).

In selecting dimensions and indicators, many researchers have simply replicated the Global MPI with minor adjustments, often without considering regional variations (Alkire & Santos, 2014; Cheng et al., 2024; Najitama et al., 2020). Some have removed certain dimensions or indicators from the MPI framework (Artha & Dartanto, 2018; J. Guo et al., 2022; Jiao, 2020; Tran et al., 2022; C. Wang et al., 2021), while others have introduced new dimensions to it (X. Guo & Zhou, 2016; Roelen, 2017; Tang et al., 2022; Q. Zhang & Zhou, 2015; Z. Zhang et al., 2021). Scholars remain divided on the appropriate list of dimensions and indicators (Delamonica et al., 2021; Seth, 2015).

However, there is still a degree of consensus on the selection of the dimensions. Almost all scholars and official national MPIs align with the guidelines of the UN's Human Development Index (HDI) and the Global MPI, adopting the three basic dimensions of health, education, and standard of living to measure poverty (Cheng et al., 2024; Santos, 2019; UNDP & OPHI, 2019).

Based on the three core dimensions of health, education, and standard of living, some scholars and countries, such as Chile, have incorporated social dimensions, including social participation and social networks, into their MPI frameworks (Beccaria et al., 2020; Dirksen, 2020; Ministerio de Desarrollo Social y Familia, 2023; Santos, 2019; Santos & Villatoro, 2018). One of the

reasons is that social exclusion is recognized as a key driver of poverty. Social exclusion refers to the systematic marginalization of individuals or groups, preventing them from fully participating in social, cultural, economic, and political activities, thereby hindering their development (Özgün, 2022; Sameti et al., 2012). According to Sen's (2000b, pp. 12–14) Capability Approach, social participation and networks have both instrumental significance and intrinsic importance. They not only create economic opportunities, enhancing other capabilities such as education, employment, and health, but are also valuable functionings in themselves. The ability to be included in society is fundamental to well-being. Consequently, many scholars and governments have integrated social dimensions to more comprehensively capture multidimensional poverty (S. M. Chan & Wong, 2020, 2024; M. Liu et al., 2023; Ministerio de Desarrollo Social y Familia, 2023; Suppa, 2018, 2021).

Several countries, including South Africa, Ecuador, Colombia, and Chile, have incorporated informal employment or unemployment as an indicator in their official MPI frameworks (Alkire et al., 2017; Ministerio de Desarrollo Social y Familia, 2023; Santos & Villatoro, 2018; Statistics South Africa, 2014). Employment serves as the primary source of income for urban residents, and unemployment often leads to a significant decrease in income (International Labour Organization [ILO], 2024; World Bank, 2012). However, according to Sen's (2000, pp. 94–96) Capability Approach, employment is not

merely a source of income but an essential aspect of human well-being and freedom; unemployment not only reduces personal income but also damages individuals' well-being, affecting their health, dignity, self-esteem, and social participation (Duong & Pham, 2023; ILO, 2016; Santos & Villatoro, 2018; Suppa, 2018). This theoretical perspective is the key reason why many scholars and governments have incorporated employment into their MPI frameworks.

Additionally, some countries, such as Malaysia and Mexico, have incorporated monetary dimensions, including income and expenditure, into their official MPI (Beccaria et al., 2020). Regarding the monetary dimension, there has been ongoing debate about whether it should be included as an indicator in the MPI. Sen (2000, pp. 19–20) argues that poverty is a deprivation of capabilities rather than a lack of income; income is merely a means to achieve capabilities. Many multidimensional poverty indices follow Sen's guidelines and exclude it from their indices, such as the UNDP's Global MPI. However, Sen's Capability Approach contains three important concepts: resources, capabilities, and functionings. Income, along with goods and commodities, is considered an important means of acquiring valuable resources (Ibrahim & Tiwari, 2014; Robeyns, 2017, p. 128). Therefore, some international organizations and governments, such as the World Bank (2018), Malaysia (Ministry of Economy of Malaysia, 2018), and Mexico (CONEVAL, 2023), included income as a dimension in measuring poverty.

Furthermore, some countries have incorporated Internet access into their official MPI frameworks. For instance, Costa Rica, Thailand, and Panama now include internet connectivity in their MPI calculations (Santos, 2019; UNDP&OPHI, 2019). One of the rationales behind this is that the Internet is a core tool for acquiring knowledge, public services, and market access in modern society. It plays a crucial role in enhancing individual capabilities (Bahr et al., 2025; United Nations, 2023c; World Bank, 2017b). This aligns with the United Nations's SDG 9, which calls for a significant expansion of information and communication technology access as one of the targets to be achieved by 2030.

Some countries have also considered waste disposal in their MPI frameworks (Banco Central de Reserva, El Salvador, 2023; Ministerio de Desarrollo Social y Familia, 2023; Ministerio de Economía y Finanzas, 2017). For instance, El Salvador, and Panama include access to garbage disposal services as an indicator of multidimensional poverty, as this factor directly impacts people's health and standard of living. Waste treatment is closely related to environmental sustainability (Abubakar et al., 2022; Evode et al., 2021; Farooqi et al., 2021). Environmental factors play a crucial role as conversion factors in Sen's Capability Approach, influencing an individual's ability to transform resources into functionings (Robeyns, 2003, 2005b). Improving environmental quality is essential for addressing the vulnerabilities of certain impoverished households and fostering sustainable pathways out of poverty



(Zulkifli & Abidin, 2023).

Regarding the rigor of dimension and indicator selection in this study, the MPI framework is primarily based on Sen's Capability Approach and draws heavily from the Global MPI developed by the UNDP. It also references the official MPIs of middle-income countries with development levels comparable to China, such as Chile, Colombia, Malaysia, and Mexico, while incorporating elements of the United Nations' Sustainable Development Goals (SDGs) and the specific conditions of Shandong Province. Additionally, research objectives and data availability were taken into account. To measure urban poverty in Shandong Province, this study adopts four key dimensions: income and employment, education, health, and standard of living. While the social dimension is widely recognized in academic research and government practices, it was excluded due to data unavailability (Chan & Wong, 2020, 2024; M. Liu et al., 2023; Ministerio de Desarrollo Social y Familia, 2023; Suppa, 2018, 2021). To enhance the robustness of the MPI framework, this research employed Spearman's and Kendall's rank correlation test to assess the stability of the poverty measurement method (Alkire & Fang, 2019; Alkire & Santos, 2010, 2014; UNDP & OPHI, 2019).

### **2.5.2 Normative Choices in Weighting Schemes**

Weight allocation plays a crucial role in assessing multidimensional poverty, as it determines the relative importance of various dimensions or indicators. However, the existing literature lacks a consensus on the optimal method for assigning these weights (Chowdhury & Squire, 2006; Decancq et al., 2013). Broadly, there are mainly three approaches to set weighting schemes: data-driven, normative, and hybrid (Decancq et al., 2013; Nájera Catalán, 2019).

Data-driven approaches include the frequency-based approach, statistical approach, and most favorable approach. These methods rely on data analysis rather than value judgments to determine weights, ensuring absolute objectivity and minimizing the influence of decision-makers subjective biases (Alkire & Fang, 2019; Decancq et al., 2013; Decancq & Lugo, 2013). However, these approaches also have certain limitations. They rely solely on the information contained within the data, without incorporating domain-specific knowledge or expert insights, which in some cases may result in weight assignments that are misaligned with real-world contexts. Moreover, they require high-quality data to function effectively (Alkire & Fang, 2019; Belhadj, 2012; Decancq et al., 2013). Additionally, data-driven methods depend on historical data for weight assignment. However, such data often suffer from a certain degree of lag, making it difficult to reflect the most up-to-date realities.

Relying purely on statistical techniques to select the dimensions, indicators, and weights of an MPI can also lead to comparability issues over time (Santos, 2019). Therefore, any weight scheme selection based on data-driven approaches should undergo normative validation, be transparent, and gain a certain level of consensus and support (Santos, 2019).

Normative approaches are based on value judgments on the trade between the indicators (Alkire & Fang, 2019). There is wider recognition that value judgments in weighting schemes cannot be avoided (Alkire & Fang, 2019; Decancq et al., 2013). Normative approaches mainly include equal or arbitrary, expert opinion, and price-based approaches (Decancq & Lugo, 2013). Unlike data-driven methods, normative approaches explicitly incorporate value judgments into the weighting process, making it more transparent and accessible for public scrutiny and discussion (Alkire et al., 2015, Chapter 6). Weights can be assigned based on theoretical frameworks, such as Sen's Capability Approach, or normative considerations, making them easier to interpret and justify (Alkire et al., 2015, Chapter 6). Additionally, by incorporating expert opinions and stakeholder consultations, normative approaches better capture collective societal values and priorities within specific cultural and social contexts. They also impose fewer data quality constraints compared to data-driven methods (Belhadj, 2012; Decancq et al., 2013).

More importantly, normative weighting can be tailored to align directly with policy objectives, ensuring that the constructed index serves specific development goals, such as poverty alleviation or educational improvements. However, a key limitation of normative approaches is their inherent subjectivity—if the decision-making process lacks rigor, personal biases or vested interests may distort weight assignments, leading to inconsistencies and potential misrepresentation (Alkire & Fang, 2019).

The majority of existing MPIs adopt normative weighting (Alkire & Fang, 2019; Chi et al., 2022; X. Guo & Zhou, 2016; G. Li et al., 2019; Lo, 2019; F. Meng et al., 2024; Ministry of Economy of Malaysia, 2018; UNDP, 2010; Q. Zhang & Zhou, 2015; Z. Zhang et al., 2021). Given this study’s objective of providing policy-relevant recommendations for poverty alleviation, a normative weighting approach was also employed. To strengthen the robustness of the weighting scheme, several evaluation techniques were introduced, including Spearman’s and Kendall’s rank correlation test, as well as sensitivity analysis, to assess the validity and reliability of the weight assignments (Alkire & Foster, 2011b; Guo & Zhou, 2016; UNDP & OPHI, 2019).

### **2.5.3 Normative Choices in Deprivation Thresholds**

In the context of MPI frameworks, two primary thresholds are typically defined. The deprivation threshold determines whether a household is

considered deprived in a specific indicator, while the poverty threshold establishes the minimum degree of deprivation a person must experience to be classified as multidimensionally poor (Alkire et al., 2015, p. 100; Alkire & Foster, 2011a, 2011b).

Regarding the selection of deprivation thresholds, there is no universally accepted standard among national institutions and scholars. According to the UNDP and OPHI (2019), setting deprivation cutoffs is a normative exercise; decisions can be guided by international or national standards, consultative processes, government policy targets, or regional contexts. Some studies determine thresholds through expert consultation, often tailoring them to specific policy objectives or national circumstances (Beccaria et al., 2020). Others rely more heavily on international benchmarks such as the HDI and SDGs, or on official national standards, which offer greater comparability across time and regions (Alkire & Fang, 2019; Chi et al., 2022; X. Guo & Zhou, 2016; G. Li et al., 2019; Meng et al., 2024; Q. Zhang & Zhou, 2015; Z. Zhang et al., 2021).

When setting deprivation thresholds, researchers should consider regional cultural norms and prevailing living standards in the study area, in addition to referencing international standards (Fang & Zhou, 2021). This study set the deprivation thresholds by referencing international standards, such as the

UNDP's Global MPI and the United Nations' SDGs, while also taking into account the specific conditions of Shandong Province. For example, for the housing area indicator, this study draws on regulations from major cities across China and Shandong Province, setting the threshold at a per capita household living area of less than 15 square meters (Fu, 2011). For the income indicator, to avoid potential biases from local government policies, which are often influenced by budgetary priorities, this study adopted the World Bank's upper-middle-income poverty line. To better align with the conditions in Shandong Province, the study converted this standard into CNY using purchasing power parity. Data availability was also considered.

To assess the robustness of the deprivation threshold setting, this study conducted a sensitivity analysis based on the methodology proposed by UNDP and OPHI (2019). This research set several alternative deprivation thresholds for the indicators and compared the multidimensional poverty measurement results. If the results do not show significant variation, this would indicate the robustness of the threshold settings (UNDP & OPHI, 2019).

#### **2.5.4 Normative Choices in Poverty Thresholds**

There is a lack of consensus in academia regarding the setting of multidimensional poverty thresholds (Beccaria & Fernandez, 2019). Two extreme approaches to threshold setting exist: the union and intersection

approaches (Alkire et al., 2015, pp. 152–154; Atkinson, 2003). The union approach classifies a household as multidimensionally poor if it is deprived in at least one indicator, whereas the intersection approach requires deprivation in all indicators simultaneously for a household to be considered multidimensionally poor. Most researchers set the poverty threshold somewhere between these two extremes. Many researchers replicated the setting of UNDP's Global MPI, adopting 1/3 or 33.33% as the poverty threshold (Alkire & Fang, 2019; Chi et al., 2022; X. Guo & Zhou, 2016; G. Li et al., 2019; F. Meng et al., 2024; Q. Zhang & Zhou, 2015; Z. Zhang et al., 2021). However, this approach is often criticized for not accurately reflecting the contexts of the study areas (Alkire & Fang, 2019; Evans et al., 2024; Ravallion, 2011; Robson et al., 2022; Tuñón & Poy, 2017).

To identify the appropriate poverty threshold, this study follows the guidelines outlined by Alkire et al. (2015, pp. 235–238), Alkire and Santos (2014), UNDP, and OPHI (2019), adopting a comprehensive approach to determine the poverty threshold. This approach involves consideration of methodological robustness, poverty coverage, policy relevance, and international comparability.

This research begins by assessing multidimensional urban poverty in Shandong Province across a range of poverty thresholds, from 0.1 to 0.8. Based

on the stability of the three core metrics: Headcount Ratio ( $H$ , reflecting poverty incidence), Average Deprivation Intensity ( $A$ , indicating poverty intensity), and adjusted Headcount Ratio ( $M_0$ , combining  $H$  and  $A$ ), an appropriate range was selected that effectively balances the coverage of both poverty incidence and intensity (UNDP & OPHI, 2019, p.79). Subsequently, an appropriate poverty threshold was selected aligning with the research objectives, the need for policy recommendations, and the need for international comparability.

To assess the robustness of the chosen poverty threshold, this study follows the guidelines of UNDP and OPHI (2019, p. 97) and employs Spearman's and Kendall's rank correlation tests across different  $k$  values. Respondents are categorized into 44 subgroups based on their county ID, and the  $H$ ,  $A$ , and  $M_0$  are calculated for each subgroup. Counties are then ranked by  $M_0$  for each  $k$  value. Finally, pairwise rank correlations are computed to evaluate the consistency of rankings across thresholds.

Although researchers like Sen argue that making selections and discriminations when applying the Capability Approach to define functionings and capabilities is "nothing to be ashamed of" (Sen, 1992, p. 44), some scholars have questioned this, arguing that this process lacks scientific rigor (Decancq et al., 2013; Nájera Catalán & Gordon, 2020; Ravallion, 2011). They contend that multidimensional poverty indices often prioritize value judgments when

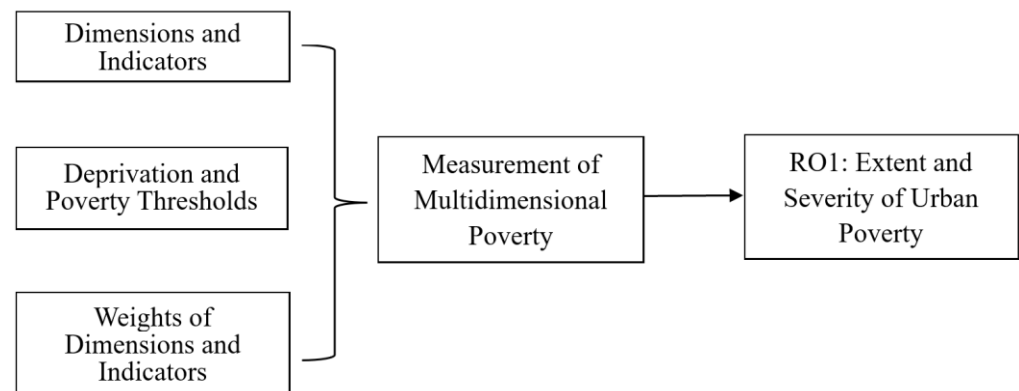


selecting poverty indicators, and then rely on ex-post examinations to assess the stability of the resulting poverty indices (Nájera Catalán & Gordon, 2020, p. 6). Nevertheless, the Capability Approach emphasizes human freedom and choice. This focus on individual differences and the diversity of values inevitably requires value judgments when selecting functionings and capabilities. Consequently, this study adopts a normative choice approach and conducts robustness checks on these choices to enhance the rigor of the findings.

Building upon the Dual Cutoff method and normative choice in multidimensional poverty measurement, this study develops a comprehensive framework for assessing multidimensional poverty, as illustrated in Figure 2.1.

**Figure 2.1**

*Framework for the Measurement of Multidimensional Poverty*



## **2.6 Comparison of Poverty Measurement Methods in China and Beyond**

The poverty line in China is developed under the rationale of absolute poverty (S. Chen & Ravallion, 2021; H. Wang et al., 2020). China published its poverty line of annual per capita income of 2,300 CNY (2010 constant price) in 2011 (M. Liu et al., 2020; H. Sun et al., 2022). This poverty line supports a daily consumption of 2,100 calories and 60 grams of protein, as well as the cost of basic clothing, water, electricity, transportation, education, and medical expenses, aiming to meet the basic needs for healthy survival (M. Liu et al., 2020; H. Sun et al., 2022). In PPP terms, this standard is equivalent to 2.20 USD per capita per day (B. Chen & Zhao, 2021).

The EU and the UK have embraced relative poverty standards for measuring poverty. The rationale behind this approach is that absolute poverty has been largely eliminated in these countries (Ravallion, 2010). The EU sets the poverty line at 60% of the national median equivalized disposable income (Eurostat, 2023). The UK sets the relative poverty line at 60% of the median national equivalised disposable household income (Department for Work & Pensions, 2024).

Latin America has a long tradition of using multidimensional poverty measures (Santos, 2017). Latin American countries, including Brazil, Chile, Colombia, El Salvador, and Mexico, have embraced multidimensional poverty

measures (Santos, 2017). Colombia introduced its MPI in 2011, which assesses poverty across six dimensions: education conditions, childhood and youth conditions, employment, health, access to public utilities, and housing (Angulo, 2016). Chile published its national MPI in 2015, and it measures poverty from five dimensions: education, health, employment and social security, housing and environment, and networks and social cohesion (Ríos, 2021).

Several Southeast Asian nations, including Vietnam and Malaysia, have embraced the multidimensional poverty approach and formulated their own measures. In 2015, Vietnam introduced its MPI, assessing poverty across five dimensions: healthcare, education, housing, water and sanitation, and access to information (Lo, 2019). Equal weight was assigned to each dimension (Lo, 2019). Malaysia published its MPI in 2015, which evaluates poverty across four dimensions: health, education, standard of living, and income (Ministry of Economy of Malaysia, 2018). The weights assigned to these dimensions are equally distributed (Ministry of Economy of Malaysia, 2018).

As indicated, an increasing number of developing nations have embraced multidimensional poverty measurement methods. However, despite China's achievement in eliminating absolute poverty according to its current standards, it continues to measure poverty using absolute standards (M. Liu et al., 2020; H. Sun et al., 2022). China should reconsider its approach to poverty

measurement (S. Chen & Ravallion, 2021; M. Liu et al., 2020). To more effectively target urban poor households and design policies that address the specific needs of diverse groups across various dimensions, China should consider adopting multidimensional standards to measure poverty in the future (Z. Chen et al., 2019; J. Guo et al., 2022; M. Liu et al., 2020; X. Wang, 2022a).

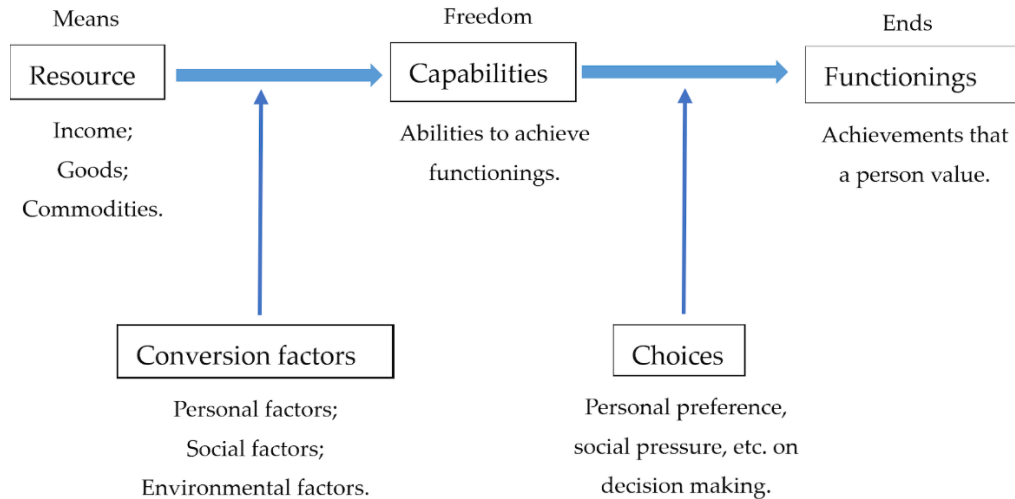
## **2.7 Contributing Factors of Multidimensional Poverty**

### **2.7.1 Key Concepts in the Capability Approach**

To address RQ3, this study employs Sen's Capability Approach as a framework for examining the contributing factors to multidimensional urban poverty. The Capability Approach provides a conceptual framework for assessing an individual's well-being, emphasizing the importance of what people are able to be and do in their lives. It comprises four key concepts: functionings, capabilities, resources, and conversion factors (Burchi & De Muro, 2016; Robeyns, 2017, pp. 7–10; Verd & López Andreu, 2011). The framework for the Capability Approach is depicted in Figure 2.2.

**Figure 2.2**

*Conceptual Framework of the Capability Approach*



Functionings denote the various states of being or activities that an individual values, such as being well-nourished, having shelter, being able to receive education, and participating in community social activities (Burchi & De Muro, 2016; Verd & López Andreu, 2011). They reflect the actual achievements or “beings and doings” in a person’s life. Capabilities refer to the freedom and opportunities an individual has to achieve or choose from different functionings they value. They are thus about the real opportunities available to individuals to lead the kind of life they value (Robeyns, 2017, p. 39). Resources, such as income, goods, and commodities, serve as inputs or means to enable individuals to achieve these functionings rather than ends in themselves (Robeyns, 2005b, p. 98). The relationship between resources and capabilities is mediated by the “conversion factors”. These factors determine how effectively resources are converted into real opportunities for well-being (Burchi & De

Muro, 2016; Walker, 2019). Conversion factors include three types: personal conversion factors, such as physical condition, gender, and skills, which affect their ability to convert resources into functionings; social conversion factors, such as discrimination, public policies, and social norms, which can either enhance or restrict individual freedoms depending on societal structures; and environmental conversion factors, arising from the physical or built environment in which a person lives, such as infrastructure, climate, and geographical location, which may either enable or constrain an individual's opportunities (Robeyns, 2005b, p. 99).

It's worth noting that many poverty dimensions can be viewed both as functionings and capabilities because they represent both the actual achievements individuals have (functionings) and the opportunities or freedoms to pursue those achievements (capabilities) (Sen, 1992, pp. 39–40, 2000a, p. 75). For instance, health can be viewed as functionings, representing a state of health that individuals achieve, such as being healthy or free from illness. It can also be understood as a capability, such as the opportunity to access quality healthcare and engage in physical activities, which empowers individuals to pursue the functionings they value (López Barreda et al., 2019; M. C. Nussbaum, 2013, pp. 33–34). Similarly, education can be seen as a functioning, presenting a status of being educated, such as being literate or having a certain level of schooling. It also represents the freedom and opportunity to pursue further

learning or engage in informed participation in society, thereby enabling individuals to achieve the functionings they value (Ibrahim & Tiwari, 2014).

Notably, according to Sen's Capability Approach, conversion factors influence how individuals transform resources into capabilities, and as such, they are often treated as moderator variables within this framework (Burchi & De Muro, 2016; Walker, 2019). However, some scholars argue that in certain contexts, these variables can also function as independent variables (M. Chen et al., 2023; X. Guo & Zhou, 2016; Lecourt, 2013; Zhong & Lin, 2020). Studies show that certain structural and environmental conversion factors, such as infrastructure, public services, natural environment, social norms, and political frameworks can directly influence poverty status, even without interacting with resources (Amato & Maynard, 2007; Baker, 2015; Herbst-Debby et al., 2021; Khan et al., 2018; Munoz Boudet et al., 2018; Nieuwenhuis et al., 2018; Rodrigues & Rueanthip, 2019; Zimmer, 2022). This is evidenced by the official MPI indices of certain countries, such as Colombia, El Salvador, and Panama, where environmental factors and accessibility to public utilities (e.g., public transportation) are incorporated as indicators that directly affect poverty (Banco Central de Reserva, El Salvador, 2023; Ministerio de Economía y Finanzas, 2017; Santos, 2019). Studies also show that certain personal conversion factors, such as gender-based discrimination, have a significant direct impact on poverty (Johnsson-Latham, 2004; Nieuwenhuis et al., 2018; UN Women, 2024). Given

that this study aims to provide clear policy recommendations to the government, a straightforward model that facilitates interpretation and practical application is preferred. Therefore, this research considers the conversion factors as independent variables.

### **2.7.2 Explanatory Variables in the Logistic Regression Model**

This study derives the independent variables for the regression analysis based on the three core concepts of the Capability Approach: resources, capabilities, and conversion factors, and formulates corresponding research hypotheses based on these variables.

#### **2.7.2.1 Resources-related Variables**

Resources serve as means to enable individuals to achieve the functionings they value; these include elements such as income, goods, and assets (Paul Kelleher, 2015; Robeyns, 2005b, p. 98, 2005a; Verd & López Andreu, 2011; Walker, 2019).

Regarding income, there is ongoing debate about its inclusion in the measurement of multidimensional poverty. Sen (2000, pp. 19–20) argued that income is merely a means to achieve capability, not an end in itself. Consequently, many multidimensional poverty studies exclude income from their indices (Artha & Dartanto, 2018; Datt, 2019; Syahrul Fauzi et al., 2022;



Tran et al., 2022; UNDP, 2021, 2023). On the other hand, other scholars argue that income is a critical resource and an essential means to achieve valuable outcomes (Verd & López Andreu, 2011; Walker, 2019). Studies by Guo and Zhou (2016), Javed and Asif (2015), X. Wang (2022), Xiao et al. (2018), and Yu (2013) have confirmed the significant relationship between income and urban poverty.

However, in this research, the income variable overlaps with the income indicator in the adapted MPI, potentially causing endogeneity issues. As a result, it has been excluded from the regression model. Nonetheless, the government subsidy variable is retained, as it represents an important source of income for low-income families. Moreover, government subsidies have played a crucial role in China's Targeted Poverty Alleviation campaign, with research demonstrating their significant relationship with poverty reduction among both urban and rural residents (Davie et al., 2021b; Y. Li et al., 2016; Q. Liu, 2022; Y. Wang et al., 2024b).

Based on the Capability Approach, assets are considered essential resources that enable households to achieve various functionings and expand their capabilities (Robeyns, 2017, pp. 145–147). Within this framework, assets not only represent accumulated wealth but also facilitate the conversion of resources into opportunities and well-being. Empirical studies indicate that for

urban households, assets predominantly consist of housing, durable goods, vehicles, and financial assets (Moslimani, 2023, p. 23; Siegel, 2005, p. 7; United Nations, 2019, p. 13). These assets reflect the long-term material well-being of the household (Adepoju & Oyewole, 2020; Artha & Dartanto, 2018; Dutta & Kumar, 2013). For instance, housing reflects not only the accumulation of wealth but also residential stability, security, and social status. Households lacking stable housing are more vulnerable to economic shocks (Artha & Dartanto, 2018; Oyekale et al., 2019; Sevinc, 2020). Financial assets provide a liquidity buffer that helps households cope with economic hardship, thereby enhancing their long-term economic stability (Despard et al., 2018; Lusardi et al., 2014). Durable goods contribute to improved daily living conditions, promoting overall well-being by ensuring an improved quality of life (Cabra Hernández, 2023). The variable of car ownership, adopted from the Global MPI, plays a crucial role in enhancing household mobility and facilitating accessing employment, education, and healthcare services (Brown, 2017; Mackett & Thoreau, 2015). It is important to note that, due to data constraints, this research incorporates the values of these assets—housing, financial assets, durable goods, and car ownership—into the regression model, with the aim of identifying the key factors contributing to urban poverty.

### **2.7.2.2 Capability-related Variables**

Capabilities refer to the freedom and opportunities that enable an individual to choose or achieve the functionings they value (Burchi & De Muro, 2016; Robeyns, 2017, pp. 38–41). Health and education are widely recognized as core capabilities, as they enhance individuals' capacity to pursue valuable functionings and participate fully in society. Good health enables individuals to work, engage in social life, and achieve personal aspirations, while education expands knowledge, skills, and employment opportunities (M. C. Nussbaum, 2000, pp. 78–80; Sevinc, 2020).

This is evidenced by studies by Guo & Zhou (2016), Mohanty et al. (2017), Moyo et al. (2022), and Yu (2013) which all indicated that health can significantly affect an individual's productivity, employment, and sources of income, thereby influencing their likelihood of falling into poverty. Similarly, studies by Adepoju & Oyewole (2020), Artha & Dartanto (2018), Fahad et al. (2022), Najitama et al. (2020), and Tang et al. (2022) all suggested that education empowers individuals with knowledge and skills, enhancing their employment opportunities and earning potential, thus impacting their probability of falling into poverty. Therefore, this research incorporates the factors related to health and education in the regression model.

However, since the variables Self-rated Health and medical insurance coverage overlap with indicators in the adapted MPI, this research replaces them with chronic disease and healthcare expenses, two closely related variables, given data constraints. Chronic disease and high healthcare costs are among the leading causes of poverty in China. Studies by Lan et al. (2018), National Health Commission of China (2018), and N. Wang et al. (2020) provide strong evidence of this relationship. Their findings indicate that catastrophic health expenditures are a significant issue among impoverished households in China, with families managing multiple chronic diseases facing a significantly higher risk of financial hardship. Moreover, a substantial proportion of registered poor households have fallen into poverty due to illness, highlighting the significant economic burden imposed by chronic diseases and healthcare expenditures (National Health Commission of China, 2018).

Regarding education, this research follows the guidelines of the UNDP (2023), adopting education level as the variable for regression analysis. Notably, the study does not include the school attendance indicator from the Global MPI, as the dropout rate in Shandong Province has remained below 1% since 2010 (National Bureau of Statistics of China, 2024a)

Concerning employment, it serves as the primary source of income for urban residents (Fang & Zhang, 2021; ILO, 2024a; World Bank, 2012). Beyond

its financial function, Sen (2000, pp. 94–96) argues that employment is not merely a means of earning income but a fundamental component of human well-being and freedom. In addition to financial stability, employment contributes to dignity, identity, personal fulfillment, and social connections (Duong & Pham, 2023; ILO, 2016; Santos & Villatoro, 2018; Suppa, 2018). Furthermore, the United Nations (2015) emphasizes employment as a critical development goal through SDG 8, which promotes decent work and economic growth, recognizing employment as a key driver of development rather than solely a tool for poverty reduction. Given its multidimensional role, this research incorporates employment as a key variable in the regression analysis.

### **2.7.2.3 Variables Related to Conversion Factors**

Conversion factors influence how resources are transformed into capabilities (Burchi & De Muro, 2016; Walker, 2019) and are therefore widely regarded as moderator variables. However, evidence indicates that certain structural and environmental conversion factors, such as infrastructure accessibility, environmental conditions, climate change, social norms, and political frameworks can directly influence poverty status, independent of resource interactions (Amato & Maynard, 2007; Baker, 2015; Herbst-Debby et al., 2021; Nieuwenhuis et al., 2018; Rodrigues & Rueanthip, 2019; Zimmer, 2022). For instance, Colombia's MPI incorporates environmental degradation

as a direct poverty indicator (Santos, 2019). Additionally, research demonstrates that gender-based discrimination independently intensifies deprivation by limiting access to education, healthcare, and employment opportunities (Khan et al., 2018; Nieuwenhuis et al., 2018; UN Women, 2024). Given these considerations, this study conceptualizes conversion factors as independent variables to empirically assess their direct impact on poverty, offering a broader perspective on structural determinants of deprivation.

Conversion factors can be categorized into three types: personal, social, and environmental. Personal conversion factors refer to intrinsic attributes that shape an individual's ability to transform resources into capabilities (Robeyns, 2017, pp. 45–47). These include demographic factors such as age, gender, and marital status, as well as health status and education levels. Regarding gender, studies indicate that female-headed households face higher poverty risks due to gender-based labor market discrimination, lower wages, and greater caregiving responsibilities (Lebni et al., 2020; Munoz Boudet et al., 2018; Nieuwenhuis et al., 2018; Pujiwati et al., 2024). Concerning age, research from the United Nations (2016) suggests that elderly individuals are particularly vulnerable due to declining health, reduced income opportunities, and insufficient social security support, heightening their risk of deprivation. Marital status also plays a crucial role in poverty risk. Studies suggest that unmarried and divorced households face greater economic hardship compared to married ones,

potentially due to the financial stability provided by dual-income households (Amato & Maynard, 2007; Baker, 2015; Herbst-Debby et al., 2021; Khan et al., 2018; Zimmer, 2022). Given these insights, these demographic variables were incorporated into the regression model to assess their impact on poverty status.

Social conversion factors capture the broader household and community dynamics that influence an individual's ability to convert resources into capabilities. Given that a household represents the most immediate social environment in which an individual resides (S. S. Clark et al., 2023), this study incorporates household size and dependency ratio as key social factors in the conceptual framework. Empirical research suggests that larger households and higher dependency ratios are associated with increased financial strain, as they require greater expenditures on basic needs such as food, healthcare, and education. Consequently, such households face a heightened risk of economic vulnerability and poverty (Alkire & Fang, 2019; Amjad et al., 2008; K.-M. Chen et al., 2019; X. Guo & Zhou, 2016; Najitama et al., 2020; Oyekale et al., 2019; Tran et al., 2022; C. Wang et al., 2021). Accordingly, these two variables were incorporated into the regression analysis to examine their direct impact on poverty outcomes.

Environmental factors encompass the natural environment, infrastructure, social norms, and political frameworks (Ibrahim & Tiwari, 2014;

Robeyns & Byskov, 2023). Empirical studies demonstrate that these factors can directly influence poverty status, independent of their interaction with resources or capabilities (Amato & Maynard, 2007; Baker, 2015; Herbst-Debby et al., 2021; Khan et al., 2018; Munoz Boudet et al., 2018; Nieuwenhuis et al., 2018; Rodrigues & Rueanthip, 2019; Zimmer, 2022). Building on this literature, this study incorporates public facility accessibility and surrounding environmental conditions as independent variables (Burchi & De Muro, 2016; Robeyns, 2005b; Verd & López Andreu, 2011). By doing so, this research captures the direct structural constraints that drive poverty dynamics.

### **2.7.3 Research Hypotheses for Logistic Regression Analysis**

Drawing on the concepts in Sen's Capability Approach, this research incorporates the variables related to resources, capabilities, and conversion factors in the regression model. For the regression analysis, this research develops the following hypotheses:

H1: Urban households with employed heads are less likely to experience multidimensional poverty than those with unemployed or retired heads.

Employment is a fundamental component of human well-being and freedom, as it enhances an individual's capabilities, ensuring not only financial security but also access to essential services and social inclusion (Sen, 2000, pp.



94–96). Beyond income, employment provides healthcare access, better educational opportunities for children, and improved living conditions, all of which are key dimensions of multidimensional poverty (Duong & Pham, 2023; ILO, 2016; Santos & Villatoro, 2018; Suppa, 2018).

Empirical research highlights that unemployment has been a major driver of urban poverty, particularly in China. During the economic reforms of the 1990s, many SOE workers were laid off or unemployed, significantly impacting their sources of livelihood, leading to the emergency of urban poverty (Guan, 2019b; Hussain, 2003; Riskin & Gao, 2010; X. Wang, 2022b). Studies consistently indicate that households with unemployed heads face a significantly higher risk of falling into multidimensional poverty, this study hypothesizes that urban households with unemployed heads are more like falling into multidimensional poverty (D. Chen & Chen, 2016; X. Guo & Zhou, 2016; X. Wang & Feng, 2020; Zhong & Lin, 2020).

H2: Urban households receiving government subsidies are more likely to experience multidimensional poverty than those not receiving subsidies.

This study includes government subsidies in the hypothesis because they serve as a crucial income source for low-income households. In the 2020 survey data used in this research, over 40% of sampled households received government subsidies, with an average subsidy of 22,725 CNY per person,

exceeding half of the surveyed households' per capita income. Moreover, government subsidies have played a crucial role in China's anti-poverty campaigns. According to the principle of Targeted Poverty Alleviation, these subsidies are specifically allocated to households facing severe economic hardship, rather than being universally distributed (Y. Gong & Tu, 2020; Y. Guo et al., 2022; L. Li, 2018). While subsidies aim to alleviate poverty, their distribution is inherently linked to pre-existing economic and social disadvantages. As a result, households receiving subsidies are more likely to exhibit characteristics associated with multidimensional poverty. Given this relationship, this study hypothesizes that urban households receiving government subsidies are more likely to experience multidimensional poverty.

H3: Urban households with one or more members who have chronic diseases are more likely to experience multidimensional poverty than those without chronic diseases.

Chronic diseases impose long-term economic, social, and health burdens on affected households, contributing to multidimensional poverty beyond mere income deprivation. Households with chronically ill members are more vulnerable to income loss, increased healthcare costs, and reduced labor productivity, reinforcing cycles of poverty and deprivation (Gu et al., 2021; X. Guo & Zhou, 2016; Mohanty et al., 2017; Moyo et al., 2022; J. Xie & Che, 2017;

Zhong & Lin, 2020). Therefore, this study hypothesizes that urban households with chronically ill members are more prone to multidimensional poverty.

H4: Urban households with higher healthcare expenditures are more likely to experience multidimensional poverty than those with lower healthcare expenditures.

Illness-induced poverty is a major contributor to household poverty in China (N. Wang et al., 2020; L. Zhang & Zhao, 2021). According to the National Health Commission of China (2018), over 40% of registered poor households fell into poverty due to illness. High medical expenses reduce families' disposable income, pushing them into income poverty, and forcing them to cut back on other basic expenditures—such as education, food, and clothing—thereby exacerbating multidimensional poverty (Gu et al., 2021; Lan et al., 2018; N. Wang et al., 2020; J. Xie & Che, 2017). In light of these findings, this study hypothesizes a positive relationship between higher healthcare expenditures and household poverty.

H5: Urban households with more educated household heads are less likely to experience multidimensional poverty than those with less educated heads.

Education is a fundamental capability in Sen's approach, as it enhances an individual's ability to access opportunities, secure stable employment, and improve overall well-being (Chiappero-Martinetti & Sabadash, 2014; Ibrahim & Tiwari, 2014; Robeyns, 2017, p. 8). Empirical studies suggest that households with heads have higher education levels are less likely to suffer from economic vulnerability, as it directly influences the household's income stability, healthcare access, and children's educational attainment (D. Chen & Chen, 2016; X. Guo & Zhou, 2016; X. Wang & Feng, 2020; Zhong & Lin, 2020).

H6: Urban households with married heads are less likely to experience multidimensional poverty than those with unmarried or divorced heads.

Marital status is a key determinant of household economic stability and well-being, influencing access to financial resources, social support, and caregiving structures (Baker, 2015; Herbst-Debby et al., 2021). Studies suggest that unmarried and divorced households face greater economic hardship compared to married ones, potentially the financial security and resource-sharing advantages associated with dual-income households (Amato & Maynard, 2007; Baker, 2015; Herbst-Debby et al., 2021; Khan et al., 2018; Zimmer, 2022). Given this, this research hypothesized that households with married heads are less likely to experience multidimensional poverty.

H7: Urban households with female heads are more likely to experience multidimensional poverty than those with male heads.

Gender is an essential conversion factor in Sen's capability approach. Studies indicate that female-headed households face higher poverty risks due to gender-based labor market discrimination, lower wages, and greater caregiving responsibilities (Lebni et al., 2020; Munoz Boudet et al., 2018; Nieuwenhuis et al., 2018; Pujiwati et al., 2024). Based on these findings, this research hypothesized that households with female heads are more likely to experience multidimensional poverty than those with male heads.

H8: Urban households with older heads are more likely to experience multidimensional poverty than those with younger heads.

Regarding the variable of age, research from the United Nations (2016) suggests that elderly individuals are particularly vulnerable to poverty due to declining health, reduced income opportunities, and insufficient social security support, all of which heighten their risk of deprivation. Based on this, this study hypothesizes a positive relationship between old age and poverty status.

H9: Urban households with larger sizes are more likely to experience multidimensional poverty than those with smaller sizes.

Research shows that household size has a significant relationship with multidimensional poverty, mainly because larger households face greater financial strain and resource constraints (Amjad et al., 2008; Y. Chen et al., 2021; X. Guo & Zhou, 2016; Oyekale et al., 2019; Tran et al., 2022). As household size increases, total consumption expenditures rise, thereby reducing the share of expenditure on essential needs such as education, healthcare, and housing. The financial burden increases their likelihood of experiencing multidimensional poverty.

H10: Urban households with higher aged-dependency ratios are more likely to experience multidimensional poverty than those with lower aged-dependency ratios.

In this research, the aged-dependency ratio reflects the proportion of elderly individuals in a household. Research indicates that households with more elderly dependents face higher healthcare costs, lower labor income, and reduced spending on essential needs such as education and housing, all of which increase their risk of multidimensional poverty (Alam et al., 2023; Cruz & Ahmed, 2018; United Nations, 2016). Therefore, this research hypothesized that there is a positive correlation between the household aged-dependency ratio and urban poverty.

H11: Urban households with higher youth dependency ratios are more likely to experience multidimensional poverty than those with lower youth dependency ratios.

In this study, the youth dependency ratio represents the proportion of children (under 15) relative to the total household size. Households with a high youth dependency ratio experience greater financial strain due to higher education, healthcare, and childcare costs, which can limit their ability to invest in other dimensions of well-being (Amjad et al., 2008; X. Guo & Zhou, 2016; Oyekale et al., 2019). A high youth dependency ratio can further restrict adults' participation in productive activities, exacerbating economic vulnerability (Folbre, 2018). Therefore, this study hypothesizes that urban households with higher youth dependency ratios are more likely to fall into poverty.

H12: Urban households with access to improved public facilities are less likely to experience multidimensional poverty than those without access.

Public facilities, including education, healthcare, and transportation, play a crucial role in improving an individual's overall well-being. Households with access to quality public schools benefit from better educational opportunities (Fonta et al., 2020; J. Guo et al., 2022; Xiao et al., 2018). Similarly, proximity to healthcare facilities reduces health-related vulnerabilities, while efficient public transportation lowers commuting costs and expands

employment opportunities (Jiao, 2020; Mehra & Saxena, 2020; X. Wang, 2022a, 2022b). Given these advantages, this study hypothesizes that urban households with access to improved public facilities are less likely to experience multidimensional poverty.

H13: Urban households with improved surrounding environments are less likely to experience multidimensional poverty than those without such improvements.

The surrounding environment significantly affects health, well-being, and economic stability. Empirical studies show that households in areas with clean air, safe water, and proper sanitation experience fewer health issues, reducing medical expenses and improving labor productivity (Nadeem et al., 2018; United Nations, 2022b; World Bank, 2022d; WHO, 2022a). Considering these factors, this study hypothesizes that urban households with improved surrounding environments are less likely to fall into poverty.

H14: Urban households with higher asset values (including housing, financial assets, and durable goods) are less likely to experience multidimensional poverty than those with lower asset values.

Housing plays a critical role in ensuring stability and security for individuals and families (Hammam, 2014; UN-Habitat, 2014). It represents not



only the accumulation of wealth but also reflects residential stability, safety, and social status. Households without stable housing are more vulnerable to economic shocks (Artha & Dartanto, 2018; Oyekale et al., 2019; Sevinc, 2020). Moreover, higher home values are typically associated with better neighborhoods, improved public services, and superior housing conditions, all of which contribute to enhanced overall well-being (Bao & Meng, 2023; H. Wang et al., 2020). Given this, this study hypothesizes that urban households with higher home values are less likely to experience multidimensional poverty.

Financial assets provide a safety net that helps households cope with economic shocks and invest in long-term well-being. Households with higher financial assets are more resilient against income volatility and have better access to education, healthcare, and improved investment opportunities (Despard et al., 2018; Lusardi et al., 2014). Therefore, this study hypothesizes that urban households with higher total financial assets are less likely to experience multidimensional poverty.

Durable goods contribute to improved daily living conditions, promoting overall well-being by ensuring an improved quality of life (Cabra Hernández, 2023). Households with higher values of durable goods, such as refrigerators, washing machines, and computers, enjoy improved daily living conditions, reduced the time and effort required for household tasks, and overall

well-being by ensuring a comfortable and efficient living environment (Amendola & Vecchi, 2014; Artha & Dartanto, 2018; C. Wang et al., 2021).

H15: Urban households that own a car are less likely to experience multidimensional poverty than those without car ownership.

Car ownership plays a crucial role in enhancing household mobility and facilitating accessing employment, education, and healthcare services. It not only facilitates better economic opportunities but also helps mitigate social exclusion, contributing to a more robust overall economic status and reducing the risk of persistent poverty (Brown, 2017; Curl et al., 2018; Mackett & Thoreau, 2015). Therefore, this research follows the guidelines of the Global MPI (UNDP, 2010), which hypothesized that urban households that own a car are less likely to fall into poverty.

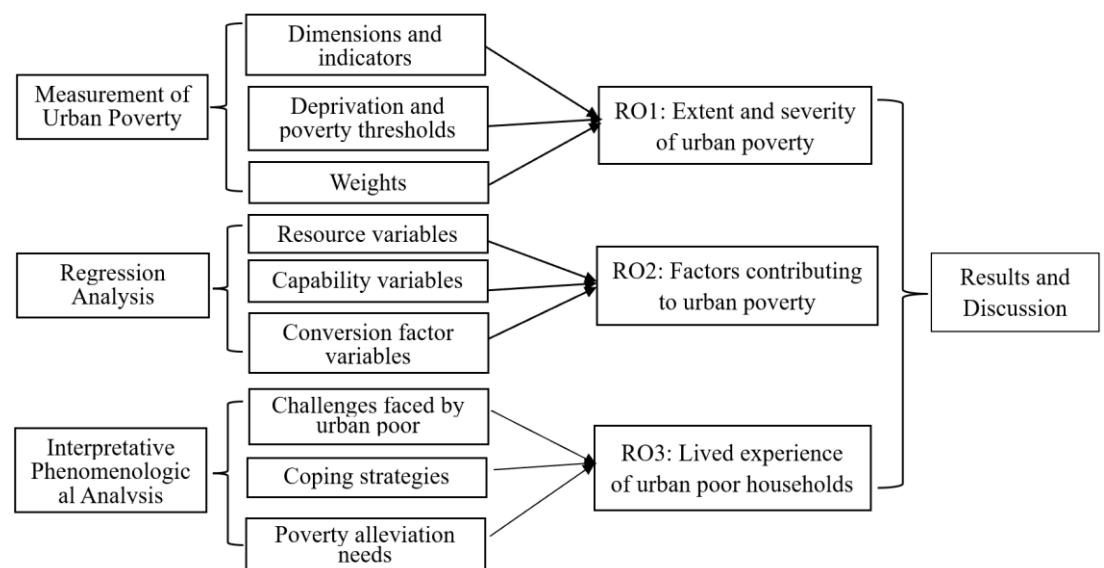
## **2.8 Conceptual Framework of This Research**

Drawing from the frameworks for measuring multidimensional poverty and investigating the contributing factors of urban poverty, this research established the conceptual framework for quantitative analysis. The concepts in the quantitative framework are derived from Sen's Capability Approach. Through quantitative data analysis and reviews of relevant literature, this research identified the primary contributing factors of urban poverty, which

include financial situation (such as government subsidies, employment, and assets), health conditions (including chronic diseases and healthcare expenditures), education status, housing conditions, and infrastructure. Therefore, this research designs its qualitative fieldwork based on these concepts. The conceptual framework addressing each research question is illustrated in Figure 2.3.

**Figure 2.3**

*Conceptual Framework of This Research*



## 2.9 Summary

This chapter begins by examining the concept of poverty and analyzing the distinctions among absolute poverty, relative poverty, and multidimensional poverty. It then evaluates various measurement methods of multidimensional

poverty. Additionally, it discusses the drawbacks of Sen's Capability Approach and the criticisms directed toward it.

Furthermore, this chapter explores the contributing factors of multidimensional poverty from the perspectives of resources, capabilities, personal conversion factors, social conversion factors, and environmental conversion factors, drawing from Sen's Capability Approach. Based on this approach, this chapter formulates the research hypotheses to address RQ3 regarding the contributing factors of urban poverty.

Finally, this chapter integrates three key components: the quantitative measurement of multidimensional poverty, the investigation of the contributing factors of urban poverty, and phenomenological data analysis exploring the lived experiences of the urban poor. Together, these elements establish a conceptual framework to address the research questions and lay the foundation for the methodological framework presented in Chapter 3.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter commences by elaborating on the mixed-methods design employed in this research. Building on the conceptual framework presented in Chapter 2, it provides a comprehensive discussion of the quantitative and qualitative research methodologies employed. In the quantitative section, this chapter explores the quantitative and qualitative research methodologies separately. Within the quantitative section, this chapter explores the data source utilized, elucidating the Dual Cutoff method implemented to measure multidimensional urban poverty. Furthermore, it examines the logistic regression model adopted to investigate the primary contributing factors of urban poverty. In the qualitative section, this chapter elaborates on data sampling techniques, research instruments, and data collection methods, as well as the utilization of Interpretative Phenomenological Analysis (IPA) for data analysis. Additionally, it addresses strategies employed to enhance the trustworthiness of qualitative research.

### **3.2 Research Design**

This research followed Creswell and Plano Clark's (2018) by utilizing an explanatory sequential mixed-methods design, starting with quantitative research followed by qualitative research. The quantitative phase explored the overall situation of urban poverty, as well as its primary contributing factors, while the qualitative phase, informed by the quantitative findings, delved deeper into the phenomenon of urban poverty, aiming to uncover the lived experiences of urban poor households.

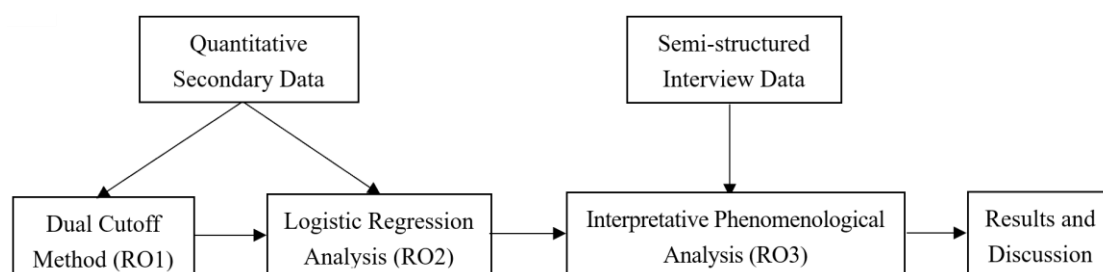
This research commences with quantitative data analysis, utilizing the Dual Cutoff method, which sets two thresholds within and across poverty dimensions to identify multidimensional poverty. This approach aims to investigate the overall situation of urban poverty, providing a foundation for identifying the contributing factors of urban poverty in RQ3. By investigating RQ3, this research identified the primary contributing factors of urban poverty, which then informed the design of qualitative fieldwork, including defining research objectives, establishing sampling criteria, and formulating interview questions. The qualitative fieldwork was designed based on the findings from the quantitative analysis and relevant literature. It employed semi-structured interviews to explore unanticipated themes and perspectives. This approach provides deeper insights into the phenomena that participants encountered, their

perspectives on the phenomena, and the measures they took in response, thus laying the foundation for formulating urban anti-poverty strategies.

The quantitative data was collected from a secondary nationally representative database and analyzed using the Dual Cutoff method and logistic regression analysis. The qualitative data was collected through semi-structured interviews and analyzed using the IPA approach to explore the lived experiences of the poor urban households in Shandong Province. The mixed-methods design for this research is illustrated in Figure 3.1.

**Figure 3.1**

*Mixed-methods Design of This Research*



### 3.3 Quantitative Research Methods

#### 3.3.1 Data Source

This research used a nationally representative, annual longitudinal dataset of Chinese communities, families, and individuals, the CFPS, conducted by the Institute of Social Science Survey of Peking University, China. CFPS

comprises extensive large-scale micro panel data on the basic information of the Chinese population, including information on economic activities, education outcomes, family dynamics and relationships, migration, and health (Y. Xie & Hu, 2014). CFPS launched its national baseline survey in 2010, followed by five subsequent follow-up surveys conducted in 2012, 2014, 2016, 2018, and 2020. The CFPS interviewed 14,960 households in 2010, 12,725 households in 2012, 14,219 households in 2014, 14,763 households in 2016, 15,000 households in 2018, and 13,974 households in 2020 across 25 provinces in China, including Shandong Province.

### **3.3.2 Sampling Design and Procedure**

The CFPS covers 25 provinces in China, which represent about 95% of China's total population. These provinces span the eastern, central, and western regions of China, with great differences in geography, economic development, public resources, and health indicators (Y. Xie & Hu, 2014). The CFPS adopted a multistage probability sampling method, stratifying the sampling units into three stages: the first stage consists of administrative districts/counties, the second stage consists of administrative villages/neighborhood communities, and the third stage consists of households. In the first and second stages, local GDP per capita was used as the stratification variables (Y. Xie & Lu, 2015). In the third stage, a systematic sampling method was used to select the households



with a random starting point and equal probability method (Y. Xie & Lu, 2015).

### **3.3.3 Population and Sample Size**

This research used the household as the basic measurement unit, which means a house and its occupants are regarded as a unit (Department of Immigration and Border Protection, 2015). According to the 2021 Shandong Statistical Yearbook, by the end of 2020, the total number of households in Shandong Province was 33.89 million, with an average household size of 3.0 people (Shandong Provincial Statistics Bureau, 2023a). Among them, the number of households residing in urban areas was about 21.36 million (Shandong Provincial Statistics Bureau, 2023a).

This research utilized data from CFPS in Shandong Province for the years 2012, 2014, 2016, 2018, and 2020. Due to discrepancies in variable definitions, this study does not incorporate data from 2010. Given the study's focus on urban areas, rural samples and those with missing data were removed. The CFPS determines the urban-rural status of respondents primarily based on their residential address. For respondents with missing values in the urban-rural attribute variable, this study determines their urban-rural status based on the nature of the community they reside in (Institute of Social Science Survey, Peking University, 2018b). Ultimately, the final sample sizes for 2012, 2014, 2016, 2018, and 2020 were 253, 248, 309, 337, and 291, respectively.

### 3.3.4 Sample Size Determination

To determine the required sample size, this study employed Cochran's (1977) formula, which is particularly suitable for large populations (Sarmah & Hazarika, 2012). However, Cochran's formula is designed for simple random sampling (B. A. Bell et al., 2012), and using it in complex sampling situations like CFPS can lead to an underestimation of the required sample size. To address this issue, this study applies Kish's (1995, p. 45) formula to calculate the effective sample size for each survey round. The effective sample size is then incorporated into Cochran's formula to determine the margin of error for each round. Kish's formula is given by:

$$n_{eff} = \frac{(\sum_{i=1}^n w_i)^2}{\sum_{i=1}^n w_i^2}$$

where  $n$  represents the total sample size,  $w_i$  denotes the sampling weight for each household, and  $n_{eff}$  is the effective sample size. Based on these calculations, the effective sample sizes for the survey rounds from 2012 to 2020 are 203.56, 199.51, 264.5, 257.33, and 205.7, respectively. Incorporating the calculated effective sample size into the formula, the adjusted margin of error calculation using Cochran's formula is as follows:

$$MoE = z \sqrt{\frac{p(1-p)}{n_{eff}}}$$

In this formula, *MoE* means the margin of error, and  $z$  is the critical value corresponding to the chosen confidence level. For a confidence level of 95%,  $z$  equals 1.96 (Sapra, 2022). The symbol  $p$  denotes the estimated proportion of an attribute present in the population (Sarmah & Hazarika, 2012), and in this research, it represents the multidimensional poverty rate in the population. This study determines the value of  $p$  based on previous studies and reports on national multidimensional poverty in China. According to a report by the UNDP (2023), the multidimensional poverty rate in China was approximately 3.9%. Alkire and Shen (2017), using measurement criteria similar to the Global MPI, estimated the rate to be around 5.5%. Some researchers, using their own frameworks to measure multidimensional poverty in China, have reported that the multidimensional poverty rate in China has ranged from 4% to 50% in recent years (Alkire & Fang, 2019; J. Guo et al., 2022; He et al., 2023; OPHI, 2024; J. Yu, 2013). Considering that Shandong Province's development level is situated in the middle range within China, this study selected a relatively moderate value of 30% from this range. In the equation, the symbol  $e$  represents the margin of error. The computed margins of error using Cochran's formula were 6.295%, 6.359%, 5.523%, 5.599%, and 6.262% for the years 2012, 2014, 2016, 2018, and 2020, respectively. According to the National Institutes of Health (2005), the margin of error in social science research typically ranges from 3% to 7%, confirming that the margin of error used in this study is appropriate.

### 3.3.5 Evaluating the Representativeness of CFPS Sample Data

To verify the representativeness of the CFPS sample data in Shandong Province, this research compared it with the demographic characteristics of urban populations in Shandong Province. In 2020, the urban per capita disposable income in Shandong Province was 43,726 CNY, compared to 40,448 CNY in the CFPS data, showing a slight difference. Regarding education levels, 21.36% of urban residents in Shandong Province had a college degree or higher, 18.60% had upper secondary education, 33.11% had lower secondary education, and 19.31% had elementary education. In comparison, the corresponding percentages in the CFPS sample were 19.06%, 18.35%, 32.01%, and 19.06%. The educational distribution of the CFPS sample closely aligns with the average level in urban areas of Shandong Province, except for college-level and higher education. In terms of gender ratio, Shandong Province had a ratio of 102.67, while the CFPS data reported 103.62, showing a close match between the two. In terms of age structure, in Shandong Province, 18.78% of the population was aged 0-14 years, 61.13% was aged 15-59 years, and 20.09% was aged 60 and above. In the CFPS data, the proportions were 15.13%, 62.04%, and 22.83%, respectively, with a slightly lower proportion of youth and a slightly higher proportion of elderly people in the CFPS sample. The unemployment rate in Shandong Province was 3.10% in 2020, while the unemployment rate in the CFPS sample, calculated from 12 unemployed persons and 124 persons who

had exited the labor market out of 620 total respondents, was 2.42%, showing minimal difference. The average household size in Shandong Province was 3 persons in 2020, while the CFPS sample had an average household size of 3.06 persons, a small difference. These comparisons indicate that while some differences exist, the CFPS sample largely aligns with the demographic characteristics of urban residents in Shandong Province.

To further validate the representativeness of the CFPS samples, this study conducted statistical hypothesis tests on key demographic variables. For the continuous variable of income, the government data was used as the population parameter, and a null hypothesis was formulated stating that there was no significant difference between the mean income of the CFPS Shandong sample and the government data. Following Field's (2017, Chapter 10) guidelines, a One-Sample t-test was performed using the IBM Statistical Package for the Social Sciences (SPSS) to assess whether the null hypothesis could be rejected. The analysis yielded a  $p$ -value of 0.268, exceeding the conventional significance threshold of 0.05. This result indicates that the null hypothesis cannot be rejected, suggesting no significant difference between the sample's mean income and the government data. The t-test results are presented in Appendix F.

For the categorical variable of education level, this study conducted a Chi-Square Goodness-of-Fit Test following the instructions of Field (2017, Chapter 19). The null hypothesis tested was that there was no significant difference between the education distribution in the CFPS sample and the government data. The results showed that the Pearson Chi-Square  $p$ -value was 0.238, the Likelihood Ratio  $p$ -value was 0.216, and the Linear-by-Linear Association  $p$ -value was 0.086, all greater than 0.05. Since all  $p$ -values exceed 0.05, the null hypothesis cannot be rejected. The results suggest no statistically significant difference between the CFPS sample and the statistical data for Shandong Province, providing support for the representativeness of the CFPS sample. The results are presented in Appendix G.

For the gender ratio, this study followed the guidelines of Wilson and Hardy (2002) and conducted a Binomial Test to assess whether the proportion of males in the CFPS sample significantly differs from the government data. The results showed a  $p$ -value of 0.233, which is well above 0.05. This outcome indicates that the null hypothesis cannot be rejected, suggesting is no significant difference in the gender ratio between the CFPS sample and the statistical data for Shandong Province. The result table is presented in Appendix H.

For household size, since the CFPS sample data is continuous, this study conducted a One-Sample  $t$ -test (Field, 2017, Chapter 10). The null hypothesis

was that there was no significant difference between the mean household size in the CFPS Shandong sample and the government data. The results showed a  $p$ -value of 0.461, which is significantly greater than 0.05, indicating that the null hypothesis cannot be rejected. Therefore, this result cannot conclude that there is a significant difference between the mean household size in the sample and the government data. The results are shown in Appendix I.

Overall, the hypothesis tests for the key demographic variables failed to reject the null hypotheses, indicating no significant differences between the CFPS sample data and the provincial government census. The findings provide support for the representativeness of CFPS data for Shandong Province.

### **3.3.6 Measurement of Multidimensional Poverty**

Using the Dual Cutoff method to examine the overall situation of multidimensional urban poverty in Shandong Province, this study also examines the changes in the incidence and intensity of multidimensional urban poverty, along with changes in the censored headcount ratio and contributions of multidimensional poverty indicators.

#### **3.3.6.1 Implementation of the Dual Cutoff Method**

Following the guidelines of Alkire et al. (2015, Chapter 5) and Alkire and Foster (2011a), this study develops the steps for implementing the Dual

Cutoff method. Given that the CFPS employs a complex sampling strategy in which each household is assigned a sampling weight, integrating these weights into the multidimensional poverty measurement is crucial for obtaining unbiased estimates of population parameters (Alkire et al., 2015, p. 228; 2022).

This research first builds a  $n \times d$  matrix  $X$ , where  $n$  denotes the number of households to be measured, and  $d$  denotes the dimensions used for poverty measurement. The element  $x_{ij}$  denotes the achievements of the household  $i$  in dimension  $j$ . Higher deprivation scores mean higher poverty intensity (Alkire & Foster, 2011a). This research sets a  $d$ -dimensional vector  $Z = (z_1, \dots, z_d)$ , where  $z_j$  represents the deprivation cutoff in dimension  $j$ . If  $x_{ij} \geq z_j$ , then household  $i$  is considered poor in dimension  $j$ .

A deprivation matrix  $g^0$  is constructed where  $g_{ij}^0$  denotes the deprivation status value of household  $i$  in dimension  $j$ . And in matrix  $g^0$ , if  $x_{ij} \geq z_j$ ,  $g_{ij}^0 = 1$ ; if not,  $g_{ij}^0 = 0$ . This research then sets a  $d$ -dimensional vector  $w = (w_1, \dots, w_d)$ , where  $w_j$  denotes the weight of dimension  $j$ . The deprivation score of household  $i$ , denoted by  $c_i$ , is defined as follows:

$$c_i = \sum_{j=1}^d w_j g_{ij}^0.$$

A poverty cutoff  $k$  is set to identify multidimensional poverty; if  $c_i \geq k$ , then household  $i$  is identified as multidimensionally poor. This research



then calculates the multidimensional poverty incidence, which is denoted by  $H$ .

With the sampling weights of each household incorporated,  $H$  is calculated as the ratio of the sum of sampling weights of the multidimensionally poor households to the total sum of sampling weights for the entire population:

$$H = \frac{\sum_i w_i \cdot I(c_i \geq k)}{\sum_i w_i}$$

where  $w_i$  is the sampling weight for household  $i$  and  $I$  denotes whether household  $i$  is multidimensional poor (1 = yes, 0 = no).

The average deprivation score, denoted as  $A$ , is calculated by dividing the sum of the weighted deprivation scores of the multidimensionally poor households by the sum of their sampling weights:

$$A = \frac{\sum_i w_i \cdot I(c_i \geq k)}{\sum_i w_i \cdot c_i \cdot I(c_i \geq k)}$$

The adjusted headcount ratio,  $M_0$ , which reflects both the incidence and intensity of multidimensional poverty, is calculated as  $M_0 = H \times A$ .

The censored headcount ratio ( $CH_j$ ) for each indicator is calculated by dividing the sum of sampling weights of households that are both multidimensionally poor and deprived in that indicator by the total sum of sampling weights:

$$CH_j = \frac{\sum_i w_i \cdot I(c_i \geq k) \cdot I(d_{ij} = 1)}{\sum_i w_i}$$

where  $I(d_{ij} = 1)$  indicates that household  $i$  is deprived in indicator  $j$ .

According to Alkire and Foster (2011),  $M_0$  can be disaggregated by population subgroups or indicators to determine their contributions to overall multidimensional poverty. However, since the CFPS does not publicly provide regional or other household parameters needed for subgroup disaggregation, this study calculates only the contributions of indicators, including both absolute and relative contributions.

The absolute contribution of dimension  $j$  to overall multidimensional poverty is calculated by  $w_j \times CH_j$ , while the relative contribution of dimension  $j$ , denoted by  $M_{0j}$ , is given by

$$M_{0j} = \frac{w_j CH_j}{M_0} * 100$$

where  $w_j$  denotes the weight of indicator  $j$ , and  $CH_j$  denotes the censored headcount ratio of indicator  $j$  (Alkire et al., 2015, Chapter 8).

### 3.3.6.2 Dimensions and Indicators

The selection of dimensions and indicators is crucial in measuring multidimensional poverty, as it directly impacts the identification of the impoverished (UNDP & OPHI, 2019). When choosing these dimensions and

indicators, it is vital to account for regional disparities in living standards, cultural attributes, and consumption patterns (Fang & Zhou, 2021). This research adjusted the UNDP's Global MPI to align with the conditions of China and the average living standards of Shandong Province.

The Global MPI assesses poverty across three dimensions: health (nutrition and child mortality), education (years of schooling and school attendance), and living standards (cooking fuel, sanitation, drinking water, electricity, housing, and assets) (United Nations, 2021; UNDP, 2023). To better examine urban poverty in Shandong Province, this study adapts the Global MPI framework to the regional context and measures poverty across four key dimensions: income and employment, health, education, and standard of living.

(1) Income and employment: This research measures the income and employment of the respondents. Regarding income, there is ongoing debate over whether it should be included as an indicator in the MPI. Sen (2000, pp. 19–20) argues that poverty is a deprivation of capability, and income is merely a means to achieve capability rather than a capability in itself. Consequently, many multidimensional poverty studies exclude income from their indices (Artha & Dartanto, 2018; Datt, 2019; Syahrul Fauzi et al., 2022; Tran et al., 2022; UNDP, 2021, 2023). However, although income is insufficient as the sole measure of poverty, it is deemed a significant means to access valuable

resources and opportunities (Ibrahim & Tiwari, 2014; Robeyns, 2017, p. 128).

As a result, some international organizations and governments, such as the World Bank (2018) and the government of Malaysia (Ministry of Economy of Malaysia, 2018), incorporate income as a dimension in their poverty measurement. Considering CFPS data availability and its role in complementing non-income data, this research includes income in the adapted MPI.

As for the indicator of employment, Sen (2000, pp. 94–96) views unemployment as a deprivation of capability rather than just a loss of sources of income. This perspective suggests that unemployment not only reduces an individual's earnings but also undermines their functionings or well-being (Suppa, 2018). Unemployment can negatively affect mental health, leading to anxiety, depression, and lower self-esteem while reinforcing feelings of stigma. Additionally, as workplaces provide vital social connections, unemployment can weaken social participation (Duong & Pham, 2023; ILO, 2016; Santos & Villatoro, 2018; Suppa, 2018). This finding aligns with the United Nations' (2015) SDGs (Goal 8), which promotes decent work and economic growth, highlighting employment as a key development outcome rather than merely a means to poverty reduction. In line with the SDG framework, several countries, including South Africa, Ecuador, Colombia, and Chile, have incorporated informal employment or unemployment as an indicator in their official MPI frameworks (Alkire et al., 2017; Ministerio de Desarrollo Social y Familia, 2023;

Santos & Villatoro, 2018; Statistics South Africa, 2014). In light of these considerations, this study includes employment in the adapted MPI.

Regarding the relationship between the indicators and the SDGs, the income indicator aligns with SDG 1, “No Poverty”, as it directly addresses poverty reduction. It is also linked to SDG 10, “Reduced Inequalities”, as income inequality is a key aspect of this SDG. Similarly, the employment indicator corresponds to SDG 8, “Decent Work and Economic Growth,” which emphasizes the importance of job quality and economic opportunities.

(2) Health: Due to the unavailability of child mortality data in the CFPS, this research excludes this indicator from the health dimension of the Global MPI. Instead, two common health indicators, Self-Rated Health (SRH) and Body Mass Index (BMI) were included as it exhibits a strong correlation with other health indicators, such as mortality rates (S. M. Chan & Wong, 2024; Chi et al., 2022; Y. Fan & He, 2022; Lorem et al., 2020). Moreover, this research incorporated medical insurance into the adapted MPI, considering that improved access to medical insurance contributes to better household health conditions (Gu et al., 2021; X. Guo & Zhou, 2016; Mohanty et al., 2017).

Notably, the multidimensional poverty measures largely draw their legitimacy in part from making several specific references, their indicators being designed with the explicit purpose of achieving the SDGs (Alkire & Jahan,

2018; UNDP, 2020). Specifically, The indicators of BMI and SRH are directly related to SDG3, “Good Health and Well-being”, as they are closely associated with physical health and well-being. “Medical Insurance” is aligned with SDG 3, as access to healthcare is crucial for achieving good health and well-being.

(3) Education: This research replaced the indicator of years of schooling in the Global MPI with education level, mainly due to limitations in data availability in the CFPS. The information on respondents’ years of schooling in CFPS is not as complete as their education levels. Therefore, this study has changed it to the education level. Notably, this study excludes the school attendance indicator from the Global MPI, as the dropout rate at the compulsory education level in Shandong Province has remained below 1% since 2010 (National Bureau of Statistics of China, 2024a). The indicator “Education Level” directly targets educational attainment, a key aspect of SDG 4.

(4) Standard of living: Because household electricity coverage in Shandong Province has already reached 100% (State Grid Corporation of China, 2006), the electricity indicator from the Global MPI was excluded from this dimension. Furthermore, sanitation and housing indicators were removed due to data unavailability after 2016 in the CFPS; this research replaced them with homeownership and housing areas, which are commonly utilized in multidimensional poverty assessments (Ren et al., 2017; Zhong & Lin, 2020).

The indicators in this dimension have a strong relationship with the SDGs. Specifically, “Cooking Fuel” directly relates to SDG 7, “Affordable and Clean Energy”. “Drinking Water” directly relates to SDG 6, “Clean Water and Sanitation”, because access to clean drinking water is a fundamental aspect of this SDG. “Homeownership” and “Housing Area” fall within the scope of SDG 11, “Sustainable Cities and Communities”. “Asset Ownership” relates to SDG 10, “Reduced Inequalities”, because asset ownership can contribute to reducing inequalities within a society. The dimensions and indicators in the adapted MPI are listed in Table 3.1.

**Table 3.1**

*Adapted Multidimensional Poverty Index in This Research*

Dimension	Indicator	Deprivation Cutoff	SDG Area	Weight
Income and Employment	Income	Household per capita income is lower than the corresponding year’s World Bank upper-middle-income poverty line in terms of PPP.	SDG 1 and 10	1/8
	Employment	At least one household member aged 15 or older is unemployed.	SDG 8	1/8
Health	BMI	Any adult household member with a BMI less than 18 or greater than or equal to 24.	SDG 3	1/12
	SRH	The SRH status of any household member is poor.	SDG 3	1/12
	Medical Insurance	Any household member does not have medical insurance.	SDG 3	1/12
Education	Education Level	Any household member aged 18 or older has an education level lower than lower secondary education.	SDG 4	1/4

Standard of Living	Cooking Fuel	The household does not use clean fuel such as electricity, liquified petroleum gas, or natural gas for cooking.	SDG 7	1/20
	Drinking Water	The household has no clean water such as tap water, barreled water, purified water, or filtered water at home.	SDG 6	1/20
	Homeownership	The household has no homeownership.	SDG 11	1/20
	Housing Area	The per capita household living area is less than 15 square meters.	SDG 11	1/20
	Household Assets	The total value of all durable goods in the household is no more than 2,500 CNY.	SDG 10	1/20

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### 3.3.6.3 Deprivation Thresholds

The deprivation threshold represents the minimum achievement required for non-deprivation in each indicator (Alkire et al., 2015, p. 208; UNDP & OPHI, 2019). This research mainly referred to the Global MPI of the UNDP (2023) and revised its deprivation thresholds according to the national conditions of the average living standards of Shandong Province. These revisions aim to make the adapted MPI more relevant to the regional context of Shandong Province and better reflect the challenges faced by urban poor households in the area. This research mainly made the following revisions:

For the indicator of income, this study adopts the World Bank's poverty line for upper-middle-income countries. According to the World Bank, China became an upper-middle-income country in 2010 (Y. Chen et al., 2021; World Bank, 2011). In 2015, the World Bank introduced a poverty line for upper-



middle-income countries, set at 5.50 USD per day based on 2011 PPP (Ferreira & Sánchez-Páramo, 2017). This threshold was later updated in 2022 to 6.85 USD per day (World Bank, 2022e). However, because the data used in this study predates 2022, a poverty line of 5.50 USD per day is applied in this research.

Since the poverty line is based on the 2011 PPP standard, this research first calculates the poverty line for urban Shandong Province by converting 5.50 USD into CNY using the 2011 USD to CNY PPP conversion factor of 3.7 (World Bank, n.d.). This results in a baseline poverty line of 7,427.75 CNY per person per year. The research then uses the Consumer Price Index from the National Bureau of Statistics of China (n.d.) to calculate the price adjustment coefficients for the years 2012-2020 relative to 2011. These coefficients are then applied to the baseline poverty line, yielding the following income deprivation thresholds used in this study: 7,620.87 CNY for 2012, 7,975.92 CNY for 2014, 8,248.52 CNY for 2016, 8,556.77 CNY for 2018, and 9,024.72 CNY for 2020.

Concerning employment, this research follows definitions from the Chinese government and international organizations. The ILO defines the working-age population as individuals aged 15 and older (ILO, 2024), while most OECD countries define it as 15 to 64-year-olds (OECD, 2013). The National Bureau of Statistics of China (2020) defines it as the economically active population aged 15 years and above. While definitions of the working-

age population vary across organizations, unemployment is generally characterized as being without work, available for work, and actively seeking employment in the past few weeks (ILO, 2014; National Bureau of Statistics of China, 2020). Considering the specific data available in CFPS, this study adopts the ILO and Chinese government criteria, defining unemployment as individuals who are without work, available for work, and actively seeking employment in the past month.

Regarding the deprivation threshold for unemployment, defining it as “all household members being unemployed” would effectively capture cases of extreme poverty. However, this criterion is too restrictive and may overlook households that are marginally poor. Given that the average household size in Shandong Province is only 2.7, the unemployment of even one member can significantly impact the household’s economic stability (Shandong Provincial Statistics Bureau, 2023a). Therefore, this study sets the deprivation threshold as: At least one household member aged 15 or older is unemployed. This threshold aligns with the official MPI frameworks of Ecuador, Colombia, and Chile, (Alkire et al., 2017; Santos & Villatoro, 2018).

In terms of the BMI indicator, this research employs the weight criteria for adults established by the National Health Commission of China (2013), which includes the criteria of weight for adults as the threshold. According to

the criteria, the standard weight for adults is  $18.5 \leq \text{BMI} < 24.0$ . This criterion provides a standardized measure for evaluating individuals' health status based on their BMI (Khanna et al., 2022).

Regarding the indicator of education level, because China has implemented the 9-year compulsory education system since 1986 (United Nations Educational, Scientific and Cultural Organization, 2011), which includes both primary and lower secondary education, this study sets the threshold for education level at the completion of lower secondary education, in accordance with the provisions of China's Compulsory Education Law.

For the housing area indicator, many cities in China, including Beijing, Chongqing, Guangzhou, Shanghai, and Wuhan, have established a per capita living space of 15 square meters or less as the eligibility criterion for low-rent or public rental housing (Beijing Municipal Commission of Housing and Urban-Rural Development, 2024; Chongqing Development Zone Housing and Urban-Rural Construction Committee, 2023; General Office of the Guangzhou Municipal People's Government, 2024; Shanghai Fengxian District People's Government, 2023; Wuhan Municipal Bureau of Housing and Urban Renewal, 2017). This 15-square-meter benchmark is normatively grounded in its alignment with minimum health and well-being standards. The WHO emphasizes that overcrowding (typically defined as  $<20 \text{ m}^2$  per capita in

developed contexts) increases the risk of respiratory and other infectious diseases (Shannon et al., 2018). This finding is further supported by Perez et al. (2024). Given the higher population density in Chinese cities, a slightly lower threshold may be more suitable for the Chinese context.

Shandong Province has adopted a similar standard. According to Jinan Daily (Fu, 2011), the threshold for housing poverty in Shandong is also set at 15 square meters per capita, reinforcing its relevance at both the municipal and provincial levels. Moreover, this benchmark is consistent with existing research on multidimensional poverty in China, where scholars have used the same threshold to assess housing deprivation (X. Guo & Zhou, 2016; Q. Zhang & Zhou, 2015; Zhong & Lin, 2020). Given its widespread application in housing policies and empirical research, this research considers households with a per capita living area of no more than 15 square meters as deprived in this indicator.

Regarding the household assets indicator, the Global MPI defines deprivation in this area as follows: “A household is deprived if it owns no more than one of the following assets: radio, television, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck” (UNDP, 2023). According to this criterion, a household must own at least two durable goods to avoid deprivation. However, the CFPS has not consistently collected data on the types of durable goods owned by households in each survey round;

they discontinued this data collection after 2014. Therefore, this research switches to another variable provided by the CFPS: the total value of durable goods as the criterion.

The CFPS defines durable goods as “products priced above 1,000 CNY with a natural service life exceeding two years” (Institute of Social Science Survey, Peking University, 2015). However, 1,000 CNY represents only the minimum value threshold for a single item and cannot be used to determine the quantity of durable goods a household owns. Considering the Global MPI standard and the CFPS definitions, this study slightly raised the minimum value threshold for durable goods and modified the deprivation criterion to: “The total value of all durable goods in the household does not exceed 2,500 CNY.”

Furthermore, the China Family Panel Studies (CFPS) did not collect data on car ownership in 2016, leading to missing data for this variable. To address this inconsistency and maintain the reliability of the analysis, this study follows the example of (Harrison & Pius, 2021, Chapter 11.7; Little & Rubin, 2019, p. 32), excluded the car ownership variable from the deprivation criterion.

#### **3.3.6.4 Poverty Threshold**

The poverty cutoff  $k$  determines when a household has enough deprivations to be considered poor (Alkire & Foster, 2011a). In other words, if

a household's deprivation score is greater than or equal to the value of  $k$ , it will be deemed multidimensionally poor. There are two key approaches to identifying poor respondents: the union and intersection methods (Alkire et al., 2015, pp. 152–154; Atkinson, 2003). The union approach classifies a household as multidimensionally poor if it is deprived in at least one indicator, whereas the intersection approach requires deprivation in all indicators simultaneously for a household to be considered multidimensionally poor.

Current research on multidimensional poverty lacks consensus on the appropriate poverty threshold (UNDP & OPHI, 2019, p. 80). Many studies simply adopt the UNDP's standard by setting the poverty cutoff at  $k = 1/3$ , which may not always reflect the specific conditions of a given local context (Alkire et al., 2022; Alkire & Fang, 2019; Alkire & Santos, 2014).

Following the guidelines set forth by Alkire et al. (2015, pp. 235–238), Alkire and Santos (2014), and the UNDP and OPHI (2019), this research adopts a comprehensive approach that considers methodological robustness, poverty coverage, policy relevance, and international comparability to determine the appropriate poverty threshold. Using CFPS 2012-2020 data, the study tests the  $H$ ,  $A$ , and  $M_0$  indices across a reasonable range of  $k$  values (from 0.1 to 0.8) and conducts a sensitivity analysis. The outcomes are presented in Table 3.2.

**Table 3.2***Sensitivity Analysis of the Poverty Threshold*

		$k=0.1$	$k=0.2$	$k=0.3$	$k=0.4$	$k=0.5$	$k=0.6$	$k=0.7$	$k=0.8$
2012	$M_0$	0.3605	0.3321	0.3021	0.2531	0.175	0.0901	0.0241	0.0033
	$H$	0.879	0.7298	0.6048	0.4637	0.2903	0.1331	0.0323	0.004
	$A$	0.4101	0.4551	0.4994	0.5459	0.6029	0.6768	0.7479	0.8167
2014	$M_0$	0.3218	0.3022	0.2781	0.2165	0.1269	0.0611	0.0124	
	$H$	0.8292	0.6958	0.5917	0.4167	0.2125	0.0917	0.0167	
	$A$	0.3881	0.4343	0.47	0.5196	0.5971	0.667	0.7458	
2016	$M_0$	0.2781	0.2581	0.2398	0.1627	0.0964	0.0473	0.013	0.0028
	$H$	0.7509	0.6109	0.5358	0.314	0.1638	0.0717	0.0171	0.0034
	$A$	0.3704	0.4224	0.4475	0.5183	0.5887	0.6595	0.7633	0.825
2018	$M_0$	0.284	0.2628	0.2483	0.1555	0.0785	0.0315	0.0022	
	$H$	0.7808	0.6396	0.5796	0.3093	0.1351	0.048	0.003	
	$A$	0.3637	0.4109	0.4285	0.5028	0.5806	0.6552	0.7167	
2020	$M_0$	0.2477	0.2309	0.2051	0.135	0.0711	0.0091		
	$H$	0.7014	0.5863	0.4748	0.2734	0.1295	0.0144		
	$A$	0.3532	0.3938	0.4319	0.4938	0.5488	0.6313		

First, this study assessed the stability of  $M_0$  with respect to changes in the  $k$  value. A sharp increase in the rate of change within a particular range indicated that the results were sensitive to  $k$  values in that interval. Next, the study compared the balance between  $H$  and  $A$ . As the  $k$  value increases, the  $H$  value decreases, suggesting a reduction in the number of people living in poverty, while the  $A$  value increases, indicating that the average deprivation of the poor rises. An appropriate  $k$  value must strike a balance between coverage ( $H$ ) and the depth of deprivation ( $A$ ). This ensures that the policy objectives based on the selected threshold can effectively balance broad coverage with a focus on the most disadvantaged groups (UNDP & OPHI, 2019, p. 79).

The study also examines the robustness of the trend. The results show that  $M_0$  decreased as  $k$  values increased across all years, with the largest decrease occurring between  $k = 0.3$  and  $0.4$  (e.g., a 34% drop in 2020). Therefore, from a robustness standpoint, careful consideration should be given when selecting  $k$  values within this range.

Taking all factors into account, the study selected a  $k$  value of 0.3, which strikes a balance between robustness, coverage, policy relevance, and international comparability, in alignment with the guidelines of the UNDP and OPHI (2019, p. 79). In terms of robustness, at  $k = 0.3$ ,  $M_0$  shows relatively smooth changes between adjacent  $k$  values, with an average decrease of approximately 15%, suggesting that the results are not highly sensitive to  $k$  value fluctuations. Regarding coverage,  $H$  ranges from 47.5% to 60.5% (2012-2020), encompassing a broad spectrum of the poor population. Nevertheless, compared to the union approach (set at 0.25 in this study), it still demonstrates superior capability in identifying households in deep poverty. Therefore, it can be argued that  $k = 0.3$  effectively balances both the breadth and depth of poverty measurement while maintaining strong policy relevance (UNDP & OPHI, 2019, p. 79). Additionally, from an international reference perspective, a  $k$  value of 0.3 aligns closely with the commonly used  $k = 0.33$  standard of the Global MPI, making it well-suited for international comparisons.



### **3.3.6.5 Weight Settings**

The setting of weights plays an essential role in the measurement of multidimensional poverty (Alkire & Fang, 2019; He, Zuo & Luo, 2016; Zhou, 2014). There are three main approaches to set weights: normative, data-driven, and hybrid weighting (Decancq et al., 2013). Normative weighting includes expert opinion, equal weights, and arbitrary weights. Data-driven weighting includes frequency-based, statistical, and most favorable weights. This research referred to studies of Alkire and Fang (2019), Alkire and Foster (2011a), Chi et al. (2022), Fahad et al. (2022), X. Guo and Zhou (2016), Nadeem et al. (2018), Pratesi (2016), C. Wang et al. (2021), Z. Zhang et al. (2021), and Zhang and Zhou (2015) on multidimensional poverty and set equal weights on the dimensions and the indicators within each dimension. In addition, this research conducted Spearman's and Kendall's rank correlation tests to assess the robustness of the employed weight setting.

### **3.3.6.6 Statistical Inference**

To enhance the accuracy and reliability of multidimensional poverty measurement, this study calculated the standard errors and confidence intervals for the key indicators in the measurement: headcount ratios, average deprivation scores, and adjusted headcount ratios. According to Alkire et al. (Alkire et al., 2015, Chapter 8), two approaches can be used for calculating standard errors—

the analytical approach and resampling methods. The first consists of formulas that provide either the exact or the asymptotic approximation of the standard error. The resampling approach consists of computing the standard errors through bootstrap or similar techniques (UNDP & OPHI, 2019). Due to the unavailability of detailed stratification and PSU information from CFPS—only the overall sampling weight was provided—this study employs SPSS’s Bootstrap feature to compute the standard errors (Fox, 2008, p. 587). Regarding the confidence interval, this research follows the instructions of Alkire et al. (2015, pp. 240–243), UNDP and OPHI (2019), and Z. Zhang et al. (2021), utilizing a 95% confidence level. Consequently, the corresponding  $z$ -value for the confidence level is 1.96.

First, this study employs sampling with replacement from the original sample, drawing as many observations as the original size. Specifically, each household  $i$  is selected according to the probability:

$$p_i = \frac{w_i}{\sum_{j=1}^n w_j}$$

where  $w_i$  is the sampling weight for household  $i$ , and  $\sum_{j=1}^n w_j$  is the total sampling weight summed over all  $n$  households in the original dataset. The value  $p_i$  is referred to as the normalized weight, which converts each household’s sampling weight  $w_i$  into a probability (Larriba et al., 2018;

Makarencov et al., 2010). This step is necessary because using the raw sampling weights directly may result in a sum greater than 1, rendering them unsuitable for probability-based resampling (J. Lu et al., 2024).

Next, the study performs  $B = 1000$  bootstrap replications. In each replication  $b$ ,  $n$  observations are drawn (with replacement) using the probabilities  $p_i$ . This process yields a “bootstrap sample” in which certain households may appear multiple times while others may not appear at all. The three Dual Cutoff measures—headcount ratio ( $H_b$ ), average deprivation score ( $A_b$ ), and adjusted headcount ratio ( $M_{0,b}$ )—are then computed. After repeating this process  $B$  times, the resulting estimates are  $\{H_1, A_1, M_{0,1}\}, \dots, \{H_B, A_B, M_{0,B}\}$ .

To estimate standard errors, the sample standard deviations of  $\{H_b\}$ ,  $\{A_b\}$ , and  $\{M_{0,b}\}$  are computed for each respective indicator. Confidence intervals are constructed using the percentile method (Efron, 1979; Efron & Tibshirani, 1993, Chapter 12), whereby the  $B$  bootstrap estimates for each indicator are sorted, and the 2.5% and 97.5% quantiles are taken as the lower and upper bounds of the 95% confidence interval. This method does not assume a normal or symmetric distribution (which is advantageous given that these measures often lie between 0 and 1), making it more robust than a simple normal approximation (Efron & Tibshirani, 1993, Chapter 12).

### **3.3.6.7 Robustness Tests**

According to the UNDP and OPHI (2019), robustness is a crucial criterion for multidimensional poverty measures. Robustness means that the measures should not be excessively sensitive to minor modifications in the indicators, cutoffs, or weights used in their calculation. To enhance the validity and reliability of the poverty measurement method, this research referred to Creswell (2014) and Hair et al. (2019) and employed various approaches to evaluate the robustness of the Dual Cutoff method.

#### **3.3.6.7.1 Robustness Test to the Selected Dimensions and Indicators**

To assess the robustness of the selected dimensions and indicators for the MPI, this study followed the methodological guidelines provided by Alkire and Santos (2014), UNDP and OPHI (2019), and Z. Zhang et al. (2021). Three alternative sets of indicators were developed by sequentially excluding income, BMI, and durable goods, respectively. Spearman's and Kendall's rank correlation tests were then employed to evaluate the consistency of respondent rankings across these different indicator sets. To streamline the analysis, the robustness assessment was conducted using only the 2020 data.

As shown in Table 3.3, all Spearman's and Kendall's rank correlation coefficients exceeded 0.8, indicating moderate to strong consistency in the

ranking of multidimensional poverty across the alternative indicator configurations (Akoglu, 2018; Frost, 2018; Schober et al., 2018). Furthermore, all correlations were statistically significant at the 0.01 level, thereby reinforcing the robustness of the adapted MPI dimensions and indicators. These results confirm that the selected indicators reliably capture multidimensional poverty in Shandong Province and support their validity for subsequent analyses (J. Yang & Mukhopadhyaya, 2017).

**Table 3.3**

*Spearman's and Kendall's Rank Correlation Tests for the Indicators*

		Baseline MPI	Income removed	BMI removed	Household Assets removed
Kendall's tau_b	Baseline MPI	1.000			
	Income removed	.886**	1.000		
	BMI removed	.881**	.800**	1.000	
	Household Assets removed	.957**	.864**	.860**	1.000
Spearman's rho	Baseline MPI	1.000			
	Income removed	.962**	1.000		
	BMI removed	.961**	.921**	1.000	
	Household Assets removed	.993**	.955**	.953**	1.000

*Note.* \*\* indicates a significant correlation at the 0.01 level (2-tailed).

### 3.3.6.7.2 Robustness Test to the Poverty Threshold

To assess the robustness of the Dual Cutoff method across various  $k$  values, this study follows the guidelines of Alkire et al. (2015, pp. 235–238), Alkire and Santos (2014), and UNDP and OPHI (2019), setting a reasonable

range of  $k$  between 0.1 and 0.6 for the analysis. This range is chosen because when  $k$  exceeds 0.6, no households fall into poverty in the 2020 dataset, which is used for the robustness test in this research.

To test the robustness of the chosen poverty threshold, this study follows the guidelines of UNDP and OPHI (2019, p. 97) and employs Spearman's and Kendall's rank correlation tests to evaluate the stability of the multidimensional poverty measurement method across different  $k$  values. Respondents are categorized into 44 subgroups based on the variable *CountyID*, and the  $H$ ,  $A$ , and  $M_0$  are calculated for each subgroup. Next, the counties are ranked by  $M_0$  for each  $k$  value. Finally, pairwise rank correlations are computed to assess the consistency of rankings across thresholds. The results are presented in Table 3.4.

**Table 3.4**

*Spearman's and Kendall's Rank Correlation Tests for the  $k$  Values*

Pair	Spearman_corr	Spearman_p	Kendall_corr	Kendall_p
k=0.1 vs k=0.2	0.9358	<.001	0.8794	< .001
k=0.1 vs k=0.3	0.8634	< .001	0.7836	< .001
k=0.1 vs k=0.4	0.7678	< .001	0.6931	< .001
k=0.1 vs k=0.5	0.5580	< .001	0.4790	< .001
k=0.1 vs k=0.6	0.2513	0.1	0.2179	0.096
k=0.2 vs k=0.3	0.9092	< .001	0.8556	< .001
k=0.2 vs k=0.4	0.8120	< .001	0.7540	< .001
k=0.2 vs k=0.5	0.5917	< .001	0.5212	< .001
k=0.2 vs k=0.6	0.2578	0.091	0.2303	0.088
k=0.3 vs k=0.4	0.8710	< .001	0.8281	< .001
k=0.3 vs k=0.5	0.6426	< .001	0.5788	< .001
k=0.3 vs k=0.6	0.2960	0.051	0.2705	0.05
k=0.4 vs k=0.5	0.7662	< .001	0.7227	< .001

k=0.4 vs k=0.6	0.3303	0.029	0.3087	0.028
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The results demonstrate strong robustness in the measurement when  $k$  ranges between 0.2 and 0.4. For instance, the Spearman correlation coefficient between  $k$  values of 0.2 and 0.3 is 0.909, while the Kendall correlation coefficient is 0.855. Similarly, the Spearman correlation coefficient between  $k$  values of 0.3 and 0.4 is 0.871 and the Kendall correlation coefficient is 0.828. This indicates that when the  $k$  value ranges between 0.2 to 0.4, the measurement is very robust. In contrast, when  $k > 0.5$  the correlation coefficients drop significantly. For example, the Spearman correlation coefficient between  $k$  values of 0.3 and 0.5 is 0.643, while the value between  $k$  values of 0.3 and 0.6 drops further to 0.296. This suggests that rankings become more sensitive to the choice of  $k$  when it exceeds 0.5. Based on these results and the sensitivity analysis in section 3.3.4.4,  $k = 0.3$  is a robust choice, striking a balance between avoiding overestimating poverty and including those with lower levels of deprivation.

### 3.3.6.7.3 Robustness Test to Deprivation Thresholds

To assess the robustness of the deprivation threshold setting, this study conducted a sensitivity analysis based on the methodology proposed by UNDP and OPHI (2019). Due to data limitations, some indicators have dichotomous deprivation thresholds (e.g., clean cooking fuel, clean drinking water, homeownership, medical insurance, and employment), and therefore alternative

thresholds cannot be set for these indicators. The study follows the examples of Oakleaf et al. (2019) and establishes two alternative thresholds for each of the continuous variables, including income, housing area, and household assets, by increasing and decreasing their values by 10% and 20% and then calculating the corresponding  $H$  and  $A$  under the new thresholds. If the results do not show significant variation, this would indicate the robustness of the threshold settings (UNDP & OPHI, 2019).

Due to time constraints, this research prioritized the analysis of the latest 2020 data. The sensitivity test results indicate that the poverty measurement is robust. The results revealed the following trends: when the income threshold was reduced by 20%,  $H$  remained unchanged, while  $A$  decreased by 1.76%. Conversely, a 20% increase in the income threshold led to a 0.76% rise in  $H$  and a 0.37% increase in  $A$ . When the housing area threshold was reduced by 20%,  $H$  decreased by 0.67%, and  $A$  fell by 1.18%; however, a 20% increase in the housing area threshold resulted in no change in  $H$ , while  $A$  rose by 0.35%. For the household assets threshold, increasing it by 20% had no effect on either  $H$  or  $A$ , whereas reducing the threshold by 20% caused  $H$  to decrease by 0.76% and  $A$  to decline by 0.56%. All of these variations fell within the original confidence intervals ( $A$ : [0.4172, 0.4469];  $H$ : [0.4173, 0.5360]), suggesting that the observed changes were minimal and did not significantly alter the results. These results, as presented in Table 3.5, highlight the robustness of the



multidimensional poverty measurement method concerning deprivation threshold settings. A sensitivity analysis was also conducted by adjusting the thresholds by  $\pm 10\%$ , and the results indicated only minor variations, with even less significant differences.

**Table 3.5**

*Sensitivity Analysis for the Deprivation Thresholds*

	$H$	$A$	$M_0$
Baseline MPI	0.4748	0.4319	0.2051
Income decreased by 20%	0.4748	0.4243	0.2015
Income increased by 20%	0.4784	0.4335	0.2074
Housing area decreased by 20%	0.4712	0.4268	0.2011
Housing area increased by 20%	0.4748	0.4334	0.2058
Durable goods value decreased by 20%	0.4712	0.4295	0.2024
Durable goods value increased by 20%	0.4748	0.4319	0.2051

#### 3.3.6.7.4 Robustness Test to Weight Settings

To evaluate the robustness of the equal-weight scheme, this research follows the guidelines of Alkire et al. (2015, pp. 238–240) and Alkire & Santos (2014) and calculates the  $M_0$  of all samples using both the baseline equal weighting and four alternative weighting configurations. In the alternative schemes, one dimension is allocated 50% while the remaining three dimensions each receive 16.67%. Specifically, Weight 1 assigns 50% to income and employment; Weight 2 assigns 50% to health; Weight 3 assigns 50% to education; and Weight 4 assigns 50% to the standard of living.

Spearman's and Kendall's rank correlation tests were employed to assess the correlations between the baseline equal-weighted scheme and four alternative weighting schemes. As shown in Table 3.6, regardless of the correlation method used, most weighting schemes exhibit high consistency, with the majority of coefficients exceeding 0.90 and some reaching 1.000. This indicates strong ranking robustness in MPI across different weighting schemes (Akoglu, 2018; Frost, 2018; Schober et al., 2018). Furthermore, all correlations are statistically significant at the 0.01 level, reinforcing the reliability of the findings and confirming the stability of poverty rankings under varying weight structures. Overall, these findings confirm the robustness of the multidimensional poverty measurement approach employed in this study (Alkire et al., 2015, pp. 238–241; J. Yang & Mukhopadhyaya, 2017).

**Table 3.6**

*Spearman's and Kendall's rank correlation for the Weight Schemes*

		Baseline MPI	Weight 1	Weight 2	Weight 3	Weight 4
Kendall's tau_b	Baseline MPI	1.000				
	Weight 1	1.000**	1.000			
	Weight 2	.832**	.832**	1.000		
	Weight 3	.985**	.985**	.816**	1.000	
	Weight 4	.985**	.985**	.816**	1.000**	1.000
Spearman's rho	Baseline MPI	1.000				
	Weight 1	1.000**	1.000			
	Weight 2	.934**	.933**	1.000		
	Weight 3	.995**	.995**	.920**	1.000	
	Weight 4	.995**	.995**	.920**	1.000**	1.000

*Note.* \*\* indicates a significant correlation at the 0.01 level (2-tailed).

### 3.3.7 Contributing Factors of Multidimensional Urban Poverty

In order to answer RQ3, this research employed logistic regression to discover the main contributing factors of multidimensional urban poverty in Shandong Province. Logistic regression analysis was conducted using SPSS version 22. The equation for logistic regression is expressed as:

$$\ln\left(\frac{p_j}{1-p_j}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n$$

In the equation,  $p_j$  denotes the probability that household  $j$  falls into poverty,  $\beta_0$  represents the general intercept,  $\beta_1, \beta_2, \beta_n$  are the regression coefficients, and  $X_1, X_2, \dots, X_n$  denotes the independent variables.

The dependent variable in the model is a dichotomous variable representing whether a household is poor. If a household's weighted deprivation score is greater than the poverty threshold ( $k = 0.3$ ), the value of the dependent variable is 1; otherwise, it is 0. The weighted deprivation scores were derived from the previous measurement of multidimensional urban poverty.

The independent variables were derived from Sen's Capability Approach, which comprises four key concepts: functionings, capabilities, resources, and conversion factors (Burchi & De Muro, 2016; Robeyns, 2017, pp. 7–10; Verd & López Andreu, 2011). Drawing from relevant literature, this

research developed different variables corresponding to these concepts. Specifically, resources encompass variables such as government subsidy, housing value, financial assets value, durable goods value, and car ownership. Capabilities correspond to variables related to the household head's education, employment, household member's chronic disease, and healthcare expenditures. Conversion factors include personal, social, and environmental factors (Robeyns, 2017, pp. 45–47), which respectively correspond to variables of household head's gender, age, marital status, household size, dependency ratio, public facilities, and surrounding environment.

Due to the large number of explanatory variables in the logit model, this research employed a Variance Inflation Factor (VIF) test to determine whether or not the regression model has a collinearity issue (Akinwande et al., 2015; O'Brien, 2007). The VIF test helps ensure the validity and reliability of the regression results. According to Hair et al. (2019), James et al. (2021), and Johnston et al. (2018), a VIF value below five indicates no significant multicollinearity issue among the variables.

### **3.4 Qualitative Research Methods**

Existing research on poverty is largely based on large-scale quantitative surveys, with relatively few researchers focusing on the subjective experiences of urban poor individuals (Jones & Tvedten, 2019; Kura & Sulaiman, 2012). To

delve into the lived experiences, perspectives, and interactions of urban poor households regarding poverty, this research adopted the phenomenological approach as outlined by Neubauer et al. (2019), Nizza et al. (2021), and Smith and Nizza (2022).

The strength of the phenomenological approach lies in its emphasis on the subjective experiences of participants, allowing for the capture of their unique interpretations of these experiences (Mole et al., 2019; Neubauer et al., 2019; Nizza et al., 2021; Noon, 2018). Moreover, uncovering implicit meanings within these experiences fosters a deeper understanding of the specific challenges and unique needs inherent in participants' lived realities (Charlick et al., 2016), thereby contributing to the formulation of future urban poverty alleviation strategies.

This research employed semi-structured interviews to collect qualitative data from urban poor households. Interviews can generally be categorized into three types: structured, semi-structured, and unstructured (Creswell & Plano Clark, 2018). The semi-structured interview combines the benefits of structured and unstructured approaches. It offers flexibility for researchers to prepare an interview guide in advance while allowing for adaptations based on the respondents' responses during the interview (Adeoye-Olatunde & Olenik, 2021; Agee, 2009). Therefore, this research adopted this approach.

### **3.4.1 Sample Size**

Different qualitative research approaches require different sample sizes. For phenomenological approaches, Creswell (2014) recommended 5 - 25, Morse (1994) suggested at least 6, with a focus on in-depth interviews, while Bernard (2013) suggested 10 - 20 key participants for any study of lived experience. Phenomenological research generally has a relatively small sample size because it focuses on in-depth individual experiences rather than broader population generalizations (Charlick et al., 2016; Noon, 2018). However, a relatively larger sample size is beneficial for fully developing patterns, concepts, categories, and properties of the given phenomena (Marshall et al., 2013). This research endeavored to recruit a larger number of participants and adhere to the principle of maximum variation, enhancing the diversity and inclusiveness of the samples (Benoot et al., 2016). The sampling process continued until data saturation was attained (Sebele-Mpofu, 2020).

This research aimed to conduct interviews in three cities within Shandong Province: Heze, Jinan, and Tai'an. Shandong Province exhibits significant developmental disparities across its various regions (F. Liu & Wang, 2019; Q. Meng, 2017; J. Zhang & Li, 2021). Heze is the most economically challenged city in Shandong Province, hosting the largest impoverished population, accounting for 51.2% of the province's total (Poverty Alleviation

Office of Heze, 2018). Jinan is the capital city of Shandong Province; its economic and social development level is among the highest in Shandong Province (Jinan Municipal Bureau of Statistics, 2022). The economic and social development level of Tai'an falls within the middle range of Shandong Province (Shandong Provincial Statistics Bureau, 2023a). These three cities were selected due to their significant developmental disparities, following the principle of maximum variation sampling, which aims to maximize the diversity among the chosen cases (Benoot et al., 2016).

### **3.4.2 Sampling Method**

This research employed purposive sampling and snowball sampling techniques to select respondents. Purposive sampling is a non-probability sampling method in which researchers rely on their judgments to select research samples (Tongco, 2007). This approach ensures the selection of the most informative cases that can offer valuable insights into the research questions (Patton, 2015; Suri, 2011).

During the sampling process, I first classified urban areas based on different communities. I then allocated the number of respondents according to the poverty levels in each community. Specifically, I began by visiting the poverty alleviation offices of various city governments to gain a general understanding of urban poverty conditions. Next, I visited community offices,

where I obtained lists of households that met the sampling criteria. Then I conduct interviews with the households. Ultimately, I conducted interviews in the Wen Yuan, Tian Yuan, and Nan Hua communities in Heze, the Tian Qiao and Huai Yin communities in Jinan, and the Thai Shan community in Tai'an.

In addition to purposive sampling, this research employed the snowball sampling method. Snowball sampling is where research participants recruit other participants who have the necessary experience or characteristics for a test or study (Green & Thorogood, 2018; Johnson, 2014). It enables researchers to access respondents who are challenging to sample using other sampling methods (Kirchherr & Charles, 2018). In this research, the researcher asks the respondents to recommend their acquaintances or anyone they are familiar with who meets the sampling criteria for the following interviews.

Despite its advantages, some researchers argued that snowball sampling introduces certain biases in the sampling process (Kirchherr & Charles, 2018; Sadler et al., 2010), as it relies on selected participants to introduce new respondents, which introduces a risk of sample homogeneity, where participants might share similar experiences or opinions (Gierczyk et al., 2024; Sadler et al., 2010). To alleviate this disadvantage, this research employed the principle of maximum variation sampling to ensure a diverse range of selected samples. This approach aims to encompass a broader spectrum of the population, ensuring



heterogeneity across factors such as age, gender, occupation, marital status, educational background, and other contributing factors to poverty (Palinkas et al., 2015; Patton, 2015).

Furthermore, this study strictly controls the length of the referral chain, allowing each participant to refer only one new individual in order to mitigate selection bias (Heckathorn, 2011; Salganik & Heckathorn, 2004). Additionally, the diversity of the sample is regularly assessed throughout the sampling process (Ellard-Gray et al., 2015). If any obvious bias or trends of homogeneity are identified within the samples, the snowball sampling strategy is promptly adjusted, such as by changing the referrers.

### **3.4.3 Sampling Criteria**

This research employed an explanatory sequential mixed-methods design, where quantitative research was conducted first, followed by qualitative research. The quantitative research results laid the foundation for qualitative fieldwork design, including establishing sampling criteria and crafting interview questions (Creswell & Plano Clark, 2018; Subedi, 2016). Additionally, the fieldwork design drew on relevant literature, government documents, and reports to enhance the study's validity and reliability.

Through the measurement of multidimensional poverty and analysis of the contributing factors to urban poverty, this research considers low income, low educational levels, poor health, and inadequate housing conditions as the main contributing factors to urban poverty. Therefore, guided by the quantitative research results, this research formulated the following sampling criteria for urban poor households:

(1) Low household per capita income

Income-related variables were not included in the regression analysis of this study. However, through the measurement of multidimensional poverty, this research found that low income is still one of the most significant contributors to urban poverty in Shandong Province. This finding aligns with prior studies of Javed and Asif (2015), X. Wang (2022b), World Bank (2000), and J. Yu (2013), which also highlight low income—often stemming from low wages or unemployment—as a key driver of urban poverty. Regarding the specific criteria, the Chinese government has not established an official urban poverty line. Instead, each city publishes its own subsistence allowance standards, which serve as the official poverty line in urban China (Guan, 2019). Consequently, this research adopted income below the local subsistence allowance standards as the criterion.

## (2) Low educational attainments

According to the quantitative research results, low education emerges as a key factor contributing to urban poverty. Household heads with an educational level below upper secondary school are more likely to fall into poverty. China has implemented nine years of compulsory education, requiring the completion of primary and lower secondary education (M. Sun, 2022). However, having only a lower secondary education would severely restrict their employment opportunities (Tang et al., 2022). Therefore, this research sets the criterion as the education level being lower than upper secondary school.

## (3) Poor health conditions

According to the findings of the quantitative study, poor health is a major contributor to poverty. This finding aligns with Guo and Zhou (2016), Mohanty et al. (2017), Moyo et al. (2022), and Yu (2013). In China, around 40% of the impoverished population experiences poverty due to illness (National Health Commission of China, 2018). Therefore, this research includes individuals with severe health issues, such as chronic illnesses, disabilities, and mental disorders, as one of the sampling criteria for the qualitative study.

#### (4) Poor housing conditions

Through quantitative research, this research found that poor surrounding environment has a significant influence on urban poverty. A clean, healthy, and sustainable environment is widely recognized as a fundamental human right (United Nations, 2022b; World Bank, 2022d). Environmental hazards, such as water contamination and air pollution pose a substantial health risk to the households, further exacerbating their poverty (Fonta et al., 2020; J. Guo et al., 2022; Mehra & Saxena, 2020; Nadeem et al., 2018). Providing clean water and energy is a critical component of public infrastructure. Therefore, this criterion was established as a lack of access to inadequate public facilities and poor surrounding environment.

In addition to interviewing impoverished households, this research also interviewed government officials and community committee members to validate the information gathered from poor households, thereby enhancing the trustworthiness of this research. Drawing on relevant literature (S. Li, 2018; J. Zhang, 2016), this research formulated the following sampling criteria for government officials and community committee members: (1) Respondents must hold senior positions directly involved in poverty alleviation within their organizations, ensuring a thorough grasp of urban anti-poverty strategies. (2) Respondents must have a minimum of 5 years of work experience, with at least

three years directly related to poverty alleviation work, to ensure they possess extensive professional experience.

The respondents were mainly recruited from local poverty alleviation offices and community committees because they are tasked with formulating local poverty alleviation policies, managing subsistence allowance standards, and documenting urban poor households (Y. Du, 2022; Shu, 2022). In addition to government officials, this research recruited respondents with serious illnesses from local hospitals. Snowball sampling was also employed to supplement this recruitment approach. Utilizing a diverse recruitment strategy for the qualitative sampling process can enhance the overall trustworthiness of this research (Robinson, 2014).

#### **3.4.4 Ethical Procedure**

The fieldwork for the research received approval from the UTAR Scientific and Ethical Review Committee (Re: U/SERC/80/2022). Before the interviews, respondents were provided with an information sheet and consent form detailing the purpose of this research, data protection measures, data usage, potential benefits and risks, and their right to withdraw. The interview would only continue if the respondents agreed to the audio recording and signed the consent form.

### **3.4.5 Interview Questions**

This research developed interview questions based on the qualitative research objective, which is to explore the lived experiences of multidimensional urban poor households so as to lay a basis for formulating recommendations for future urban anti-poverty strategies. To achieve this goal, this research aimed to investigate the phenomenon encountered by urban poor households, their perspectives on the phenomenon, and their interactions with this phenomenon.

According to the results of quantitative research, urban impoverished families are primarily deprived in terms of income, education, health, and housing conditions. Therefore, this research referred to relevant literature and designed interview questions focusing on income, education, health, and housing conditions. To offer policy recommendations for future urban poverty alleviation efforts, this research formulated questions concerning coping strategies employed by urban households facing poverty, as well as their needs for poverty alleviation. The interview questions are detailed in Appendices C and D for reference.

In terms of income, this research developed questions to assess the financial status of the respondents. These inquiries cover various aspects such as income, expenditures, debts, and the respondents' perspectives on their

financial well-being. The following questions were presented to the respondents:

Question 3.1: How would you describe your family's financial situation?

Question 3.2: What challenges, if any, does your family face in managing daily expenses?

Question 3.3: Are you able to meet your financial needs? If not, what are the main reasons?

Question 3.4: If your family has debt, how does it affect your financial decisions and overall well-being?

Regarding education, this research included questions to determine the educational levels of both the respondents and their household members, as well as the impact of education on their lives. The following questions were asked:

Question 2.1: What are the education levels of you and your family members?

Question 2.2: How do you think your education levels have influenced your family's life opportunities or challenges?

Question 2.3: If you have children, are they currently attending school? What are your thoughts on their education experience?

In terms of health, this research incorporated questions to assess the health conditions of the respondents, including whether they suffer from serious illnesses, disabilities, or mental disorders. Recognizing the role of medical insurance in improving health outcomes, this research also included inquiries about the respondents' medical insurance coverage and the types of insurance

they possess. The following questions were developed for the respondents:

Question 4.1: How are the physical and mental health of you and your family members?

Question 4.2: Has anyone in your family experienced serious health issues or disabilities? If so, how has this affected your family life?

Question 4.3: Do you and your family have access to medical insurance? How has it helped (or not helped) in addressing health or financial concerns?

Concerning housing conditions, this research included questions about the respondents' homeownership status and the quality of their housing, including factors such as decoration, sanitation, and living space. This research also assessed the households' access to clean water, cooking fuel, and heating facilities, considering the importance of basic infrastructure in addressing urban poverty. The following interview questions were asked:

Question 5.1: Do you and your family own or rent your home? How would you describe its quality, including size, condition, and living environment?

Question 5.2: What is the condition of your home's infrastructure, such as access to electricity, water, heating, and internet?

Question 5.3: How do you feel your housing situation affects your family's overall well-being and daily life?

Beyond the objective aspects such as economic status, health, education, and living standards, this study also inquired about respondents' social



participation, offering a deeper understanding of their quality of life. The questions are presented as follows:

Question 6.1: How would you describe your and your family's mental well-being? Has your current situation influenced your psychological health?

Question 6.2: Can you tell me about your social life? Who do you usually interact with, and how often?

Question 6.3: How do you typically spend your free time? Do you participate in recreational activities, travel, or pursue hobbies? What do these activities mean to you?

In addition, this research included questions about the respondents' experiences with poverty, particularly focusing on their coping strategies and the effectiveness of these strategies. The following questions were developed:

Question 7.1: How do you perceive your current situation? What are the main challenges your family faces?

Question 7.2: Have you taken any steps to address these challenges? For example, seeking government assistance, asking for help from family or friends, or participating in social welfare programs?

Question 7.3: What are your future plans to improve your family's living conditions or overcome challenges?

Regarding their poverty alleviation needs, this research included questions about the respondents' perceptions of their situation and whether they require assistance from external sources. To inform future urban anti-poverty strategies, this research solicited the respondents' suggestions to the government regarding efforts to combat poverty. The following interview questions were

presented to the respondents:

Question 8.1: What kind of support do you feel would help your family the most, either from the government or other organizations?

Question 8.2: Have you experienced any difficulties accessing external support? If so, what were they?

Question 8.3: If you could suggest changes to the government's anti-poverty policies, what would they be?

### **3.4.6 Pilot Study**

This research conducted the pilot interviews between April 11, 2022, and April 30, 2022, to enhance the feasibility and validity of the fieldwork design (Malmqvist et al., 2019). Following the pilot study, this research made adjustments to the interview questions and sampling criteria based on the findings from the pilot study. Through the pilot study and the regression analysis of quantitative data, this research found that being laid off or unemployed was no longer the primary cause of poverty in Shandong Province, contradicting previous studies conducted by Hussain (2003) and Li and Kight (2002). Consequently, this research no longer considers laid-off or migration as one of the sampling criteria. Additionally, through the pilot study, this research discovered that mental illness is one of the significant contributors to poverty. As a result, this research included mental disorders in the sampling criteria. Correspondingly, this research added questions related to the mental health of

the respondents. The added question is as follows:

Question 4.4: Do you and your family experience any mental health issues? If so, what are they?

Additionally, this research removed questions regarding the negative influence of their current challenges on households. This is because not all respondent households considered their current situation to be difficult. Some interviewees were optimistic and did not believe their circumstances required external assistance. Therefore, this research removed the following questions:

Removed Question 2: What pressures does your family's current situation bring?

Removed Question 3: Does your current situation affect your family relationship?

Removed Question 4: Has your family's current situation affected your mental status?

### **3.4.7 Data Collection**

The interviews were carried out from May 1, 2022, to September 31, 2022, primarily through face-to-face interviews, supplemented by observation. Observation helps collect non-verbal information from the respondents, such as their body language, tone, gestures, facial expressions, and environmental contexts (Mirhosseini, 2020). The observations were recorded immediately after the interview in the field notes. However, due to COVID-19 control measures, some interviews had to be conducted via telephone and online video

calls, potentially limiting the effectiveness of observation (Weller, 2017). Additionally, field notes were diligently taken to enhance the reflexivity of this research (Deggs & Hernandez, 2018). The data underwent analysis using IPA, and coding was performed using ATLAS.ti 9.

This research first interviewed government officials to understand the overall poverty situation. Subsequently, interviews were conducted with urban poor households to explore their lived experiences, including the challenges they face, the coping strategies they have adopted, and their poverty alleviation needs. The data collected from urban poor households will be validated with those from government officials. Ultimately, data saturation was achieved with a sample size of 33, as no new themes emerged from the data (B. Saunders et al., 2018; Sebele-Mpofu, 2020).

During the interview process, the researcher encountered several practical issues. First, it was challenging to recruit eligible participants. Since China officially eradicated absolute poverty in 2020, most subsistence allowance households lost their qualification for government subsidies, leaving only households facing severe difficulties on the government lists. To address this, the researcher expanded the channels for recruiting participants, seeking suitable interviewees through hospitals, local enterprises, and local non-profit organizations. Additionally, some individuals were unwilling to participate in

the interviews, while others were unable to do so due to health issues. In such cases, the researcher had to seek new participants, which increased both the time and financial costs of the interviews. Another challenge was that some government-provided information was outdated and potentially inaccurate. During household visits, the researcher cross-verified this data, and in some cases, respondents had improved their living conditions and were no longer living in poverty. As a result, these individuals were excluded from the study.

#### **3.4.8 Qualitative Data Analysis**

This research employed the IPA approach created by Smith et al. (2022) to analyze the data. This approach differs from the descriptive phenomenology advocated by Husserl (1927), which merely describes a lived experience without seeking to attribute meaning to it (Charlick et al., 2016). The IPA approach recognizes “the central role of the analyst” in making sense of the personal experiences of research participants (Neubauer et al., 2019; J. A. Smith et al., 2012). When interpreting data, the researcher should consider the historical, cultural, and social context of the participants and give meaning to it (Creswell, 2013; Noon, 2018; Quest, 2014). IPA provides researchers with the best chance to understand the innermost deliberations of research participants (Alase, 2017). Therefore, this research opted for this approach to explore the unique challenges and implicit needs of urban poor households.

The IPA approach offers a flexible framework that investigators can adapt to suit their research objectives (Noon, 2018). Drawing upon previous studies conducted by Miller et al. (2018), Nizza et al. (2021), Noon (2018), Smith et al. (2012), and Smith and Nizza (2022), this research formulated the following steps for the qualitative data analysis:

#### **3.4.8.1 Data Transcription**

After conducting semi-structured interviews, the researcher transcribed and translated the data into English. During the transcription process, the researcher repeatedly read through the transcripts and compared them with the original audio recordings to ensure the accuracy of the transcription.

#### **3.4.8.2 Reading and Re-reading**

The researcher meticulously read and re-read the transcription word by word, line by line, and took notes of any significant or inspiring points during the initial coding process (Neubauer et al., 2019). This step allows the researcher to immerse in the data repeatedly, thereby gaining a deep understanding of the participants' experiences (Alase, 2017; Charlick et al., 2016).

### **3.4.8.3 Initial Coding**

During the reading process, the researcher took notes, recording any thoughts, observations, and reflections relating to participants' experiences (Noon, 2018). Subsequently, the researcher identified emerging themes from the initial notes and described them in concise phrases, capturing the essence of the transcripts (Noon, 2018).

Through initial coding, this research discovered 53 initial codes and categorized them into 20 themes. The emergent process of these themes is described below:

(1) Low education level. During the initial coding process, it was found that among the 33 respondents, 12 are illiterate, 11 have primary school education, 7 have lower secondary school education, and only 3 have upper secondary school education. Therefore, this research identified low education as an initial theme.

(2) Low income. It is the most significant challenge faced by the respondents. Out of 33 respondents, 30 fell into poverty due to low income. Some of them have low educational attainment, making it difficult to find well-paying jobs. Others struggle to find good employment due to health issues or old age. Additionally, some are unable to fully commit to work due to the need

to care for family members.

(3) High expenditures. High expenditures represent another significant challenge for the respondents. 19 out of 33 faced this issue. Some families experience high expenditures due to large household sizes, while others encounter substantial medical expenses due to health challenges. Additionally, some face significant costs associated with their education.

(4) Poor housing conditions. Out of 33 respondents, 10 face challenges due to inadequate housing conditions. Some lack their own housing, while others struggle with insufficient basic infrastructure, including clean drinking water, cooking fuel, and affordable heating facilities.

(5) Health challenges. Health poses a significant challenge for the respondents. 26 out of 33 households suffered from serious illness, nine households faced physical disabilities, including poliomyelitis, hemiplegia, blindness, deafness, and pectus deformity, and 10 households exhibited potential signs of mental disorders, such as anxiety disorders, depression, paranoia, and schizophrenia.

(6) Vulnerability to economic shocks. Some respondents' households experienced significant property losses due to natural disasters, while others faced unstable incomes and significant income reductions due to the COVID-



19 lockdown. These households are vulnerable to economic shocks.

(7) Government transparency issues. Some respondents faced government transparency issues. Some of them criticized the government for its poor policy publicity efforts; they found it difficult to access policy information. Some other respondents hoped the government would be more open to their feedback and establish channels for communication with them.

(8) Corruption and bureaucracy barriers. Corruption and bureaucratic barriers have also posed challenges for the respondents. They have encountered issues such as ineffective enforcement of court judgments, corruption among local officials, and inadequate government regulation of businesses, resulting in significant financial losses for them.

(9) Non-inclusive government policies. Some respondents also encountered issues with government policies lacking inclusivity. For instance, due to restrictive environmental policies, some respondents are unable to cook or heat their homes with coal and must resort to using firewood. Additionally, some respondents have concerns about the lack of inclusivity in the government's subsistence allowance policies, as they do not consider expenditure-based poverty, rendering them ineligible to apply for such allowance.

(10) Coping strategies of urban poor households. The respondents have adopted a series of strategies to address the challenges, including the strategies to address low income, high expenditure, poor housing conditions, and government inefficiency. While some of these coping strategies were successful, others were not.

(11) Urban poverty alleviation needs. Through initial coding, this research discovered that solely relying on their own efforts is insufficient to fully address these issues. They still need external assistance in improving income, reducing expenditure, addressing health and housing issues, as well as enhancing government effectiveness.

In the end, this research identified 53 codes and organized them into 20 initial themes during the initial coding process, as depicted in Table 3.7.

**Table 3.7**

*Initial Codes and Themes*

No.	Codes	Themes
1	No education	Low education level
2	Primary education	
3	Lower secondary education	
4	Low income due to limited education attainment	Low income
5	Low income due to family caregiving duties	
6	Low income due to health issues	
7	Unemployed due to old age	Unemployment
8	Unemployed due to health issues	
9	High expenditures for healthcare	High expenditures
10	High expenditures for education	

11	High expenditures for daily necessities	
12	Natural disasters	Vulnerability to
13	Impact of the COVID-19 pandemic	economic shocks
14	Unstable housing	Poor housing conditions
15	Limited access to basic infrastructure	
16	Serious illness	Health challenges
17	Severe disabilities	
18	Mental disorders	
19	Government's inadequacy in publicizing policies	Government
20	Government lacks public communication channels	transparency issues
21	Neglect of duty by the court	Corruption and
22	Corruption among local officials	bureaucracy barriers
23	Inadequate regulation of business	
24	Non-inclusive environmental policies	Non-inclusive
25	Non-inclusive subsistence allowance policies	government policies
26	Applying for government financial subsidies	The strategies to address
27	Seeking assistance in job placement	low income
28	Taking out loans to cover educational expenses	The strategies to address
29	Borrowing funds to cover everyday expenses	high expenditures
30	Compromising living standards to make ends meet	
31	Borrowing funds to cover medical expenses	The strategies to address
32	Purchasing supplementary commercial medical insurance	health challenges
33	Adjusting mindsets to address mental stress	
34	Urging expedited resettlement housing construction	The strategies for
35	Exploring alternative solutions for basic infrastructure	improving housing conditions
36	Proactively acquiring policy information	The strategies to address
37	Providing feedback to the government through alternative channels	government inefficiency
38	Seeking government help with business misconduct issues	
39	Seeking government help in enforcing court judgment	
40	The need for expanded coverage of subsistence allowance	The need for addressing
41	The need for assistance in job placement	low-income
42	The need for increasing pensions for the elderly	
43	The need for financial support for non-	The need for addressing

	compulsory education	high expenditures
44	The need for assistance to cover daily essential expenses	
45	The need for expanded coverage of medical insurance	The need for addressing health dilemmas
46	The need to include more medications in the drug list	
47	The need for accelerating the construction of resettlement housing	The need for improved housing conditions
48	The need for expanding the coverage of basic infrastructure	
49	The need for revising non-inclusive government policies	The need for addressing government inefficiency
50	The need for enhancing government transparency	
51	The need for assistance in enforcing court judgments	
52	The need for combating corruption among local officials	
53	The need for strengthening the regulation of business	

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#### 3.4.8.4 Connecting the Emergent Themes

This step is for the researcher to find similarities among the emergent themes. The superordinate themes emerged as the themes with similarities were clustered together (Jeong & Othman, 2016; Noon, 2018). During this process, the researcher discovered some overlaps among these initial themes.

For instance, low education level is a significant factor contributing to low income (Fahad et al., 2022; Najitama et al., 2020; Tang et al., 2022). However, it is not directly related to poverty. Because the requirements for education level varied across different generations (Štimac, 2012). Therefore, this research did not consider low education level as one of the subthemes.

Furthermore, unemployment and low income are closely related (Chiappero-Martinetti & Sabadash, 2014; Moyo et al., 2022; Zizzamia, 2020). Therefore, this research categorized them under the same subtheme titled “Financial hardship.”

Moreover, the challenges of non-inclusive government policies, government transparency issues, corruption, and bureaucratic barriers among grassroots officials are all manifestations of ineffective governance (Meier et al., 2019). Therefore, this research categorized them under the subtheme of “Ineffective government administration.”

In summary, this study merged household financial-related themes, including low income, unemployment, high expenditures, and vulnerability to economic shocks, into a subtheme named “Financial hardship.” The study also grouped health-related themes, such as serious illness, severe disabilities, and mental disorders, into a subtheme titled “Health dilemmas.” Initial themes regarding unstable housing and limited access to basic infrastructure were categorized under the subtheme of “Poor housing conditions.” The government-related challenges faced by the respondents were classified into the subtheme titled “Ineffective government administration.” These four subthemes collectively formed the first superordinate theme titled “Theme 1: Challenges faced by urban poor households.”

Themes related to the coping strategies of the respondents have been grouped into a superordinate theme titled “Theme 2: Coping Strategies of Urban Poor Households.” This superordinate theme has four subthemes, each corresponding to one of the four challenges faced by the respondents.

Themes related to the urban poverty alleviation needs were categorized into a superordinate theme titled “Theme 3: Urban poverty alleviation needs.” This superordinate theme encompasses four subthemes, each corresponding to one of the four challenges faced by the respondents.

In the end, through theme integration, this research identified three superordinate themes, each comprising four subthemes, totaling 12 subthemes.

#### **3.4.8.5 Continue to the Next Case**

In this stage, the researcher moves to the next transcript for data analysis. During this process, the researcher aimed to bracket previous themes and remain open-minded in order to do justice to the individuality of each new case (Charlick et al., 2016; Miller et al., 2018; Noon, 2018; J. A. Smith et al., 2012).

#### **3.4.8.6 Looking for Patterns Across Cases**

In this process, the researcher compared emergent themes across different cases to identify common superordinate themes. This may involve

adjusting the relationships between themes and removing some themes (J. A. Smith et al., 2012). For example, many respondents encountered the challenge of low educational levels, which creates barriers to employment. However, after comparing different cases, this research found that the educational requirements for job opportunities varied across different time periods; the impact of the same level of education also differed among different age groups (Štimac, 2012). Therefore, this research removed the subtheme of “Low education level” and incorporated it into the subtheme of “Financial hardship.”

#### **3.4.8.7 Interpretation and Writing up.**

When interpreting the findings, the researcher incorporates the cultural and social context of the participants, enabling a deeper understanding of their implicit meanings (Alase, 2017). In writing up the findings, the researcher used superordinate themes as a framework and discussed the research results within the context of each subtheme.

#### **3.4.9 Data Trustworthiness**

The traditional research quality evaluation criteria of validity and reliability are rooted in quantitative research, emphasizing the generalizability of findings to broader contexts. However, these concepts are less applicable to qualitative research, which focuses on an in-depth understanding of specific

contexts and lived experiences (Rose & Johnson, 2020). Lincoln and Guba (1985) refined the concept of trustworthiness by introducing the criteria of credible, transferable, dependable, and confirmable to parallel the quantitative criteria of validity and reliability (Nowell et al., 2017). This research employed the following methods to improve these criteria.

#### **3.4.9.1 Credibility**

Credibility refers to the extent to which the research findings accurately reflect the participants' experiences and perspectives (Nowell et al., 2017; Rose & Johnson, 2020). This research employed data source triangulation to enhance its credibility (Stahl & King, 2020). In addition to urban poor households, this research also interviewed government officials and local community committees to validate the information obtained from urban poor households. When the two are contradicted, government documents and relevant literature were consulted to verify the information gathered from both groups.

Furthermore, credibility can be enhanced through investigator triangulation. The researcher invited an expert, a full-time university researcher with extensive experience in qualitative coding, to serve as a second coder. The two coders worked independently and compared and discussed their findings to identify and resolve any discrepancies (Carter et al., 2014; Stahl & King, 2020).



#### **3.4.9.2 Transferability**

In qualitative research, transferability refers to the ability to move research findings from one context to another (Nowell et al., 2017; Stahl & King, 2020). To enhance transferability, this research employed a thick description approach (Rose & Johnson, 2020). Rich contextual details, including interview time, location, timeframe, and the overall study period, were documented throughout the fieldwork. Additionally, respondents' demographics, such as age, race, gender, and education levels, were comprehensively described, allowing readers to assess the potential to move the research findings to their contexts.

#### **3.4.9.3 Dependability**

Dependability refers to the extent to which the research findings are consistent and replicable (Elo et al., 2014). Auditing plays a crucial role in ensuring the dependability of research; it enhances dependability by involving an independent party to review the research process and outcomes (Rose & Johnson, 2020). Peer debriefing, as suggested by Stahl and King (2020), is a commonly used method for auditing. The researcher meticulously documented the data collection, analysis, and decision-making processes throughout the research. Supervisors and experts in relevant fields were invited to participate in debriefing sessions, enabling thorough scrutiny of the entire qualitative research process and contributing to the research's dependability.

Following the guidance provided by Fey et al. (2014), McMahon and Winch (2018), Simoni et al. (2019), and Sweeney et al. (2020), this research developed the steps for peer debriefing:

(1) Peers selection. The researcher identified his supervisors and an experienced colleague in qualitative research as peer debriefers.

(2) Context briefing. The researcher introduced the research questions, methodology, and data collection methods to the peers.

(3) Data and analysis sharing. The researcher shared relevant data, including interview transcripts, coding schemes, and field notes, with peers, seeking feedback from them.

(4) Discuss with peers. The researcher held multiple meetings with peer debriefers, reflecting on their feedback regarding data collection, data analysis, research findings, and other aspects. During these meetings, the researcher actively sought suggestions from the peer debriefers to enhance the research process and outcomes.

(5) Revision and refinement. Based on the peer debriefing session, the researcher revised his data collection, analysis, and coding scheme. The discussion and revision process was iterative. The researcher engaged in this process repeatedly until the dependability of this research was sufficiently

established.

(6) Documentation. The researcher recorded the peer debriefing process, including the feedback received from the debriefers and the revisions made based on their input.

#### **3.4.9.4 Confirmability**

Confirmability refers to the degree to which the research findings are objective and verifiable by others (Stahl & King, 2020). An important method to enhance confirmability is writing reflective notes (Rose & Johnson, 2020). Throughout the qualitative research process, the researcher consistently wrote reflective notes, scrutinizing his role, biases, and perspectives that could potentially influence the research findings, aiming to maintain the objectivity of the research.

Member checking also contributes to enhancing confirmability (Elo et al., 2014). Following the guidance provided by Ahmed (2024), Birt et al. (2016), and Motulsky (2021), during data analysis, when there is uncertainty about the accuracy of the recorded data, researchers contact the respondents, asking them to confirm the accuracy of the data and verify the researchers' interpretations, thereby enhancing the trustworthiness of the research findings.

### **3.5 Integration of Quantitative and Qualitative Findings**

This research followed the guidelines provided by Creswell and Plano Clark (2018) to integrate the quantitative and qualitative findings. In the explanatory mixed-methods design, integration occurs during the stages of research design and interpretation of findings, while the processes of quantitative and qualitative data analysis remain distinct and independent. This research designed the qualitative interview questions and sampling criteria based on the quantitative data analysis results and relevant literature. According to Creswell and Plano Clark (2018), integrating research findings involves transforming one type of data into another (e.g., transforming quantitative data into qualitative data and vice versa) or consolidating the two datasets into new variables or categories. This process facilitates the comparison, interrelation, and further analysis of the two data sets (Creswell & Plano Clark, 2018).

This research opted to transform quantitative results into qualitative codes, as it aims to provide a deeper explanation and elaboration of the quantitative findings, specifically regarding the determining factors of urban poverty. Qualitative results offer more detailed and in-depth insights compared to quantitative results, providing rich details and contextual information that cannot be fully captured through quantitative methods (Othman et al., 2020; Patton, 2015). Transforming quantitative results into qualitative codes helps

facilitate the comparison of quantitative and qualitative findings, thereby enhancing the understanding of urban poverty in Shandong Province. This research utilized a joint display to present the integrated research findings, drawing conclusions on how qualitative findings explain and extend specific quantitative results (Creswell & Plano Clark, 2018).

### **3.6 Summary**

This research employed an explanatory sequential mixed-methods design, where quantitative research is conducted first, followed by qualitative research. The quantitative phase first utilized the Dual Cutoff method to analyze the extent and severity of urban poverty in Shandong Province, laying a foundation for the subsequent logistic regression analysis. For RQ3, logistic regression analysis was conducted to explore the main contributing factors of urban poverty. In order to enhance the robustness of the quantitative research methods, this study utilized various techniques, including dominance analysis, correlation tests, and multicollinearity tests. These measures significantly improved the reliability of the quantitative research.

Building upon the quantitative research findings and relevant literature, this research designed qualitative fieldwork. Specifically, the qualitative research objectives, sampling criteria, and interview questions were developed based on these insights. Qualitative data was collected through semi-structured

interviews and analyzed using the IPA approach. The aim was to delve into the lived experiences of urban poor households, thereby answering RQ4. To enhance the trustworthiness of qualitative research, this research adopted various methods, such as triangulation, rich description, peer debriefing, and member checking, aiming at enhancing the credibility, transferability, dependability, and confirmability of the qualitative research. By establishing a comprehensive methodological framework, this chapter lays the groundwork for the presentation and discussion of findings in Chapter 4.

## **CHAPTER 4**

### **RESULTS**

#### **4.1 Introduction**

This chapter presents the results and findings of the research, addressing the research questions posed earlier. Building on the methodology outlined in Chapter 3, the research embarked on a comprehensive analysis to address the research questions. Initially, quantitative data analysis was conducted using the Dual Cutoff method to examine CFPS data spanning from 2012 to 2020. This approach aimed to analyze and understand the changes in urban poverty in Shandong Province, thereby providing answers to RQ1 and RQ2. Following this, logistic regression analysis was employed, specifically focusing on data from 2020, to investigate the primary contributing factors of urban poverty in Shandong Province, addressing RQ3. Complementing the quantitative analysis, a qualitative research component was utilized to explore the lived experiences of urban poor households. Data from 33 respondents from Shandong Province were analyzed, offering insights into their daily struggles and experiences, thus answering RQ4.

## 4.2 Extent and Severity of Multidimensional Urban Poverty

### 4.2.1 Changes in Multidimensional Urban Poverty

The results of the multidimensional urban poverty changes in Shandong Province from 2012 to 2020 are shown in Table 4.1. In the table, The incidence of multidimensional urban poverty ( $H$ ) in Shandong Province has decreased from 60.76% in 2012 to 44.10% in 2020, marking a reduction of 27.42%. The adjusted headcount ratio ( $M_0$ ) in Shandong Province has fallen from 0.3108 in 2012 to 0.1868 in 2020, reflecting a 14.86% decline. Compared with the poverty incidence, the intensity of multidimensional urban poverty in Shandong Province only decrease by 17.21% from 2012 to 2020. The disparity indicates deficiencies in urban poverty alleviation efforts in Shandong Province.

**Table 4.1**

*Trends in Multidimensional Urban Poverty from 2012 to 2020*

Year	Indicator	Estimate	SE	95% CI (Lower, Upper)
2012	$H$	60.76%	0.0330	(0.5429, 0.6723)
	$A$	0.5115	0.0122	(0.4877, 0.5354)
	$M_0$	0.3108	0.0192	(0.2731, 0.3485)
2014	$H$	62.04%	0.0329	(0.5559, 0.6848)
	$A$	0.4731	0.0093	(0.4548, 0.4914)
	$M_0$	0.2935	0.0168	(0.2606, 0.3265)
2016	$H$	52.72%	0.0308	(0.4668, 0.5876)
	$A$	0.4501	0.0086	(0.4333, 0.4669)
	$M_0$	0.2373	0.0143	(0.2093, 0.2653)
2018	$H$	47.07%	0.0299	(0.4122, 0.5292)
	$A$	0.4174	0.0074	(0.4029, 0.4319)
	$M_0$	0.1965	0.0124	(0.1722, 0.2208)



2020	<i>H</i>	44.10%	0.0339	(0.3747, 0.5074)
	<i>A</i>	0.4235	0.0075	(0.4089, 0.4381)
	<i>M<sub>0</sub></i>	0.1868	0.0140	(0.1594, 0.2142)

#### 4.2.2 Changes in Censored Headcount Ratio for Each Indicator

The censored headcount ratio represents the proportion of households that are both multidimensionally poor and simultaneously deprived in a specific dimension (Alkire & Foster, 2011b). The results in Table 4.2 show that income deprivation in urban Shandong experienced a significant decrease from 36.90% (2012) to 9.84% (2020), reflecting an improvement in the economic conditions of urban poor households. Employment deprivation showed a declining trend from 2012 to 2018 but increased by 102.78% in 2020 compared to 2018, likely due to the impact of the COVID-19 pandemic (Lai et al., 2023; T. Li et al., 2023).

**Table 4.2**

*Trends in Censored Headcount Ratio from 2012 to 2020*

	2012	2014	2016	2018	2020
Income	36.90%	32.22%	15.98%	10.15%	9.84%
Employment	2.81%	2.71%	0.92%	0.72%	1.46%
BMI	46.46%	51.66%	45.20%	40.60%	35.36%
SRH	29.43%	17.99%	19.27%	17.11%	12.67%
Medical Insurance	14.66%	9.98%	9.16%	6.38%	9.06%
Education Level	56.80%	58.61%	50.98%	45.57%	42.95%
Cooking Fuel	25.89%	19.12%	14.64%	6.71%	2.83%
Drinking Water	17.01%	19.57%	11.49%	8.07%	3.80%
Homeownership	13.30%	8.20%	8.89%	5.33%	8.87%
Housing Area	2.72%	3.89%	2.74%	2.45%	1.97%
Household Assets	28.58%	23.20%	16.94%	10.85%	17.92%

Regarding the health dimension, BMI deprivation remained high but declined in 2020, suggesting improvements in health and nutrition status. SRH deprivation dropped from 29.43% in 2012 to 12.67% in 2020, indicating better health conditions among the poor. The medical insurance deprivation rate declined from 14.66% in 2012 to 9.06% in 2020, reflecting the gradual expansion of health insurance coverage.

Education deprivation remained the highest among all indicators over the years. However, it gradually declined from 56.80% in 2012 to 42.95% in 2020, indicating a slow but steady improvement in educational attainment across Shandong Province.

The deprivation of both clean cooking fuel and drinking water deprivation declined significantly over the years. Clean cooking fuel deprivation fell from 25.89% in 2012 to 2.83% in 2020, while safe drinking water deprivation dropped from 17.01% to 3.80%, underscoring substantial improvements in Shandong Province's urban infrastructure.

The homeownership deprivation rate decreased from 13.30% in 2012 to 8.87% in 2020, suggesting enhanced housing security. The housing area deprivation rate remained consistently low, fluctuating between 2.72% and 1.97%, indicating that insufficient living space is not a major issue.

The household asset deprivation rate dropped from 28.58% in 2012 to 10.85% in 2018, reflecting improved material living standards. However, it increased to 17.92% in 2020, possibly due to economic shocks caused by the COVID-19 pandemic. Studies found that the COVID-19 pandemic reduced household consumption spending, potentially leading to a decrease in household durable goods (T. Lee et al., 2022; Li H. & Li, 2023; Saweri et al., 2024).

### 4.2.3 Contribution of Each Indicator to Overall Poverty

To understand the contribution of each indicator to multidimensional urban poverty, this study disaggregated the adjusted headcount ratio ( $M_0$ ) by different indicators. This research presents the absolute and relative contributions of each indicator to overall poverty in Tables 4.3 and 4.4. The absolute contribution value indicates the direct contribution of an indicator to the MPI, while the relative contribution rate represents the proportion of the total MPI contribution accounted for by that indicator (UNDP, 2024)

**Table 4.3**

*Absolute Contribution of Indicators to Multidimensional Urban Poverty*

	2012	2014	2016	2018	2020
Income	0.0461	0.0403	0.0200	0.0127	0.0123
Employment	0.0035	0.0034	0.0011	0.0009	0.0018
BMI	0.0387	0.0430	0.0377	0.0338	0.0295
SRH	0.0245	0.0150	0.0161	0.0143	0.0106
Medical Insurance	0.0122	0.0083	0.0076	0.0053	0.0075
Education Level	0.1420	0.1465	0.1275	0.1139	0.1074

Cooking Fuel	0.0129	0.0096	0.0073	0.0034	0.0014
Drinking Water	0.0085	0.0098	0.0057	0.0040	0.0019
Homeownership	0.0066	0.0041	0.0044	0.0027	0.0044
Housing Area	0.0014	0.0019	0.0014	0.0012	0.0010
Household Assets	0.0143	0.0116	0.0085	0.0054	0.0090

**Table 4.4**

*Relative Contribution of Indicators to Multidimensional Urban Poverty*

	2012	2014	2016	2018	2020
Income	14.84%	13.72%	8.42%	6.46%	6.59%
Employment	1.13%	1.16%	0.48%	0.46%	0.98%
BMI	12.46%	14.67%	15.87%	17.22%	15.78%
SRH	7.89%	5.11%	6.77%	7.26%	5.65%
Medical Insurance	3.93%	2.83%	3.22%	2.71%	4.04%
Education Level	45.68%	49.92%	53.72%	57.97%	57.50%
Cooking Fuel	4.16%	3.26%	3.08%	1.71%	0.76%
Drinking Water	2.74%	3.33%	2.42%	2.05%	1.02%
Homeownership	2.14%	1.40%	1.87%	1.36%	2.37%
Housing Area	0.44%	0.66%	0.58%	0.62%	0.53%
Household Assets	4.60%	3.95%	3.57%	2.76%	4.80%

Regarding the absolute contributions, the impact of various indicators on poverty has generally declined in recent years, reflecting the significant progress Shandong Province has made in poverty alleviation. Among these indicators, education level has consistently been the largest contributor to urban poverty, although its absolute contribution has gradually decreased. Meanwhile, BMI and SRH have remained relatively stable, suggesting that the influence of health-related factors on poverty has not changed significantly. In contrast, the contributions of income and assets have declined, indicating that improvements in material conditions have helped alleviate poverty to some extent.

Concerning the relative contributions of the indicators, the relative contribution of educational level increased from 45.68% in 2012 to 57.50% in 2020, indicating that the importance of educational poverty within overall poverty has steadily grown. Although the absolute contribution of educational level has declined, its rising relative contribution suggests that it should be a key focus for future poverty alleviation efforts in Shandong Province. The relative contribution of income dropped from 14.84% in 2012 to 6.59% in 2020, indicating a significant decrease in the importance of income poverty. The influence of health factors (BMI and SRH) has remained relatively stable, with BMI's relative contribution staying within approximately 12.46%–17.22% and SRH ranging between 5.11% and 7.89%. The importance of cooking fuel and drinking water has diminished, as the relative contribution of clean fuel declined from 4.16% in 2012 to 0.76% in 2020, and that of drinking water fell from 2.74% to 1.02%. This decline reflects improvements in urban infrastructure and living conditions in Shandong Province. Employment poverty has had a minor impact, with its relative contribution consistently between 0.83% and 1.33%, indicating that employment factors exert a weak influence on the MPI.

#### **4.3 Factors Contributing to Multidimensional Urban Poverty**

This study utilized the latest 2020 CFPS data to examine the current state of urban poverty in Shandong Province, laying the groundwork for a qualitative

research framework. The findings provide valuable insights that can inform policy recommendations for future urban poverty reduction efforts in the region.

The logit model in this study demonstrated a robust fit to the data, correctly classifying 89.2% of cases. The Omnibus Tests of Model Coefficients produced a chi-square value of 226.542 with 23 degrees of freedom ( $p < 0.001$ ), confirming the model's overall statistical significance. Additionally, the model fit indices were favorable, with a  $-2$  Log Likelihood of 158.142, a Cox and Snell R Square of 0.557, and a Nagelkerke R Square of 0.744 (see Table 4.5). The Hosmer and Lemeshow Test yielded a  $p$ -value of 0.805, which is well above the 0.05 threshold, further supporting the model's adequacy. Detailed results are provided in Appendix J.

**Table 4.5**

*Model Fit Summary of the Logistic Regression*

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	158.142 <sup>a</sup>	0.557	0.744

*Note.* a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Through the regression analysis of the 2020 CFPS data, this research revealed that household heads with no education ( $OR = 761.566, p < 0.001$ ), household heads with primary education ( $OR = 995.339, p < 0.001$ ), households with a large size ( $OR = 2.165, p = 0.001$ ), and household members with chronic

diseases ( $OR = 4.524, p = 0.007$ ) have the most significant influences on multidimensional urban poverty. Household heads with lower secondary education ( $OR = 5.334, p = 0.042$ ) have significant influences on multidimensional urban poverty. Furthermore, household heads with upper secondary education ( $OR = 5.222, p = 0.063$ ), household head's gender ( $OR = 2.932, p = 0.091$ ), and youth dependency ratio ( $OR = 1.577, p = 0.083$ ) show moderate influence on urban poverty. The results are presented in Table 4.6.

**Table 4.6**

*Logistic Regression Analysis Results for 2020*

Variables	B	S.E.	Wald	<i>p</i> -value	OR	VIF
Head has no education	6.635	1.636	16.443	0.000***	761.566	1.745
Head with primary education	6.903	1.422	23.562	0.000***	995.339	1.496
Head with lower secondary education	1.674	0.823	4.134	0.042**	5.334	1.377
Head with upper secondary education	1.653	0.890	3.446	0.063*	5.222	1.763
Head is unmarried	0.334	1.811	0.034	0.854	1.396	1.486
Head is married	1.242	1.292	0.924	0.336	3.463	1.177
Head is divorced	-0.305	3.803	0.006	0.936	0.737	1.532
Head's gender	1.076	0.636	2.858	0.091*	2.932	1.436
Head's age	0.020	0.027	0.558	0.455	1.021	4.377
Head is employed	-0.177	0.553	0.102	0.749	0.838	1.126
Head is unemployed	-0.282	4.546	0.004	0.951	0.754	1.399
Household receives government subsidies	-0.026	0.674	0.002	0.969	0.974	1.184
Aged-dependency ratio	1.278	0.881	2.107	0.147	3.591	2.649
Youth dependency ratio	-2.925	1.804	2.630	0.105	0.054	2.022
Household size	0.772	0.224	11.921	0.001***	2.165	2.212
Household members with chronic diseases	1.509	0.555	7.402	0.007***	4.524	1.112

Total household healthcare expenditure	0.012	0.022	0.304	0.581	1.012	1.124
Total household housing value	0.000	0.000	0.111	0.739	1.000	1.457
Total Household financial assets	-0.002	0.002	1.308	0.253	0.998	1.144
Total value of durable goods	-0.003	0.003	0.999	0.318	0.997	1.454
Car ownership	0.282	0.561	0.252	0.615	1.326	2.046
Public facilities	-0.255	0.269	0.900	0.343	0.775	1.516
Surrounding environment	0.456	0.263	3.006	0.083*	1.577	1.469
Constant	-8.464	2.158	15.377	0.000	0.000	

*Note.* \*\*\*, \*\*, and \* denote significance levels of 0.01, 0.05, and 0.1, respectively.

Furthermore, the results of the VIF test indicate that all independent variables in the 2020 dataset have values below 5. According to the studies by Akinwande et al. (2015), Hair et al. (2017), James et al. (2021), and O'Brien (2007), a VIF value less than 5 suggests that there are no significant issues with multicollinearity among the variables in the regression model. This indicates that the independent variables do not exhibit strong linear relationships with each other, ensuring that the model's coefficient estimates remain stable and reliable. The detailed VIF test results are presented in Table 4.6.

#### **4.4 Lived Experiences of Urban Poor Households**

##### **4.4.1 Demographic Characteristics of the Respondents**

To gain a comprehensive understanding of the quantitative data, this research examined the demographic characteristics of the 33 respondent, focusing on their age, gender, marital status, education level, and employment.



The demographic characteristics are presented in Table 4.7.

**Table 4.7**

*Demographic Characteristics of the Respondents*

Label	Age	Gender	Marital Status	Education	Employment
P01	43	Female	Married	Primary school	Cleaner
P02	45	Female	Widowed	Upper secondary school	Salesperson
P03	50	Female	Divorced	Primary school	Retired
P04	68	Female	Married	Primary school	Unemployed
P05	77	Female	Widowed	Illiteracy	Retired
P06	54	Male	Unmarried	Lower secondary school	Self-employed
P07	58	Male	Unmarried	Primary school	Unemployed
P08	70	Male	Married	Illiteracy	Casual Laborer
P09	35	Female	Married	Lower secondary school	Unemployed
P10	50	Male	Widowed	Upper secondary school	Restaurant Worker
P11	27	Female	Married	Lower secondary school	Unemployed
P12	70	Female	Married	Illiteracy	Unemployed
P13	58	Male	Married	Primary school	Casual Laborer
P14	56	Male	Married	Illiteracy	Construction Worker
P15	60	Male	Married	Lower secondary school	Unemployed
P16	60	Male	Married	Illiteracy	Casual Laborer
P17	70	Male	Unmarried	Primary school	Unemployed
P18	46	Female	Married	Primary school	Unemployed
P19	36	Female	Married	Lower secondary school	Supermarket Sales Assistant

P20	62	Female	Divorced	Primary school	Unemployed
P21	70	Male	Married	Illiteracy	Unemployed
P22	22	Female	Unmarried	Lower secondary school	Supermarket Sales Assistant
P23	46	Male	Married	Primary school	Factory Worker
P24	66	Male	Married	Illiteracy	Unemployed
P25	69	Male	Married	Illiteracy	Unemployed
P26	63	Male	Married	Lower secondary school	Unemployed
P27	60	Male	Divorced	Illiteracy	Unemployed
P28	40	Male	Unmarried	Upper secondary school	Unemployed
P29	53	Male	Married	Primary school	Casual Laborer
P30	50	Female	Widowed	Primary school	Casual Laborer
P31	48	Male	Married	Illiteracy	Casual Laborer
P32	61	Male	Unmarried	Illiteracy	Unemployed
P33	72	Male	Widowed	Illiteracy	Unemployed

Among the 33 respondents in the research, 19 were male, and 14 were female. Thirty out of the 33 respondents had education levels lower than high school education. The employment status of the respondents was unfavorable, with 19 of them being unemployed. Among the respondents, 30 had a low household income, 26 had serious illnesses, 9 had disabilities, and 10 experienced mental health disorders. Additionally, 19 of the respondents encountered high household expenditures. The household characteristics and socioeconomic factors of the respondents are summarized in Table 4.8.

**Table 4.8***Household Characteristics and Socioeconomic Factors of the Respondents*

		Respondents (n=33)	
Demographic information		Frequency	Percentage
Respondent's age	20-30	2	6.06%
	30-40	2	6.06%
	40-50	8	24.24%
	50-60	6	18.18%
	60-70	9	27.27%
	70+	6	18.18%
Respondent's gender	Male	19	57.58%
	Female	14	42.42%
Respondent's marital status	Unmarried	5	15.15%
	Married	21	63.64%
	Divorced	3	9.09%
	Widowed	4	12.12%
Respondent's education level	Illiteracy	12	36.36%
	Primary school	11	33.33%
	Lower secondary school	7	21.21%
	Upper secondary school	3	9.09%
Respondent's employment status	Employed	12	36.36%
	Unemployed	19	57.58%
	Retired	2	6.06%
Household experiences low income		30	90.91%
Household encounters high expenditures		24	80.00%
Households with subsistence allowance		25	75.76%
Household member suffers from serious illness		26	78.79%
Household member with a disability		9	27.27%
Household member with mental disorders		10	30.30%
Household has poor housing condition		10	30.30%

#### 4.4.2 Themes and Subthemes

Through qualitative data analysis, this research identified three main themes, each consisting of four subthemes. The subthemes under each main theme are corresponding with each other. The themes are listed in Table 4.9.

**Table 4.9**

##### *Themes and Subthemes*

Superordinate Theme	Subtheme	Code
Theme 1: Challenges faced by urban poor households	Subtheme 1a: Financial hardship	1) Low income stemming from low wages 2) Income deficits due to unemployment 3) Considerable healthcare costs 4) Substantial educational expenses 5) Significant spending on daily essentials 6) Vulnerability to economic shocks
	Subtheme 1b: Health dilemmas	1) Suffering from serious illness 2) Struggling with severe disabilities 3) Enduring mental disorders
	Subtheme 1c: Poor housing conditions	1) Unstable housing 2) Limited access to basic infrastructure
	Subtheme 1d: Ineffective government administration	1) Non-inclusive government policies 2) Government transparency issues 3) Corruption and bureaucratic barriers
Theme 2: Coping strategies of urban poor households	Subtheme 2a: Seeking assistance to alleviate financial hardship	1) Applying for subsistence allowance 2) Seeking assistance in job

		<p>placement</p> <p>3) Taking out loans to cover educational expenses</p> <p>4) Borrowing funds to cover daily expenses</p> <p>5) Compromising living standards to make ends meet</p>
	Subtheme 2b: Pursuing support to address health dilemmas	<p>1) Borrowing funds to cover medical expenses</p> <p>2) Purchasing supplementary commercial medical insurance</p> <p>3) Self-regulating mentality to address mental stress</p>
	Subtheme 2c: Striving for improved housing conditions	<p>1) Urging expedited resettlement housing construction.</p> <p>2) Exploring alternative solutions for basic infrastructure</p>
	Subtheme 2d: Advocating for effective government administration	<p>1) Actively acquiring government policy information</p> <p>2) Feedback to the government through alternative channels</p> <p>3) Petitioning the government against corruption and bureaucracy</p>
Theme 3: Urban poverty alleviation needs	Subtheme 3a: The need for addressing financial hardship	<p>1) The need for expanded coverage of subsistence allowance</p> <p>2) The need for assistance in job placement</p> <p>3) The need for increasing pensions for the elderly</p> <p>4) The need for financial support for non-compulsory education</p>
	Subtheme 3b: The need for alleviating health dilemmas	<p>1) The need for expanding basic medical insurance coverage</p> <p>2) The need to expand the medical insurance drug list</p>
	Subtheme 3c: The need for improved housing conditions	<p>1) The need for expanding the coverage of basic infrastructure</p> <p>2) The need for expediting the</p>

	construction of resettlement housing
Subtheme 3d: The need for effective government administration	1) The need for revising non-inclusive government policies 2) The need for enhancing government transparency 3) The need for assistance in enforcing court judgments 4) The need for combating corruption among local officials 5) The need for strengthening the regulation of business

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#### **4.4.2.1 Theme 1: Challenges Faced by Urban Poor Households**

According to the analysis of the qualitative data, the main challenges faced by respondents included financial hardship, health issues, inadequate housing conditions, and ineffective government support systems.

##### **4.4.2.1.1 Subtheme 1a: Financial Hardship**

Qualitative data analysis revealed that the financial challenges faced by urban poor households include low income stemming from low wages, income deficits due to unemployment, considerable healthcare costs, substantial educational expenses, significant spending on daily essentials, and vulnerability to economic shocks.

### **(1) Low Income Stemming from Low Wages**

The primary reason for low income is insufficient wages from the respondents' employment. Some individuals earn inadequate wages due to their inability to work full-time, often stemming from family caregiving responsibilities. Others face barriers to accessing higher-paying jobs due to limited education, serious illness, or disabilities.

**(a) Low income due to limited education level.** According to qualitative data analysis, low education levels are prevalent among the respondents. Out of 33 respondents, 12 were illiterate, 11 had completed primary education, seven had completed lower secondary school education, and only three had completed high school education or above. The most significant impact of low education level is that it limits the respondent's ability to secure high-paying jobs, consequently contributing to their financial hardships.

P01, a 40-year-old with only a primary school education, remarked:

It is common for people in my age group to have only completed primary education. However, due to my limited educational attainment, many jobs are beyond my qualifications nowadays. When my child started school, I worked as a cleaner at her school, earning only around 1,000 CNY one month.

P04, 60 years old with primary education, said: "Because of health issues since childhood, my parents didn't allow me to attend school beyond the

fifth grade. Even completing fifth grade didn't prove beneficial, as I couldn't secure employment opportunities." Her brothers and sisters have all secured employment, some of them even in leadership positions within companies. Low educational attainment has significantly impacted her employment prospects.

P11, 27 years old, who has only completed lower secondary school education, said, "My job involves organizing goods in the supermarket and doing odd jobs. I earn over 1,000 CNY a month. Because there are higher educational requirements nowadays, without education, I can't find a good job." Educational qualifications are becoming increasingly demanded to secure employment opportunities within her age group.

**(b) Low income due to serious illness.** Some respondents indicated that poor health status is the primary reason they are unable to secure higher-paying employment. P01 claimed that:

My husband suffers from cervical spondylosis, which is due to years of bending over while working as a chef in the past. He couldn't work for two or three years. He has recently taken a job as a security guard, a role with minimal physical exertion. Although the income from security is not high, only 2,000 CNY per month.

P10, suffering from heart conditions, said he cannot engage in heavy physical activities. As a result, he can only handle lighter physical tasks in the restaurant and is unable to take on jobs such as chef or restaurant manager.



Therefore, his income is severely limited.

P28 mentioned that when he was first diagnosed with uremia, he “needed to undergo dialysis every two to three days, with each dialysis session lasting four hours.” This severely disrupted his work schedule, which his company was very unwilling to accommodate, and seriously impacted his ability to maintain employment.

**(c) Low income due to disabilities.** Several respondents reported that disabilities significantly impacted their ability to work, making it challenging for them to secure suitable employment opportunities.

P06, who has suffered from polio since the age of two or three, said:

The disability did not affect my education, but it did affect my employment, as there are many jobs I cannot do. I can only do work that does not require much physical strength, like locksmithing. With this, my monthly income is only around 1,000 CNY, which is very low.

P14, whose son was involved in a severe work accident, mentioned:

My son was employed as a welder on a construction site, but he suffered a workplace accident resulting in the amputation of his left forearm. Due to his limited education and the loss of his hand, he can now only perform light physical work, earning just 2,000 CNY per month, a significant decrease from the 7,000-8,000 CNY he earned before the injury.

**(d) Limited income due to family caregiving duties.** Some respondents mentioned that they spent a significant amount of time taking care

of their family, which took up their working time, preventing them from finding higher-paying jobs and dedicating more effort to full-time employment.

P02, a single mother with limited income from part-time work, stated:

My son is only five years old, and I am the only one who can take care of him. When I bring him along to work, he struggles to sit still and cooperate, occasionally exhibiting naughty behavior. This hinders my ability to effectively communicate and interact with clients, thereby affecting my work performance.

P30, whose daughter suffers from thyroid cancer, said:

I used to work as a cleaner in the Longhua Group office building. Because I needed to conveniently pick up and drop off my child at school, I had to choose a job that was closer to home. The monthly salary was only 1,100 CNY. After my daughter was diagnosed with thyroid cancer, I stopped working. I need to take care of her. What else can I do?

P31, whose son suffers from severe cerebral palsy, shared:

Both my wife and I work as temporary workers, and the jobs are not guaranteed every day. The main reason is that we need to take care of our son, and we cannot be away from home. Our son is entirely dependent on us for all aspects of daily living, and we even need to feed him during meals. So we can only take turns going out to look for work, leaving one person at home to take care of him.

## **(2) Income Deficits Due to Unemployment**

While some respondents struggle with low income stemming from low wages, others face the challenge of unemployment, which is primarily due to old age and health issues.

**(a) Unemployment due to old age.** For example, P04 complained, “As an elderly couple in our 60s, we cannot find jobs like young people. Employers no longer want us. Even the position of a gate security guard is unavailable to us.” P16, a couple over 60 years old, also encountered a similar situation. They have to go to the temporary labor market every morning in search of daily wage jobs in order to earn some pocket money.

**(b) Unemployment due to health issues.** Some respondents were unable to work due to severe illnesses or disabilities, which impacted their work capacity. P13, whose father suffered brain damage in a car accident, remarked:

He cannot work now. What kind of work can he do? If he doesn’t have a seizure, he can manage to take care of himself with some difficulty. But during a seizure, he can’t take care of himself for that period of time. His seizures were so severe that he had to be taken to the hospital and sedated to stop them.

P26, surviving on a monthly subsistence allowance of 300 CNY, said:

In 2017, I was diagnosed with emphysema and ascites, after which I lost my ability to work. The community suggested I could earn money by cleaning in the neighborhood, but I could not even do that. Even without carrying anything, I cannot walk more than 100 meters without needing to rest.

### **(3) Considerable Healthcare Costs**

Healthcare costs emerged as one of the most significant challenges faced by urban poor households. Among the 24 respondents who experienced high expenditures, 21 reported facing substantial burdens due to high healthcare

expenses.

For instance, P03 suffers from Parkinson's disease. According to her niece, "She has no income other than the subsistence allowance, which is only 300 CNY per month. She requires long-term medication, and her medication is very expensive, costing hundreds of yuan per month, far exceeding her allowance income." Consequently, P03 must rely on financial support from her family to make ends meet.

P10, whose parents both suffer from serious illness, shared:

Both of my parents require 1,000 CNY per month for medication, and our children's monthly expenses at school total around 2,000 CNY. However, my monthly income is just over 2,000 CNY. I have to borrow money from others every month to get by.

P13, whose father suffered brain damage due to a car accident, said:

His first hospitalization and surgery cost 200,000 to 300,000 CNY. We borrowed most of the medical expenses. His injury has led to epilepsy, requiring hospitalization for treatment once or twice a year, which is a significant financial burden.

P28, who developed uremia, remarked:

My kidney transplant surgery cost over 200,000 CNY, most of which had to be paid out-of-pocket since the basic medical insurance does not cover organ transplants; after the surgery, I had to spend over 2,000 CNY per month on anti-rejection medications. I only have a subsistence allowance income and rely on support from my brothers and sisters.

Furthermore, many respondents reported high healthcare expenses due to insufficient medical insurance coverage, including unreimbursed outpatient treatment costs and limited medical insurance coverage.

Among them, some respondents, such as P18 and P30, reflected that the basic medical insurance for urban and rural residents only covers hospitalization expenses and does not reimburse outpatient expenses.

P18, who suffered from thyroid cancer, explained:

I had thyroid cancer surgery in 2021. Most of the hospitalization expenses can be reimbursed. However, outpatient examination expenses cannot be reimbursed. Due to my thyroid cancer and cerebral infarction, I need to undergo CT scans and MRI exams every year, each costing over 1,000 CNY. These expenses are quite expensive for us.

P30, whose daughter suffers from thyroid cancer, has to spend over 1,000 CNY every month on cancer follow-up checks in Jinan. All of these follow-up checks must be done as outpatient visits. She added, “Medical insurance does not reimburse a single cent for cases like ours.”

Some other respondents, including P03, P12, P15, P24, and P26, highlighted that only medications listed in the national medical reimbursement catalog were covered by basic medical insurance. They have to pay high expenditures due to this limitation. For instance, P12, whose husband suffered from hemiplegia, remarked:

Medical insurance does not reimburse expensive medications. When my husband first got sick, the hospital prescribed very expensive drugs that were not within the reimbursable range. Later, we switched to another medicine, which was covered, although it was less effective.”

#### **(4) Substantial Educational Expenses**

Regarding high healthcare expenditures, China has implemented a nine-year compulsory education. However, it only covers primary and lower secondary education, which places a certain burden on families with members in other educational stages (M. Sun, 2022).

P01 highlighted the substantial costs of higher education, stating:

My eldest child’s annual tuition and accommodation fees alone at university amount to 9,000 CNY, not including the monthly living costs of around 1,000 CNY. For our family, with a combined monthly income of less than 4,000 CNY, this poses a significant financial burden.

Some respondents claimed that kindergarten tuition fees exceeded their budget. For instance, P02, a single mother, shared her struggles: “My child’s kindergarten tuition is 770 CNY per month, while my monthly income is less than 2,000 CNY,” and “This is already a relatively low-cost kindergarten in Heze; better ones can cost much more.” P11 also mentioned that kindergarten tuition tends to be higher than primary school fees.

P10, whose child is attending a private high school, lamented:

The tuition and accommodation fees for my child's high school education exceed 10,000 CNY per year, while my monthly income is just a little over 2,000. Nevertheless, for the sake of my child's education, I have to scramble and borrow money from relatives and friends.

### **(5) Significant Spending on Daily Essentials**

Some respondents faced challenges of high daily expenses due to large household sizes. Among them, P05, P18, P19, and P29 each have households of six members, while P10 and P23 have households of five. In contrast, the average household size in Shandong Province in 2022 was only 2.7 people (Shandong Provincial Statistics Bureau, 2021).

P05 mentioned that despite their annual income being approximately 20,000 to 30,000 CNY, their large household size of six people results in a lower per capita income. Therefore, they are recognized by the government as a low-income family.

P10's wife passed away due to illness, his father suffered from severe coronary heart disease, and his mother underwent surgery to remove three-quarters of her stomach. He said, "Our family situation is extremely challenging. I am the only one working, and both of my children are still in school. Unfortunately, I suffer from heart disease, which confines me to light work and leaves me with very little income."

## **(6) Vulnerability to Economic Shocks**

Some respondents faced significant impacts from unforeseen events such as natural disasters and the COVID-19 pandemic due to their limited ability to withstand economic shocks.

**(a) Natural disasters.** Some respondents suffered losses due to unexpected natural disasters. P01, who encountered a flood, mentioned:

Last year, our fields were hit by heavy rains, and all the sesame we planted was submerged, resulting in a loss of several thousand yuan. We applied for government assistance but heard nothing back. We consider it a natural disaster, and we had no choice but to accept it.

**(b) Impact of the COVID-19 pandemic.** The COVID-19 prevention measures have placed significant economic pressure on urban households. Some respondents experienced significant impacts from the pandemic, with their incomes drastically reduced as a result of the pandemic.

P19, who maintains an unstable low income, remarked:

Last year's COVID-19 containment measures severely disrupted my employment. With my company facing poor performance, they could not afford to retain idle staff. Consequently, I had no choice but to take an extended leave of absence for over half a year.

P06, a respondent who operates a roadside stall, commented:

I used to earn around 10,000 CNY annually from street vending and locksmithing. However, due to the COVID-19



containment policies, pedestrian traffic on the streets has significantly decreased over the past three years, resulting in me no longer being able to earn the income that I used to.

#### **4.4.2.1.2 Subtheme 1b: Health Dilemmas**

Through qualitative data analysis, this research found that healthcare dilemmas were the most prominent challenges faced by urban poor households. The health dilemmas encountered by the respondents include serious illnesses, severe disabilities, and mental disorders.

##### **(1) Suffering from Serious Illness**

Among the 33 respondents, 26 suffer from serious physical illnesses, including cancer, Parkinson's disease, cerebral infarction, epilepsy, bronchitis, heart disease, and arthritis.

P03, whose mother is diagnosed with Parkinson's disease, described her symptoms as follows: "Her hands shake uncontrollably, and without medication, she is unable to walk. Her spine is already bent, her muscles are atrophying, and her joints are gradually stiffening. She is essentially bedridden at this point. And there is no highly effective treatment available for Parkinson's disease."

P15, who had suffered a cerebrovascular accident, remarked:

Over ten years ago, I suffered a stroke that left me partially paralyzed and unable to live independently. Part of my skull was removed during brain surgery, and due to financial

constraints, I have been unable to replace it. This poses a significant risk for me; even a minor impact could be fatal.

P21, who is diagnosed with severe tracheitis, commented, “I suffer from tracheitis and often end up in the hospital. I can’t do any physical activities now; even walking a bit faster leaves me breathless. My tracheitis easily relapses; it worsens regardless of the season.”

## **(2) Struggling with Severe Disabilities**

Among the 33 respondents, nine are struggling with severe disabilities, which include poliomyelitis, hemiplegia, blindness, deafness, and pectus deformity. Disability brings many challenges to these families. It reduced the family’s income and placed a significant burden on the families.

For instance, P06 suffers from poliomyelitis, leading to disability in his legs. He said that his disability has not only affected his ability to secure employment but also impacted his marital and romantic pursuits. As a result, he has been unable to find a partner and remains single even in his 60s.

P19’s father suffers from blindness, which allows him to merely subsist through self-care, rendering him incapable of securing employment or working.

P24, who is afflicted with pectus deformity, explained:

I can’t do any work at all. I have deformities of the thoracic spine and chest wall, which compress my lungs. I can’t do any

physical activities. I can only do very light work, such as cleaning work for the community, earning 500 CNY per month.

The caregiving responsibilities caused by disability also place a significant burden on family members. For instance, P31, whose son suffered from severe cerebral palsy since birth, remarked:

My elder child is unable to control his limbs or mouth. He cannot speak and lacks the ability to chew, relying on soft foods such as porridge or noodles. He has no self-care skills whatsoever. Even sitting up is impossible; he must be restrained to prevent him from tipping over. Taking care of him is extremely difficult and exhausting.

P15, due to hemiplegia, cannot walk by himself and cannot take care of himself in daily life. He said, “I entirely rely on my wife to take care of me. My wife has to support me to walk. My wife has become so exhausted from taking care of me that she has had a slipped disc.” Caring for disabled members placed a tremendous burden on these families.

### **(3) Enduring Mental Disorders**

According to the WHO (2022), mental disorders encompass a broad spectrum of conditions, including anxiety disorders, depression, paranoia-related disorders, and schizophrenia. In this study, out of 33 respondents, 10 reported experiencing issues that fall within these categories.

Some respondents are struggling with severe depression and anxiety. For example, P03 has developed severe depression due to being bedridden for an extended period. Her family members lament, “She’s become unhinged. She cries and screams through the night. We’re at a loss for what to do. She can burst into tears anytime, anywhere, at the slightest provocation.”

P10, whose wife passed away, experienced severe anxiety. He remarked, “I have elderly parents and young children to support. My whole family relies on my monthly salary of 2000 CNY. The pressure is immense. Our current situation feels like being trapped in a quagmire with no way out.”

Some respondents experience such severe depression and anxiety that they develop suicidal tendencies. For example, P21 mentioned:

My tracheitis worsens regardless of the season, making it difficult for him to breathe. I have to be hospitalized multiple times within a month. My condition is hopeless. But discussing suicide is out of the question, isn’t it? That would tarnish my reputation and my daughter’s reputation. Otherwise, I would just kill myself.

Some respondents exhibit traits associated with paranoid personality disorder, including excessive suspiciousness, defensiveness, and a profound lack of trust in institutions and other individuals (American Psychological Association, 2023). P20, whose husband had a mistress, and had never cared for her nor their son nor provided any financial support for over a decade, often

responded to interview questions with hostility, indifference, cynicism, and a pronounced sense of victimization.

Whenever her challenges were mentioned, she quickly became defensive and indifference. For instance, when the researcher inquired about her income, she immediately raised her voice, sneered, and replied, “Income? I have no income! Here’s another thing—I’ve been experiencing severe heart palpitations. When I went for a health check, they diagnosed me with coronary heart disease and suggested I get an angiography. But I could never go through with it—it costs thousands!”

Furthermore, whenever the researcher suggested seeking help, she resolutely, coldly, and loudly rejected the idea, dismissing any possibility of receiving support from others. At one point, she cynically remarked, “In today’s society, nobody really cares about you. People only come to you when they need something from you. I don’t reach out to anyone.”

When discussing the government, she consistently and vehemently portrayed it as intentionally making her life more difficult. She emphasized that her subsistence allowance was entirely self-applied and processed without any help from the government, which she believed was deliberately creating obstacles for her.

Her behaviors appear consistent with traits of paranoid personality disorder. However, without a formal medical diagnosis, it would be imprecise to categorize her as having paranoia (M. Zimmerman & Mattia, 1999). Therefore, this research can only describe her as displaying characteristics linked to paranoid personality disorder.

In addition to the aforementioned mental health issues, some respondents are struggling with more severe conditions, such as schizophrenia and brain damage. P26, whose wife and daughter both suffer from schizophrenia, remarked:

My daughter has violent tendencies; she often hits and curses people. I couldn't manage her, so I had to send her to the Municipal Mental Hospital in Heze City. Small hospitals can't handle her condition. Although my wife does not have violent tendencies, she keeps wandering around. I can't take care of her alone, so I placed her in a smaller hospital with lower costs.

P27's brother suffered brain damage in a car accident. He mentioned:

My brother frequently wanders off and gets lost. The farthest he went was 30km away. I put out a missing person announcement on TV, and our entire family, friends, neighbors, and relatives went out searching for him. It took us ten days to locate him.

#### **4.4.2.1.3 Subtheme 1c: Poor Housing Conditions**

In terms of housing conditions, the main challenges the respondents faced included unstable housing and limited access to basic infrastructure.

## **(1) Unstable Housing**

Among the 33 respondents, 10 have no stable housing, mostly due to their homes being demolished by the government. The government has provided them with resettlement allowances for renting accommodation until the reconstruction of their homes is completed.

Some respondents choose to utilize these resettlement allowances to rent housing. P29 said: “Our yearly rental cost is around 7,000 to 8,000 CNY. There are no cheap houses for rent anymore, with some high rents reaching nearly 10,000 CNY per year, which is a huge expenditure.”

Some households are fortunate to have moved into temporary housing provided by the government, saving them a significant amount of money. For example, P26 commented that:

The government demolished my home, and I now can only live in temporary housing provided by the community. For years, the government offered over 10,000 CNY annually as demolition compensation, but due to insufficient funds currently, they can no longer provide it, so I cannot afford to rent houses. I was supposed to be relocated in 2021, but the government’s lack of funds has left the resettlement housing construction stalled and unfinished.

Some respondents are unwilling to utilize the resettlement allowance in order to save money and can only opt to construct rudimentary shelters to live in. For instance, P31 explained that:

We are currently living in a temporary shelter constructed from wooden boards. It has been three years since our home was demolished, but the new houses have not been built yet. The conditions of our temporary housing are very poor, with no running water or heating facilities. The walls of our temporary shelter are very thin, providing little insulation, so it gets extremely cold in the winter.

## **(2) Limited Access to Basic Infrastructure**

Some respondents lack access to basic infrastructure, including clean drinking water, clean energy, and heating facilities, which causes significant burdens for them.

Among the respondents, 5 out of 33 do not have access to any form of clean drinking water at home, including tap water, bottle water, or purified water, which are generally considered safe sources of drinking water (Institute of Social Science Survey, Peking University, 2015; N. Li & He, 2024; Lucci et al., 2018; Ritchie et al., 2019). Instead, some rely on well water. P02 said: “We dug a well in our yard and used the groundwater from this well. Additionally, we also fetch water from Liuzhuang New Village nearby.” P31, who lives in a temporary shelter constructed from wooden boards, does not have running water either; they choose to fetch water from their workplace. Some other respondents also mentioned that, despite having access to tap water, they still dug wells and used well water primarily to save money.



The exclusionary environmental protection policies have limited the respondent's options for cooking fuel. Some respondent households, such as P05 and P08, reported that they have to burn firewood instead of coal for cooking. Among them, P02 mentioned, "We cook with firewood. Whenever we get the chance, we collect firewood. Using natural gas is too expensive." P05 also expressed concern: "We cook with firewood. We collect some wood from outside, such as unused furniture from others, break them down, and use them for cooking." P08 noted that: "We often go out to collect dry branches and roots, chop them up, and use them for cooking."

The non-inclusive environmental protection policies have also hindered heating options for respondent households. With coal burning prohibited, they are compelled to burn firewood for heating, significantly deteriorating their living conditions. Some respondents expressed their dissatisfaction:

P01, whose home lacks of affording heating facilities, commented:

We don't have heating at home. We built a heated brick bed (Kang) for winter, burning firewood for warmth. Now, due to government policies, burning coal is prohibited, but winters are too cold, and we have no choice but to use firewood. Using air conditioning is too expensive; we cannot afford it.

P08, who are reluctant to use electricity for heating, explained:

We can't afford to use electric heaters in winter; the electricity costs 2,000 to 3,000 CNY per month, far exceeding our budget. So when it's cold, we opt to wear thick clothing and tightly closed doors to preserve heat. We only burn firewood

when it gets unbearably cold.

#### **4.4.2.1.4 Subtheme 1d: Ineffective Government Administration**

Qualitative data analysis revealed that some respondents face challenges stemming from ineffective government administration, resulting in significant losses for them. These challenges include non-inclusive government policies, issues with government transparency, and corruption and bureaucratic barriers.

##### **(1) Non-inclusive Government Policies**

In terms of non-inclusive government policies, many respondents faced challenges in overly stringent environmental regulations that prohibit the use of coal for cooking or heating, allowing only natural gas or electricity. Consequently, the respondents had to rely on firewood for heating and cooking. For example, P01, P08, and P23 were reluctant to use electricity for cooking or heating and could only burn firewood, greatly impacting their living conditions.

The subsistence allowance policy is also not inclusive for urban poor households, as it only covers income poverty and does not account for expenditure poverty. Some respondents found that despite their income exceeding the subsistence allowance threshold, their lives were unsustainable due to high fixed expenses. For instance, P02's monthly income is around 2,000 CNY. After repaying a monthly bank loan of 1,175 CNY and paying 700 CNY

for her child's kindergarten fees, she has almost nothing left. However, as her income surpasses the subsistence allowance threshold, she is ineligible for the allowance.

## **(2) Government Transparency Issues**

Regarding government transparency, some respondents faced challenges of inadequate promotion of government policies, while others struggled with a lack of channels to communicate with the government.

P04, who is 67 years old, remarked: "We are too old and don't know how to use smartphones. We are unaware of any policies and information released by the government. I can only use the phone to make calls and not use WeChat to obtain information."

P20, who believes the community officials simply do not care about poor households, states: "I had to apply for government subsidies, such as the subsistence allowance, all by myself." She added, "I saw the news about disability subsidies on TV, so I went to the community office to apply, and they were surprised, asking me how I knew about it. If I hadn't seen the news on TV, they would never have taken the initiative to process the subsidies for me."

Some respondents consider that the government lacks communication channels with ordinary people. P10 hopes that researchers can serve as a

communication channel between ordinary people and the government. He said, “We ordinary people cannot effectively communicate with government officials, but you are different from us. I hope you can convey our thoughts and valuable suggestions to the government.”

### **(3) Corruption and Bureaucratic Barriers**

In terms of corruption and bureaucratic barriers, challenges faced by respondents include the neglect of duty within the court system, corruption among community-level officials, and inadequate regulation of businesses. These challenges have caused significant financial losses to them.

P13, who encountered issues with the judicial system’s neglect of duty, stated:

We won the lawsuit, but the court’s ruling has never been enforced. We demanded that the court enforce the ruling, but the defendant wouldn’t give the money, and the court couldn’t enforce it either. In fact, they did have money, but they had already transferred their assets. We suspected there was corruption between the defendant and the court.

P26, who encountered issues with government officials’ corruption, stated: “The government demolished our house, but the construction of the resettlement houses halted halfway. The reason is that the former community secretary and director secretly lent funds to Yu Huang Chemicals, which later went bankrupt, leaving the funds unrecoverable. Although the officials have been sentenced, the embezzled money has not been fully recovered. “

Some respondents faced challenges due to the government's inadequate regulation of businesses. For instance, P03's pension was misappropriated by her company. She had paid pension insurance contributions during her previous employment, but the employees' pension contributions were misused by the company and not remitted to the government. The government was powerless and could only wait for the company to accumulate enough funds to pay the government, after which the pensions could be disbursed. P07, whose wages have been withheld by his company, kept negotiating with them, but they kept evading responsibility. This exacerbated the poverty of their family.

#### **4.4.2.2 Theme 2: Coping Strategies of Urban Poor Households**

To address the challenges they face, urban poor households have implemented various coping strategies, including seeking assistance to overcome financial hardship, pursuing support to address health concerns, striving to improve housing conditions, and advocating for better government administration.

##### **4.4.2.2.1 Subtheme 2a: Seeking Assistance to Alleviate Financial Hardship**

Faced with economic hardships, the respondents adopted the following coping strategies: applying for financial subsidies from the government, seeking assistance in job placement, taking out loans to cover educational expenses,

borrowing funds to cover daily expenses, and compromising living standards to make ends meet.

### **(1) Applying for Financial Subsidies from the Government**

Out of the 33 respondents, 25 receive subsistence allowance from the government. Although other respondents have attempted to apply for a subsistence allowance from the government, not all of them were successful. P02 tried to apply for a subsistence allowance from the government, but it was unsuccessful because her income exceeded the government threshold. Similarly, P08 encountered difficulties in the application process. He remarked:

The community committee told me that it's very difficult to apply for the subsistence allowance now. According to national policy, absolute poverty has been eradicated, so it's now very difficult to apply for the subsistence allowance. After giving it some thought, I decided not to apply.

P01, who also encountered similar situations, commented:

We have applied for a subsistence allowance before. However, it is typically only granted to families facing extreme hardship, such as severe illness or being elderly bachelors without a support obligor. Ordinary applications are usually rejected.

### **(2) Seeking Assistance in Job Placement**

Some respondents seek government assistance with job placement. For example, P07 hopes the government can assist in job placement, even if it's just for a cleaning position or doorkeeper. However, their expectations were not high;

they felt the government could not easily assist them in finding jobs, and they lacked confidence in its ability to successfully do so.

### **(3) Taking out Loans to Cover Educational Expenses**

Some respondents applied for student loans to cover educational expenses. For example, P01 said, “My child’s annual expenses for tuition and accommodation amount to 9,000 CNY, which is our most significant financial burden. His university offers a student loan assistance program where he can apply for up to 10,000 CNY.”

P10, whose child is attending university, borrowed a student loan. He said, “This student loan is part of the national preferential policies and does not accrue interest. We are grateful for the government’s policies; otherwise, we wouldn’t be able to afford university education.”

### **(4) Borrowing Funds to Cover Daily Expenses**

Faced with the challenge of high expenses, many respondents lived paycheck to paycheck, constantly robbing Peter to pay Paul, barely making ends meet. For example, P10’s child is currently attending college, with monthly living expenses amounting to nearly 1,000 CNY. However, his income is far from sufficient to cover the overall household expenses. He remarked:

I'm constantly robbing Peter to pay Paul. I cannot make ends meet. Every month, before my monthly salary is deposited, I need to borrow money from other colleagues and then pay them back after receiving my salary. It's a cycle of borrowing and spending.

P19, who has a large family with six members, explained:

We can't even think about saving money. To make ends meet, we resort to borrowing from others and repaying them once we receive our monthly salary. We borrowed from one person this month and another person next month. With the current economic downturn, we're left with little choice.

### **(5) Compromising Living Standards to Make Ends Meet**

To cope with financial challenges, many respondents chose to compromise living standards to get through the hardships. Some of them were hesitant to consume costly meals, others refrained from purchasing new clothing, and some were reluctant to use utilities like water and electricity in an effort to reduce expenses and cope with financial constraints.

Some respondents, including P01, P02, and P20, are reluctant to eat costly meals. For example, P01 stated, "We don't eat meat very often now. Because pork, in general, is still relatively expensive, more than 10 CNY a catty, we eat it only occasionally considering our financial situation." P02 shared, "I barely buy fresh vegetables. Instead, I go to the supermarket in the evening when there are discounts and buy some vegetables that others have picked over." P20 remarked, "We only eat corn porridge all day. At lunch, we simply add a



bit of cabbage. That's how we make do. We only eat cabbage because we can't afford to eat other vegetables since cabbage is inexpensive."

Some respondents are reluctant to buy new clothes in order to save money. For instance, P02 mentioned that she has basically stopped purchasing new clothes. She continues to wear the clothing items she had before. On occasion, close friends with whom she has good relationships would gift her one or two pieces of clothing. P10 mentioned, "I haven't bought any clothes all year; I've been wearing clothes given to me by others."

Moreover, some respondents attempted to minimize expenses on utilities such as water, electricity, and natural gas due to financial strain. For heating, P01, P02, P05, and P23 are reluctant to use electric heating the cost, opting instead to burn firewood for heating. Others, such as P20 and P31, had no heating facilities during the cold winter days and had to keep warm by wearing thick clothes and using heavy quilts.

Some respondents tried to save water as much as possible to save money. For example, P01, P02, and P23 dug wells in their backyards as an alternative source. They use tap water for cooking and well water for laundry and flushing toilets. Others fetch water from elsewhere. For example, P20 mentioned that:

I don't even use tap water at all. Tap water costs 4 CNY per cubic meter. Instead, I get water from my sister's home. She

has a quota for tap water that exceeds her needs. Tap water is too expensive for me; it costs 4 CNY per cubic meter.

#### **4.4.2.2.2 Subtheme 2b: Pursuing Support to Address Health Dilemmas**

In response to challenges related to physical illness and disability, some respondents resort to raising funds from various sources to facilitate treatment, while others apply for supplementary commercial medical insurance to reduce expenses. For mental disorders, some respondents alleviated depression and anxiety by adjusting their mindset.

##### **(1) Borrowing Funds to Cover Medical Expenses**

To afford the medical treatment, some respondents borrowed money from relatives and friends. For example, P22 borrowed around 200,000 CNY from relatives and friends to treat her grandparents' illness. She explained:

Most of this money hasn't been repaid because our family doesn't have that much money. We can only repay it gradually as we earn. Some relatives and friends are pressing us hard for repayment, but there's not much we can do.

Moreover, some respondents raised funds through charitable organizations. For instance, when P28 had a kidney transplant, in addition to borrowing money from relatives and friends, he raised tens of thousands of yuan through an online crowdfunding platform called Waterdrop Inc.

In addition to fundraising through charitable organizations, some respondents raised funds through societal donations. For instance, P08 said: “During my treatment at the neurology hospital, the dean mobilized doctors and nurses who donated 5,000 to 6,000 CNY to me. The Mudan District government staff also donated a few thousand yuan to me.”

## **(2) Purchasing Supplementary Commercial Medical Insurance**

China’s basic medical insurance only covers inpatient expenses and does not reimburse outpatient expenses. Consequently, some respondents opted to purchase commercial insurance to supplement the basic medical insurance. For instance, P18, who is battling thyroid cancer, shared, “I bought the serious illness insurance at Heze Municipal Hospital, which covers the expenses for follow-up examinations and a specific type of medication. It serves as a valuable complement to the basic medical insurance.”

## **(3) Self-regulating Mentality to Address Mental Stress**

For mental disorders, such as anxiety and depression, the respondents did not adopt many coping strategies. Some respondents choose to adjust their mindset to solve the issue. When talking about the premature passing of her husband, leaving only herself and a young son behind, P02 often found herself unable to control her tears. However, she chose to embrace a positive mindset:

I dare not put too much pressure on myself because I'm already not young anymore. Too much pressure is bad for my health. Moreover, stress doesn't really solve any practical problems. So, usually, I just try to relax my mind and then do my best to carry on.

#### **4.4.2.2.3 Subtheme 2c: Striving for Improved Housing Conditions**

In terms of poor housing conditions, the main challenges confronting urban poor households include unstable housing and limited access to basic infrastructure. The respondents adopted the following coping strategies to address such challenges:

##### **(1) Urging Expedited Resettlement Housing Construction**

Some respondents face housing instability because their homes have been demolished by the government. However, due to insufficient government funds, the construction of resettlement houses has significantly lagged behind schedule. Some took action by urging the government to expedite the construction of these resettlement houses.

For example, the homes of respondents such as P18, P26, P27, P29, and P31, have been demolished by the government. Some respondents, like P18, P26, and P29, have opted to use government rental subsidies to secure rental accommodations. However, lately, the disbursement of government subsidies has often been delayed, leaving many individuals to cover their rent expenses

from their own savings. Some respondents have joined together to petition the government, urging them to expedite the construction of resettlement housing. Nonetheless, according to P26, this approach has had little effect.

## **(2) Exploring Alternative Solutions for Basic Infrastructure**

Faced with limited access to basic infrastructure, the respondents adopted various coping strategies to explore alternative solutions for drinking water, cooking fuel, and heating facilities.

Regarding access to clean drinking water, some respondents, such as P01, P02, and P31, lack access to tap water in their homes. They resorted to digging wells in their backyards to fetch water for household use. Others, even though they have tap water at home, are reluctant to use it due to financial constraints. For instance, P20 finds the price of tap water too expensive and opts to fetch water from her sister's home, where her sister has a quota that exceeds her needs.

Regarding cooking fuel and heating facilities, some respondents, including P02, P05, and P08, despite having access to natural gas at home, choose to use firewood for cooking in order to save money. Other respondents, finding electric heating too costly, opted to burn wood for warmth. For example, P01 built a Kang, burning firewood inside it for warmth. She mentioned, "Using

air conditioning for heating is too expensive for our situation.” P08, another respondent who did the same, stated, “We wear thick clothes in winter. We only burn firewood when it gets unbearably cold.”

#### **4.4.2.2.4 Subtheme 2d: Advocating for Effective Government Administration**

Regarding ineffective government administration, respondents encountered challenges such as non-inclusive government policies, lack of transparency, corruption, and bureaucratic barriers. To address these challenges, respondents have implemented the following strategies.

##### **(1) Striving for Inclusive Government Policy**

Regarding the overly stringent environmental policies, some respondents resorted to breaking the law by secretly burning coal for heating. For instance, P23, whose father is 78 years old, despite the community’s prohibition on coal burning, had no choice but to use coal for heating due to his elderly father’s condition. He added, “We dare not use electric heating; it’s too expensive, costing 2,000 to 3,000 CNY per month; we simply cannot afford it.”

As for the non-inclusive subsistence allowance, some respondents made efforts to apply for it. P02, whose situation qualifies as expenditure-based poverty, once applied for a subsistence allowance from the government but was

unsuccessful due to income exceeding the eligibility threshold. Similarly, P07 also applied for the subsistence allowance, but because he worked as a street vendor, the government deemed his income difficult to ascertain, resulting in his application being rejected. He appealed to the government for over six months but ultimately was unsuccessful and gave up.

## **(2) Advocating for Enhanced Government Transparency**

To address the issue of government transparency, some respondents have adopted the strategies of actively acquiring government policy information. For instance, P20 believes the government is not doing well in promoting policies, so she takes the initiative to obtain policy information from TV and other channels. She stated:

I applied for my subsistence allowance independently. The community refused to assist, so I went to the Civil Affairs Bureau on my own. I also applied for my child's disability subsidy independently. After seeing the policy announcement on TV, I approached the community office for assistance. The community staff were surprised and asked me where I had obtained the information.

On the other hand, some respondents faced the challenge of lacking communication channels with the government. They endeavored to provide feedback to the government through various alternative channels. For instance, P10 believes the government lacks channels to listen to ordinary people and hopes researchers can convey their thoughts to the government. He said, "We

ordinary people don't know the way to communicate with the government, so we hope you can convey our feedback to the government.”

### **(3) Petitioning the Government Against Corruption and Bureaucracy**

In response to the corruption and bureaucracy among local officials, the respondents have strived to take various countermeasures, including petitioning the government to expedite the construction of resettlement houses and improve business regulations, although their effectiveness has been limited.

For example, P26 and P27's resettlement housing construction has been left unfinished. The residents of their communities took action by petitioning the government, urging for prompt allocation of funds to expedite the completion of resettlement housing construction. However, due to the embezzlement of their building funds by local officials, even though the government intends to assist, they are constrained by the lack of resources. Consequently, their efforts have not yielded any results.

For the inadequate regulation of business, P03's colleagues collectively sued the company, and some of them petitioned the government, requesting government intervention. The company promised that once they completed development and raised the pension funds, they would definitely transfer the funds to the government. This is the outcome of government intervention.



However, this does not guarantee that pensions will be paid.

#### **4.4.2.3 Theme 3: Urban Poverty Alleviation Needs**

Regarding their challenges in finance, health, housing, and government administration, the respondents have adopted various coping strategies to address their challenges. However, some coping strategies have not yielded the desired results, highlighting the need for assistance from external sources.

##### **4.4.2.3.1 Subtheme 3a: The Need for Addressing Financial Hardship**

Faced with their financial challenges, the respondents need assistance in expanding coverage of subsistence allowance, aiding in job placement, increasing pensions for the elderly, and providing financial support for non-compulsory education.

##### **(1) The Need for Expanded Coverage of Subsistence Allowance**

Some respondents believe that the government should include expenditure-based poverty within the coverage of the subsistence allowance. For instance, P02's monthly income is nearly 2,000 CNY, but after deducting the 1,100 CNY monthly bank loan payment and 770 CNY in tuition fees for her child, she is basically left with very little. She applied for the subsistence allowance but was rejected because her income was slightly higher than the

threshold for eligibility. She hopes the government can lower the standards for subsistence allowance applications.

Other respondents believe that the review process for subsistence allowances is too strict. P06, for instance, applied for subsistence allowances in 2019, but the government found it difficult to ascertain the income from his street vending business. He spent six months appealing to the government but was ultimately unsuccessful in his application. Eventually, he gave up trying. P08, who barely earns enough for meals, once applied for subsistence allowances. However, the community committee mentioned that since China has already comprehensively eradicated absolute poverty, it is now difficult to apply for such assistance. This suggests that China has reduced the quota for subsistence allowance. “I figured, forget it, I won’t apply anymore,” P08 added.

## **(2) The Need for Assistance in Job Placement**

P07, 60 years old, is unemployed and has only completed primary school education. Due to a lack of professional skills and a thigh bone fracture, he is unable to engage in physically demanding work and thus cannot find employment. He applied to the community committee for job recommendations, hoping to secure work even in positions like cleaner or security guard positions.

### **(3) The Need for Increasing Pensions for the Elderly**

Some respondents suggest that the government increase the pension amount for all urban residents, regardless of their household registration status. They hope the government can provide more financial assistance to the elderly, enabling them to lead a more relaxed life. For instance, P10 suggested that:

Regardless of whether or not we have urban household registration, all residents contribute to the construction of the country, but people like us receive very little in return. As a result, when we grow old and fall ill, we don't even have money to see a doctor. The elderly, like us, are very vulnerable when it comes to retirement because we are the bottom layer of society.

### **(4) The Need for Financial Support for Non-Compulsory Education**

China has implemented nine years of compulsory education, which covers only primary and lower secondary school education. Some respondents, such as P02 and P11, reflected that the tuition fees for kindergartens were too expensive for them to afford. "Even the inexpensive kindergartens charge 600-700 CNY per month in tuition fees, which is higher than primary schools," they said. This represents a significant financial burden for them.

Also, compulsory education in China does not include education beyond lower secondary school. For households with children attending upper secondary school or university, this may have caused financial burdens for them.

For example, P10's child is currently attending high school, and he said that:

My child's tuition plus accommodation fees are over 10,000 CNY per year, while my monthly income is only a little over 2,000 CNY. I also have to bear the medical expenses of 1,000 CNY per month for my parents. But no matter what, I have to let him continue his studies since he got admitted, right? I could only borrow money from relatives and friends and take out loans.

#### **4.4.2.3.2 Subtheme 3b: The Need for Addressing Health Dilemmas**

Regarding health dilemmas, the most significant concern of the respondents is that basic medical insurance only covers hospitalization expenses and does not include outpatient fees. Additionally, they have noted that the list of drugs in the medical insurance catalog is not comprehensive enough, exacerbating their burden.

##### **(1) The Need for Expanding Basic Medical Insurance Coverage**

Some respondents require the government to expand basic medical insurance coverage to include outpatient expenses within the reimbursement scope. For example, P18's main request is to hope that medical insurance can cover the costs of outpatient examinations at hospitals. She suffers from thyroid cancer, and after surgery, she needs to undergo follow-up examinations every few months. However, these follow-up examinations can only be done on an outpatient basis. Each follow-up examination includes blood tests, ultrasounds,

and CT scans, costing her nearly 1,000 CNY, which imposes a significant burden on her. Similarly, P30, whose daughter has thyroid cancer, mentioned:

We went to Jinan for treatment. On the first day in Jinan, my daughter underwent a biopsy, costing 7,000 to 8,000 CNY. Hospitalization is only considered after completing outpatient examinations and confirming any issues. After the surgery, we also require frequent follow-up examinations, which can only be conducted on an outpatient basis. Hospitalization is reserved solely for surgical procedures. Outpatient follow-up examinations are not eligible for reimbursement whatsoever.

P29, despite having severe lumbar spondylosis, rarely visits hospitals for medical treatment. He explained:

Going to the hospital for treatment is too expensive. Medical expenses are only reimbursed for hospitalization, not outpatient visits. Hospital outpatient services are costly; even a simple X-ray can cost nearly a thousand yuan. When we get sick, we just go to the pharmacy nearby and buy some medicine to relieve the symptoms.

## **(2) The Need for Expanding the Medical Insurance Drug List**

Some respondents hope that the government can include more drugs in the medical insurance drug list, thereby reducing the economic burden on families. For example, P03, whose aunt suffers from Parkinson's disease, complained that many essential drugs are not reimbursed and can only be purchased out-of-pocket. She mentioned that:

Her medication is very expensive, costing over 100 CNY per box. Just for medication alone, it costs 400-500 CNY per month. Only drugs on the medical insurance drug list can be reimbursed, and her medication was not on the list. We hope

the government can provide some assistance in this regard by updating the drug list.

Other respondents mentioned that certain expensive medications could not be reimbursed through medical insurance; only cheaper ones are eligible. For example, P12 said that when her husband initially fell ill, “the prescribed medications were very expensive, and it was only after switching medications that a portion was reimbursed.” P31 also mentioned, “When I first fell ill, the imported medication prescribed by the doctor at the hospital was not reimbursed. I am no longer taking that medication now.”

#### **4.4.2.3.3 Subtheme 3c: The Need for Improved Housing Conditions**

Regarding poor housing conditions, the respondents have adopted various strategies to address these challenges. However, many attempts have not been successful. Therefore, they need external support to address issues of housing instability and inadequate access to basic infrastructure.

##### **(1) The Need for Expanding the Coverage of Basic Infrastructure**

Regarding challenges of inadequate access to basic infrastructure, respondents primarily expressed the need for external assistance to improve the coverage of clean drinking water, cooking fuel, and affordable heating facilities.

Regarding clean drinking water, P01, P02, and P31 have no tap water at home. P02 dug a well in her yard and used the groundwater for cooking. P31, who lives in a temporary shelter made of wooden boards, also lacks tap water. In addition to well water, they have to fetch water from their workplace. They require the government to improve the accessibility of infrastructure.

For clean cooking fuel, some respondents, such as P05, P20, and P28, reported that local government prohibited them from burning coal. However, the cost of clean energy, such as natural gas or electricity, is much higher than that of coal and far exceeds their budget. Consequently, they were reluctant to use natural gas for cooking despite having access to such facilities. Instead, they opted to use firewood as fuel. They want the government to revise the overly stringent environmental policies.

In terms of heating facilities, some respondents' homes lack such facilities, and the government does not allow burning coal. Therefore, they are compelled to resort to alternative measures. For instance, P01 and P02 constructed heated brick beds known as Kang, burning firewood from inside for heating purposes. P22 faced a similar situation and also chose to burn firewood for heating. In contrast, P08's household has centralized heating facilities, but it runs on natural gas. "The cost of natural gas is too high; we can't afford it," P08 added, "so we only burn firewood when it's too cold."

## **(2) The Need for Expediting the Construction of Resettlement Housing**

Lack of stable housing is one of the primary challenges faced by the respondents. Out of 33 of them, ten have no stable housing. Most lost their homes due to government demolition projects. However, due to the delay in the construction of settlement housing, they have not yet been able to move back into their new home. Among them, P18 noted:

Our house was demolished six years ago, and we were told we could move back this year. However, the construction has still not been completed. The compensation payments are also frequently delayed, which has led to great difficulties for us.

P27, whose home was demolished and was forced to rent a house, added:

Our household was demolished 5 or 6 years ago, but the resettlement housing has still not been fully completed, and the resettlement fees have been delayed multiple times. While we can afford to rent a house, the delay in getting resettlement housing has become a headache for us.

P31's house construction has stalled, and in order to save money, they didn't rent a house but built a temporary wooden house themselves. The living conditions are extremely basic, with no running water or heating facilities. Therefore, they are eagerly hoping for the government to expedite the completion of the resettlement house.



#### **4.4.2.3.4 Subtheme 3d: The Need for Effective Government Administration**

##### **(1) The Need for Revising Non-Inclusive Government Policies**

Because China has implemented strict environmental policies that prohibit coal burning, many respondents, such as households P01, P02, P08, and P22, reflected that they were unable to burn coal for heating. However, they cannot afford electricity or natural gas for heating, so they have resorted to burning firewood, significantly impacting their standards of living. They suggested the government relax its overly strict environmental policies and consider the difficulties faced by poor households in the policy-making process.

##### **(2) The Need for Enhancing Government Transparency**

Regarding enhancing government transparency, some respondents require the government to strengthen policy publicity. For instance, P20 believes that the local government does not care about the people. She complained, “The policies of the central government are good, but they become distorted in the process of being passed down and implemented at each level of government.” P04 feels confused and at a loss due to a lack of understanding of government policies. She complained, “I don’t know how to use a smartphone or WeChat, so I never know what policies the government has introduced.” They require the government to strengthen the publicity of policies so that they can

better understand these policies and benefit more from them.

Meanwhile, other respondents, such as P10, believe that the government does not sufficiently understand the thoughts and perspectives of the grassroots people. They hope to establish smooth communication channels with the government. Some turn to alternative channels, seeking support from researchers, hoping that their thoughts and opinions can be conveyed to the government through them, enabling the government to respond to their needs.

### **(3) The Need for Assistance in Enforcing Court Judgments**

Some respondents also faced the issue of neglect of duty by the court. P13's father was injured in a car accident, resulting in a traumatic brain injury. The court has already ruled that the party responsible should compensate. However, they suspect that the defendant's assets have been transferred, and there are no longer any assets under their name, so the judgment has not been enforced. P13 believes there is corruption within the court, with collusion between the court and the perpetrator. He hopes that the government can intervene to help the execution of the judgment.

### **(4) The Need for Combating Corruption among Local Officials**

Government officials' corruption has caused significant financial losses to some respondents. For example, P26 and P27 had their houses demolished,

but because the construction funds were embezzled by officials, the reconstruction of their resettlement houses stalled for 5 to 6 years, leaving them unable to return to their homes. They petitioned the government, hoping that the government could complete the construction of resettlement housing.

#### **(5) The Need for Strengthening the Regulation of Business**

Some respondents suffered financial losses due to inadequate government business regulation. P03 had her pension funds misappropriated by the company. Her company failed to remit the pension insurance to the government. After government intervention and mediation, no satisfactory solution was reached. The company was only required to remit the funds to the government once they were sufficient. The affected employees had no choice but to wait for the company's actions. P07's salary has been withheld by the company for nearly 10,000 CNY. They have been trying to negotiate with the company directly, but the company has consistently avoided their requests, making promises to pay but never fulfilling them. Their next step is to apply for arbitration, hoping the government will intervene to resolve the issue.

#### **4.5 Integration of Quantitative and Qualitative Findings**

Following Creswell and Plano Clark's (2018, Chapter 7) guidelines, this study transforms quantitative findings into qualitative insights and integrates

them with existing qualitative results. Through this process, the study identified that factors with  $p < 0.1$  align with three qualitative subthemes: financial hardship, health dilemmas, poor housing conditions, and ineffective government administration.

Regarding financial hardship, regression results indicate that households with an uneducated or lower-educated head are significantly more likely to be in poverty ( $p < 0.05$ ), with an odds ratio exceeding 700 for no education and 995 for primary education. Household heads with lower educational attainment often lack stable and well-paying job opportunities, resulting in insufficient income and leading to household financial hardship (X. Guo & Zhou, 2016; Zhong & Lin, 2020). Additionally, larger household sizes ( $p = 0.001$ , OR = 2.165) and chronic illnesses within the household ( $p = 0.007$ , OR = 4.524) were strongly associated with financial constraints of urban poor households, as they could significantly increase household expenditures (Y. Chen et al., 2021; Oyekale et al., 2019; Tran et al., 2022; J. Xie & Che, 2017).

Concerning health dilemmas, the quantitative findings indicate that households with chronic diseases are significantly more likely to experience poverty ( $p = 0.007$ , OR = 4.524). Previous studies have shown that households with multiple members suffering from chronic illnesses face an even higher risk of falling into poverty (National Health Commission of China, 2018; N. Wang

et al., 2020). The quantitative results align with qualitative findings.

In terms of housing conditions, interviews revealed that participants viewed unstable housing situations and limited access to basic infrastructure as major concerns. Although the quantitative results did not identify housing value as a statistically significant predictor of poverty, the surrounding environment ( $p = 0.083$ ,  $OR = 1.577$ ) approached significance, suggesting that poor living conditions may contribute to economic hardship. In the CFPS questionnaires, the “surrounding environment” variable captures issues such as noise pollution and garbage disposal within the community. This variable is closely linked to housing conditions, as homes in poor condition are often situated in deteriorated environments. Moreover, a poor surrounding environment can further worsen the perceived housing conditions and contribute to declining property values (UN-Habitat, 2024). Therefore, this variable is closely aligned with the qualitative subtheme of poor housing conditions.

With respect to government administration, quantitative findings indicate that government subsidies did not significantly reduce the likelihood of poverty ( $p = 0.969$ ,  $OR = 0.974$ ), suggesting that existing welfare programs may be insufficient in lifting households out of poverty. Interviews further revealed that participants experienced non-inclusive policies and bureaucratic obstacles when accessing welfare benefits. These challenges may contribute to the limited

impact of government subsidies on poverty alleviation. The integration of quantitative and qualitative findings is jointly presented in Table 4.10.

**Table 4.10**

*Integration of the Quantitative and Qualitative Findings*

Qualitative Findings	Quantitative Results		
Subthemes	Factors	<i>p</i> -value	OR
Financial hardships	No education	$p < 0.01$	761.566
	Primary education	$p < 0.01$	995.339
	Lower secondary education	$p = 0.042$	5.334
	Upper secondary education	$p = 0.063$	5.222
	Household size	$p = 0.001$	2.165
Health dilemmas	Household members with chronic diseases	$p < 0.01$	6.650
Poor housing conditions	Surrounding environment	$p = 0.083$	1.577
Ineffective government administration	Government subsidy	$p = 0.969$	0.974

## 4.6 Summary

This chapter discussed the quantitative and qualitative findings of this research. Through quantitative data analysis, this research discovered that the incidence of urban poverty in Shandong Province significantly reduced between 2012 and 2020. However, the intensity of urban poverty has not decreased accordingly, indicating the inadequacy of urban anti-poverty efforts in Shandong Province. The logistic regression analysis identified the primary contributors to urban poverty in Shandong Province as household heads with no

education, primary education, or lower secondary education, the presence of household members with chronic diseases, and larger household size.

The qualitative data analysis revealed that urban poor households mainly faced challenges in financial hardship, health dilemmas, poor housing conditions, and ineffective government administration. The respondents employed various strategies to cope with the aforementioned challenges, including seeking assistance to alleviate financial hardship, pursuing support to address health dilemmas, striving for improved housing conditions, and advocating for effective government administration. However, relying solely on the efforts of urban poor households is insufficient to alleviate the challenges. They still need external support to address these challenges.

By integrating both quantitative and qualitative findings, this study demonstrates a strong convergence between the two approaches. The quantitative analysis identifies several key factors contributing to poverty—such as low education levels and large household sizes—which directly correspond to the “economic hardships” category revealed through qualitative analysis. Similarly, the quantitative identification of households with a member suffering from a chronic disease aligns with the “health dilemmas” subtheme that emerged from the qualitative data. In addition, the quantitative finding regarding a poor surrounding environment correlates with the “poor housing

conditions” theme uncovered in the qualitative insights. Notably, the quantitative results indicate that government subsidies have not played a sufficiently significant role in reducing poverty. This observation may align with qualitative evidence of ineffective government administration. Overall, the qualitative and quantitative results complement each other, offering a more nuanced understanding of urban poverty in Shandong Province.



## **CHAPTER 5**

### **DISCUSSION AND CONCLUSION**

#### **5.1 Introduction**

This chapter commences by discussing the findings obtained from both quantitative and qualitative data analysis, addressing each research question individually. Subsequently, the theoretical and practical implications of the research are discussed. Additionally, this research evaluates its strengths and limitations and provides recommendations for future studies. Finally, a comprehensive conclusion of the research findings is presented. Based on these conclusions, this research proposes policy recommendations for future urban anti-poverty strategies.

#### **5.2 Discussion of the Findings**

##### **5.2.1 Extent and Severity of Multidimensional Urban Poverty**

By employing the dual cutoff method, this study systematically assessed both the incidence and the intensity of multidimensional poverty in urban Shandong Province from 2012 to 2020. The subsequent sections provide a detailed discussion of the key findings derived from this analysis.

### **5.2.1.1 Changes in Multidimensional Urban Poverty**

Through quantitative data analysis, this research revealed a significant disparity between the changes in the incidence and intensity of poverty from 2012 to 2020. Notably, while the incidence of urban poverty in Shandong Province decreased by 27.42%, the intensity of poverty only decreased by 17.21%. The sharp decline in the headcount ratio highlights Shandong Province's remarkable success in reducing the impoverished population. However, the comparatively smaller decrease in poverty intensity suggests that the well-being of the poor has not improved sufficiently over the years. This phenomenon observed in Shandong Province is consistent with findings from Alkire et al. (2017), Yu (2013), Q. Wang et al. (2023), and Zhang et al. (2021). In order to achieve the United Nations SDGs goal of "end poverty in all its forms everywhere," Shandong Province needs to make more coordinated and targeted efforts in poverty alleviation, with a strategic policy shift from prioritizing the scale of poverty reduction to addressing the depth of poverty. By doing so, Shandong Province can transition towards a more inclusive and equitable approach to combat urban poverty, ultimately eradicating poverty in all its forms and dimensions.

### **5.2.1.2 Changes in Censored Headcount Ratio in Each Indicator**

The censored headcount ratio results suggest that urban poverty in Shandong Province has declined across multiple indicators from 2012 to 2020, though the pace of change varies. Among these, the most significant improvements were made in income, clean cooking fuel, and access to safe drinking water. The income deprivation rate dropped from 36.90% to 9.84%, marking a substantial decrease of 73.34% points, reflecting the effectiveness of income security policies in the province. The subsistence allowance in Shandong Province increased from an annual per capita amount of 4,440 CNY in 2012 to 7,599 CNY in 2020, likely contributing to a significant reduction in income poverty among low-income urban residents (Shandong Provincial Statistics Bureau, 2023a). Similar to income, deprivation in access to clean cooking fuel decreased from 25.89% to 2.83%, an 89.07% reduction, while the deprivation rate for access to clean drinking water fell from 17.01% to 3.80%, a 77.66% decline. These improvements underscore the significant infrastructure advancements in Shandong Province.

While some deprivation indicators have continued to improve, they remain at relatively high levels. Educational deprivation, for example, decreased from 56.80% to 42.95% (a 24.37% reduction), yet it remains the most pressing dimension of multidimensional poverty. Likewise, although the

prevalence of BMI-related deprivation declined by 23.90 percentage points, 35.36% of individuals were still at risk of malnutrition in 2020.

Certain indicators of deprivation have experienced a resurgence in recent years, likely due to the economic shock of the COVID-19 pandemic. The deprivation rate for medical insurance rebounded from 6.38% in 2018 to 9.06% in 2020, possibly driven by the widespread job losses related to the pandemic. Many urban workers, especially those in low-income and informal sectors, lost employer-provided health insurance when they were unemployed (Jacobs & Moriya, 2023; Mandal et al., 2022). This trend is further corroborated by the increase in employment deprivation in Shandong Province, which rose from 0.72% in 2018 to 1.46% in 2020, underscoring the broader economic impact of the pandemic (Lai et al., 2023; Li H. & Li, 2023; T. Li et al., 2023).

The changes in censored headcount ratios indicate that certain poverty alleviation strategies in Shandong Province have made great achievements. For instance, energy poverty alleviation initiatives have achieved significant success, as evidenced by the substantial reduction in the deprivation rate of cooking fuels, surpassing other indicators. Income security policies have also been effective, contributing to a rapid decline in income poverty rates. However, some areas of poverty alleviation still require further strengthening. In particular, the health dimension—measured by indicators of BMI and SRH—remains a persistent

shortcoming. Moreover, non-income poverty, especially in the fields of education and health, currently represents the most severe form of deprivation and will be the primary focus of future poverty alleviation initiatives.

#### **5.2.1.3 Contribution of Each Indicator to Urban Poverty**

Regarding the absolute and relative contribution of the indicators, education contributes the most to multidimensional urban poverty, followed by BMI and income, which also have substantial influence. SRH, medical insurance, and household assets contribute at a moderate level, while other indicators play a relatively smaller role in urban poverty.

In terms of the changes from 2012 to 2020, education consistently had the highest absolute and relative contribution among all indicators. Despite a gradual decline in its absolute contribution over this period, the relative importance of education grew annually. This trend suggests that while other indicators improved at a swifter pace, the role of education in addressing poverty has become increasingly pronounced. Consequently, education poverty alleviation should become a top priority in future urban anti-poverty efforts.

The absolute contribution of income decreased from 0.0461 in 2012 to 0.0123 in 2020, highlighting the effectiveness of income security initiatives in Shandong Province. However, while the relative contribution of income

declined from 14.84% in 2012 to 6.49% in 2018, it experienced a slight rebound to 6.59% in 2020. This rebound suggests that economic fluctuations—such as those induced by the COVID-19 pandemic—may have disrupted income stability (Ge et al., 2022; C. Huang et al., 2023; Lai et al., 2023).

The contribution of health-related indicators has exhibited a structural upward trend. Specifically, BMI's absolute contribution remained relatively stable over the period, yet its relative contribution increased from 12.46% to 15.78%, suggesting that improvements in other dimensions occurred at a faster pace and that nutritional issues have become relatively more significant. In contrast, while the absolute contribution of SRH consistently declined, its relative contribution has fluctuated between 6% and 8% over the years, raising concerns about urban poor households' health in the future.

Shandong Province has achieved remarkable improvements in basic infrastructure. The absolute contribution of cooking fuel dropped sharply from 0.0129 in 2012 to 0.0014 in 2020, demonstrating the significant advancement in clean energy promotion (S. Xu & Ge, 2020). A similar trend was observed for drinking water; however, its absolute contribution in 2020 remained at 0.0025, indicating that there is still room for further improvement.

The potential risks lie in employment and household assets. The absolute contribution of employment increased from 0.0009 in 2018 to 0.0018 in 2020,

which may reflect the impact of the COVID-19 pandemic on employment, aligning with studies of Li H. and Li (2023), T. Li et al. (2023), and Y. Zhang et al. (2021). Similarly, the absolute and relative contribution of household assets experienced a considerable rebound in 2020, potentially driven by pandemic-induced changes in consumption habits (Kim et al., 2022; T. Lee et al., 2022; S. Li et al., 2022). Heightened economic uncertainty led households to prioritize savings over consumption, resulting in increased deprivation in the household assets domain (Jia et al., 2022; Kim et al., 2022).

### **5.2.2 Contributing Factors of Multidimensional Urban Poverty**

This chapter presents the findings of the logistic regression analysis for each research hypothesis.

H1: Urban households with employed heads are less likely to experience multidimensional poverty than those with unemployed or retired heads.

The results indicate that the head's employment status does not have a significant relationship with household poverty status. In the regression model, both "Head is employed" and "Head is unemployed" variables show non-significant *p*-values (0.749 and 0.951, respectively), and their odds ratios are both less than 1. This finding contradicts studies that suggest households with unemployed heads face a significantly higher risk of falling into

multidimensional poverty (D. Chen & Chen, 2016; X. Guo & Zhou, 2016; X. Wang & Feng, 2020; Zhong & Lin, 2020). By analyzing national economic and social development statistics, this study finds that the unemployment rate in Shandong Province has consistently remained low, generally below 3%. This finding aligns with the results of this study, which reports that the censored headcount ratio for the employment indicator is approximately 2.16% (Shandong Provincial Statistics Bureau, 2023a).

However, while Shandong Province has largely addressed the issue of unemployment, the quality of employment remains a significant challenge. A deeper analysis of the CFPS data from 2020 reveals that the employment quality of respondents in Shandong is not high. Of the 620 surveyed individuals, only 164 had signed formal labor contracts, and 171 did not receive any employer-provided insurance, including pension, unemployment, medical, work injury, or maternity insurance. Given this situation, future poverty alleviation efforts in Shandong should focus on improving the quality of employment.

H2: Urban households receiving government subsidies are more likely to experience multidimensional poverty than those not receiving subsidies.

The regression analysis did not reveal a significant link between government subsidies ( $OR = 0.974$ ,  $p = 0.969$ ) and household poverty status. This might be related to the imprecise targeting of these subsidies. In the 2020



dataset, 35 households received government support; however, only 22 of these were eventually identified as multidimensionally poor. Furthermore, among all 132 multidimensionally poor households, only 22 received government subsidies—merely 16.67% of the total. These results suggest that government fiscal subsidies are not being fully directed toward those who need them most. This observation is consistent with previous studies by Boullenois (2020), J. Chen et al. (2020), and Kakwani et al. (2019a). In future poverty alleviation initiatives, urban areas in Shandong Province should adopt more targeted strategies to ensure the precise identification of beneficiaries and the provision of tailored assistance (Y. Gong & Tu, 2020; Y. Guo et al., 2022; L. Li, 2018).

H3: Urban households with one or more members who have chronic diseases are more likely to experience multidimensional poverty than those without chronic diseases.

For health-related factors, regression analysis revealed a significant negative relationship between chronic disease ( $OR = 4.524$ ,  $p = 0.007$ ) and urban poverty. Health plays an important role in Sen's Capability Approach. It can be viewed as functionings, representing a state of well-being, and as a capability, indicating the opportunity to attain a certain level of health (López Barreda et al., 2019). It can also be considered a personal conversion factor, influencing how individuals transform resources into capability (Grabowska et

al., 2021). Good health among household members can offer a stable source of income or reduce additional household expenses, thus decreasing the risk of falling into poverty. Conversely, poor health conditions can lead to reduced productivity, limited employment opportunities, and lower income, thereby heightening households' vulnerability to poverty (Gu et al., 2021; J. Xie & Che, 2017). This finding is consistent with studies by Guo and Zhou (2016), Mohanty et al. (2011), Moyo et al. (2022), Yu (2013), and Zhong and Lin (2020). The government should improve local medical facilities, expand medical insurance coverage and reimbursement rates, and include more drugs in the medical insurance list, thus providing better healthcare for urban poor families.

H4: Urban households with higher healthcare expenditures are more likely to experience multidimensional poverty than those with lower healthcare expenditures.

This research discovered a weak positive correlation between healthcare expenditure and urban poverty ( $OR = 1.012$ ,  $p = 0.581$ ), contradicting the studies that state high medical expenses significantly exacerbate multidimensional poverty (Gu et al., 2021; Lan et al., 2018; N. Wang et al., 2020; J. Xie & Che, 2017). After delving into the 2020 CFPS data, this research discovered that the average healthcare expenditure was 5,198.39 CNY among multidimensionally poor households, compared to 4,406.44 CNY for those who

are not multidimensionally poor. A deeper analysis of the 2020 CFPS data shows that the average healthcare expenditure among multidimensionally poor households was 5,198.39 CNY, compared to 4,406.44 CNY for those not classified as multidimensionally poor. While healthcare expenditure is slightly higher in multidimensionally poor households, the gap is not substantial. This may be attributed to Shandong Province's relatively high coverage rate for urban health insurance. In the 2020 CFPS data from Shandong, of 620 respondents, only 53 lacked any form of medical insurance, resulting in a coverage rate of 91.45%, which is close to the 95.5% coverage rate reported in the Shandong Provincial Statistical Bulletin (Shandong Provincial Statistics Bureau, 2023b). Despite significant progress in healthcare insurance in Shandong, several issues remain, including low reimbursement rates for inpatient care, which are around 60% (Y. Chen et al., 2024; Mu et al., 2022), and the exclusion of medications for rare diseases and chronic conditions from the insurance catalog (Gao et al., 2023; Yang et al., 2022). Therefore, future poverty alleviation efforts in Shandong Province should shift the focus of health-related interventions from increasing insurance coverage to improving reimbursement rates.

H5: Urban households with more educated household heads are less likely to experience multidimensional poverty than those with less educated heads.

Regarding education, the analysis indicates that household heads with lower educational attainment are significantly more vulnerable to poverty than those with higher education levels. Similar to health, education plays a crucial role within the framework of the Capability Approach, functioning both as a capability and a functioning. Also, as a conversion factor, it influences an individual's ability to convert certain means into capabilities (Ibrahim & Tiwari, 2014). Education provides individuals with essential knowledge and skills, increasing their job opportunities and earning potential, thereby enhancing their personal capabilities (Artha & Dartanto, 2018). Additionally, education contributes to the dissemination of health knowledge, fostering healthy lifestyles, thereby improving individuals' health levels and overall quality of life (Artha & Dartanto, 2018; World Bank, 2019). Therefore, education is crucial for households to escape poverty. This finding is consistent with Adepoju and Oyewole (2020), Fahad et al. (2022), Najitama et al. (2020), Tang et al. (2022), and Zhong and Lin (2020).

H6: Urban households with married heads are less likely to experience multidimensional poverty than those with unmarried or divorced heads.

This study found no significant relationship between marital status (OR = 3.463,  $p = 0.336$ ) and household poverty. The relationship between marital status and poverty is complex. Some studies suggest that unmarried and divorced households are at a higher risk of poverty compared to married ones (Herbst-Debby et al., 2021; Khan et al., 2018; Zimmer, 2022). This is mainly because dual-income households are better equipped to absorb income loss impacts compared to single-income households (Amato & Maynard, 2007; Baker, 2015). However, some studies suggest that there is an asymmetry in the relationship between marital status and poverty (Mauldin & Mimura, 2007). The reason that unmarried and divorced household heads did not experience a higher probability of poverty may be related to their household size and educational attainment. In the 2020 CFPS datasets, married households had an average size of 3.37, while unmarried and divorced households had average sizes of 1.54 and 1.83, respectively. Furthermore, 62.5% of unmarried household heads have attained at least a high school education, while the corresponding proportion is 50% among divorced household heads and 36.6% among married household heads. The educational attainment of household heads influences their likelihood of experiencing poverty. Therefore, unmarried did not result in a higher poverty rate among the respondents.

H7: Urban households with female heads are more likely to experience multidimensional poverty than those with male heads.

Regression analysis indicates that households led by men are approximately 2.93 times more likely to fall into poverty than those led by women, although this result is only marginally significant ( $p = 0.091$ ). This contradicts family stress theories that associate single parenthood with poverty (Munoz Boudet et al., 2021; Nieuwenhuis et al., 2018). An analysis of the 2020 CFPS data revealed notable differences in education levels between male and female household heads. Among male heads, 7.88% were illiterate, 19.21% had completed primary education, and 35.96% had attained lower secondary education. In contrast, 21.33% of female heads were illiterate, 18.67% had primary education, and 21.33% had lower secondary education. However, when it comes to higher education, 21.33% of female household heads held a university or college degree, compared to only 18.23% of their male counterparts. This higher rate of higher education attainment among female household heads may explain their lower probability of experiencing poverty. In addition, the average household size for male-headed households is 3.07, while female-headed households have a slightly smaller average size of 3.00. This difference in household size may also contribute to the higher likelihood of male-headed households falling into poverty. This result is consistent with

the findings of Guo and Zhou (2016) and Mwakalila (2023), suggesting that female-headed households are less susceptible to poverty than those led by men.

H8: Urban households with older heads are more likely to experience multidimensional poverty than those with younger heads.

The age of the household head shows a positive correlation with poverty, but this relationship is not statistically significant ( $OR = 1.021, p = 0.455$ ). This finding aligns with Rodrigues and Rueanthip (2019), who indicated that the influence of age on the likelihood of a household being poor is minimal when various socioeconomic factors are considered. These results show that old age itself is not directly associated with poverty; the socioeconomic context of the households, such as income, health status, educational level, and accessibility of infrastructure, are the more important contributing factors to poverty status.

H9: Urban households with larger sizes are more likely to experience multidimensional poverty than those with smaller sizes.

For Hypothesis 8, regression data analysis found a significant positive correlation between household size ( $OR = 2.165, p = 0.001$ ) with urban poverty. This finding aligns with studies that confirm larger households face greater financial strain and resource constraints (Amjad et al., 2008; Y. Chen et al., 2021; X. Guo & Zhou, 2016; Oyekale et al., 2019; Tran et al., 2022). This is because

the larger the household size is, the higher the household's expenditure on consumption and, correspondingly, the lower the household's expenditures on other necessities such as education and health care. The financial burden increases their likelihood of experiencing multidimensional poverty.

H10: Urban households with higher aged-dependency ratios are more likely to experience multidimensional poverty than those with lower aged-dependency ratios.

This research did not discover a significant linkage between the aged-dependency ratio and urban poverty. Although there is a positive relationship between the two factors, it is not significant. This finding contradicts with findings from Alam et al. (2023), Cruz and Ahmed (2018), and the United Nations (2016), which all indicate higher aged-dependency ratio will increase the households' healthcare costs and lower labor productivity. This contradiction may be attributed to the government's anti-poverty efforts. According to data from the CFPS 2020 survey, households with an aged-dependency ratio equal to or exceeding 0.5 received a subsidy of 19,154 CNY per person, while households with an aged-dependency ratio below 0.5 received only 7,022 CNY per person. These subsidies significantly alleviate the financial strain on urban poor households with high aged-dependency ratios.



H11: Urban households with higher youth dependency ratios are more likely to experience multidimensional poverty than those with lower youth dependency ratios.

This study did not find a statistically significant correlation between the youth dependency ratio and urban poverty. Although the analysis indicates that the youth dependency ratio is negatively associated with the likelihood of experiencing poverty, this finding contradicts prior research suggesting that higher youth dependency ratios increase financial strain and, consequently, the risk of poverty (Amjad et al., 2008; X. Guo & Zhou, 2016; Oyekale et al., 2019). Despite some evidence supporting the hypothesis, other studies have reached different conclusions. Some research suggests that although a higher youth dependency ratio in a household may lead to temporarily increased expenditures—particularly on education, health, and nutrition—these investments can enhance human capital, leading to improved productivity and higher incomes over time, ultimately benefiting the household (Behrman, 1993; Bos et al., 2024; Psacharopoulos & Patrinos, 2018; Xin, 2011).

H12: Urban households with access to improved public facilities are less likely to experience multidimensional poverty than those without access.

This research did not discover a significant relationship between access to public facilities and urban poverty, contradicting the hypothesis. In the CFPS

questionnaires, public facilities refer to education, healthcare, and transportation facilities in the community where the respondents live. This indicates that the province's investments in public education, healthcare, and transportation have already reached a broad segment of urban residents.

In 2020, Shandong Province had 6.46 hospital beds and 3.15 practicing physicians per 1,000 people, comparable to the national averages of 6.46 beds and 2.9 physicians per 1,000 people. The province had 9,646 primary schools and 3,151 junior high schools, serving a population exceeding 100 million. Nationally, there were 160,148 primary schools and 50,2415 junior high schools in the same year. Considering China's total population, Shandong's figures align with the national average. Regarding public transportation accessibility, Shandong's total bus passenger volume in 2020 was 403.85 million person-times, surpassing the national average when adjusted for population size (National Bureau of Statistics of China, 2023a, 2024a; Shandong Provincial Statistics Bureau, 2023a, 2023b).

Considering that the public services of China have been widely recognized by international organizations such as the UNICEF (2019) and the World Bank (2024), the data indicate that the development of public facilities in Shandong Province is not lacking, explaining the absence of a significant relationship between access to public facilities and urban poverty in this study.

H13: Urban households with improved surrounding environments are less likely to experience multidimensional poverty than those without such improvements.

Through regression analysis, this study identified a significant association between the surrounding environment and urban poverty (OR = 1.577,  $p = 0.083$ ). Numerous studies have demonstrated that a healthy environment—characterized by factors such as clean air, clean water, and proper sanitation—is essential for human health and overall well-being (Alkire & Fang, 2019; Fonta et al., 2020; J. Guo et al., 2022; Jiao, 2020; Mehra & Saxena, 2020; X. Wang, 2022a; Xiao et al., 2018). Environmental hazards such as contaminated water significantly contribute to the spread of infectious diseases, posing severe threats to public health (ADB, 2006; Fonta et al., 2020; Nadeem et al., 2018). Similarly, air pollution increases the risk of respiratory diseases and other health complications, particularly among vulnerable populations, including women and children (WHO, 2022a). Proper sanitation is equally critical, as inadequate waste management and lack of hygienic facilities exacerbate health risks (United Nations, 2015). Therefore, international organizations such as the United Nations (2023b) and WHO (2024) declared that a clean, healthy, and sustainable environment is a basic human right.

H14: Urban households with higher asset values (including housing, financial assets, and durable goods) are less likely to experience multidimensional poverty than those with lower asset values.

Regarding housing value, our research did not find a significant relationship between housing value and urban poverty. This result contradicts previous studies that suggest housing value reflects stability and financial security for urban households (Artha & Dartanto, 2018; Oyekale et al., 2019; Sevinc, 2020). One possible explanation is that real estate transactions in China are subject to stringent legal regulations—for instance, many Chinese cities enforce strict purchase and sales restrictions—which makes it difficult to liquidate properties promptly (Y. Li et al., 2020; Zheng et al., 2023). Furthermore, high housing prices often lead to elevated mortgage burdens that squeeze household expenditures, resulting in a “house-rich, cash-poor” condition (International Monetary Fund, 2017, p. 57). Therefore, the role of housing assets as financial buffers during economic shocks may be overestimated (Q. Liang et al., 2020; World Bank, 2020a).

Concerning total financial assets, the regression analysis indicates that they are inversely related to urban poverty; however, the effect is minimal and not statistically significant ( $OR = 0.998$ ,  $p = 0.253$ ). In the CPFS datasets, financial assets include cash, deposits, stock, funds, government bonds, trust

products, and foreign exchange products. Studies from Despard et al. (2018), and Lusardi et al. (2014) indicate that financial assets provide a safety net that helps households cope with economic shocks; households with higher financial assets are more resilient against income volatility. However, this research did not find statistical significance in this aspect. Several factors may explain this result. According to a survey by the Southwestern University of Finance and Economics in China, more than 75% of Chinese households' financial assets are held in bank deposits or cash, with annual interest rates of only 1–2%, making it difficult to offset inflation (J. Ma & Chi, 2024; National Bureau of Statistics of China, n.d.). Due to insufficient social security coverage—such as low subsistence allowance standards—households tend to deposit their income in banks rather than spending or investing, thereby weakening the poverty-alleviation function of financial assets (Gu et al., 2020; İmrohoroglu & Zhao, 2018; L. Zhang et al., 2018). Consequently, when faced with economic shocks, low-income households find it difficult to rely on financial assets as a safety net.

In terms of the total values of durable goods, this research discovered a weak negative correlation between it and urban poverty ( $OR = 0.997, p = 0.318$ ), thus not supporting the hypothesis. Several factors may explain this finding: durable goods such as appliances and furniture have low liquidity and are difficult to liquidate in emergencies, meaning they do not serve as effective buffers against economic shocks (Dercon, 2002; F. J. Zimmerman & Carter,

2003). Furthermore, durable goods are likely to reflect past consumption patterns rather than current conditions and therefore have limited utility in capturing the household's present welfare status (Filmer & Pritchett, 2001; Vecchi, 2019). These findings are consistent with the results of this study, which show no significant relationship between household asset value and poverty.

H15: Urban households that own a car are less likely to experience multidimensional poverty than those without car ownership.

Through regression analysis, this study found a negative relationship between car ownership and urban poverty, although the significance level is weak ( $OR = 1.326$ ,  $p = 0.318$ ). In this study, households without a car were coded as 1, while those with a car were coded as 0. This result may be influenced by the high level of public transportation availability in Shandong Province. The province has a well-developed transportation infrastructure, with a total bus passenger volume of 403.85 million person-trips in 2020, surpassing the national average when adjusted for population size (National Bureau of Statistics of China, 2023a, 2024a; Shandong Provincial Statistics Bureau, 2023a, 2023b). The high accessibility of public transportation in Shandong has likely reduced the impact of car ownership in enhancing individual mobility and improving access to employment, education, and healthcare services.

### **5.2.3 Lived Experiences of Urban Poor Households**

Through quantitative data analysis, this research discovered that the main contributing factors of urban poverty are low education levels, chronic disease, large household size, household head's gender, and poor surrounding environment. Based on the findings of quantitative research, this research formulated qualitative research objectives, established sampling criteria, developed interview questions, and subsequently initiated qualitative fieldwork. The qualitative research explained the quantitative research results by comparing and connecting them with the qualitative findings. It further elaborated on the quantitative results by delving into the coping strategies employed by urban poor households to address their challenges, as well as their needs for external assistance to improve their circumstances.

Through the IPA analysis, this research identified three superordinate themes: the challenges faced by urban poor households, the coping strategies of urban poor households, and their urban poverty alleviation needs.

#### **5.2.3.1 The Challenges Faced by Urban Poor Households**

According to the qualitative data analysis, urban poor households mainly experienced challenges in the following areas: financial hardship, health dilemmas, poor housing conditions, and ineffective government administration.

#### **5.2.3.1.1 Financial Hardship**

The qualitative data analysis revealed that the financial hardship faced by urban poor households mainly includes low income, unemployment, high expenditures, and economic vulnerability.

##### **(1) Low Income Stemming from Low Wages**

Through phenomenological analysis, this research identified low income as a primary financial challenge faced by urban poor households, with 30 out of 33 respondents experiencing this issue. Within Sen's Capability Approach, income is an important means to capabilities; it provides the ability to acquire goods and services that can enhance one's capabilities to achieve valuable functionings, thus enabling the pursuit of a life they value (Sen, 2000a). In contrast, individuals with lower incomes have limited ability to acquire goods and services and may face greater challenges in achieving basic functionings such as health, education, or adequate shelter (Sen, 1992). This finding is consistent with the studies conducted by Alkire and Fang. (2019), X. Guo and Zhou (2016), Tran et al. (2022), Wang et al. (2021), and Javed and Asif (2015).

This qualitative research finding aligns with the measurement of multidimensional urban poverty in Shandong Province. Analysis of the contribution of various indicators to multidimensional poverty shows that



income is one of the highest contributing factors, second only to education levels and BMI, despite its contribution declining year by year from 2012 to 2020. However, considering the impact of the COVID-19 pandemic in 2020 and beyond, which significantly reduced the income of vulnerable urban groups and pushed millions back into poverty, this study still recognizes income as a key contributing factor to urban poverty (Ge et al., 2022; Lai et al., 2023; Y. Zhang et al., 2021). Therefore, the qualitative findings support the quantitative results, strengthening the validity of the research conclusions.

## **(2) Income Deficits Due to Unemployment**

The qualitative analysis results revealed that unemployment is a significant factor associated with reduced income for urban poor households, with 19 out of 33 respondents facing this challenge. Employment is the primary source of income for urban households, making unemployment a critical factor in income reduction (Fang & Zhang, 2021). According to the *2023 Resident Income and Consumption Expenditure Report* released by the National Bureau of Statistics of China (2024), the per capita disposable income of urban residents was 51,821 CNY, with wage income accounting for 22,053 CNY or 60.44% of the total income. Consequently, if the labor force of an urban household remains unemployed for an extended period, the risk of poverty for that household increases significantly (Alkire & Fang, 2019; Q. Zhang & Zhou, 2015).

Furthermore, the qualitative research found that the primary reasons for unemployment are low educational attainment and old age, which adversely affect human capital and employment prospects. This finding aligns with studies from Engbersen et al. (2019), Faturohim et al. (2023), Qin (2023), and Yirenkyi et al. (2023), all of which indicate a strong correlation between education, unemployment, and poverty. This finding underscores the critical role of education in alleviating urban poverty, thus validating the findings of the quantitative research.

Moreover, the qualitative findings are consistent with the quantitative research results. The quantitative analysis of the 2020 CFPS data indicates a notable association between unemployment and poverty incidence (OR = 35.012,  $p = 0.063$ ). This aligns with the findings of Chiappero-Martinetti and Sabadash (2014), Moyo et al. (2022), and Zizzamia (2020), who all indicated that unemployment is a key contributing factor to urban poverty. The mutual validation between the qualitative and quantitative research results enhances the overall validity of this research.

### **(3) Considerable Healthcare Costs**

According to the qualitative data analysis, healthcare expenses are one of the most significant challenges faced by urban poor households, with 21 out of 33 respondents facing this issue. This finding aligns with the report from the

National Health Commission of China (2018), which reveals that approximately 40% of the impoverished population in China falls into poverty due to exorbitant costs associated with serious illness. Meanwhile, the reimbursement scope and coverage of basic medical insurance in China are limited, covering only hospitalization costs and excluding outpatient treatment expenses (The Government of Hantai District of Hanzhong City, 2020). Furthermore, the list of medications covered by medical insurance is limited, encompassing only essential medications and excluding high-priced alternatives (Gao et al., 2023; Yang et al., 2022), which exacerbates the financial burden on the households. This finding is consistent with studies from Borde et al. (2022), Li et al. (2023), C. Liu et al. (2021), Ravangard et al. (2021), and Sarker et al. (2022), all of whom highlighted the limited coverage of China's basic medical insurance.

#### **(4) Substantial Educational Expenses**

Through qualitative data analysis, this research discovered that some respondents faced significant challenges in affording their children's education at the kindergarten, lower secondary school, and university levels. This is primarily because the Chinese government's 9-year compulsory education policy only covers primary and lower secondary school education (J. Li & Xue, 2021; M. Sun, 2022). As a result, urban poor households with members beyond the compulsory education stages are burdened with substantial expenses,

including tuition fees, costs of books and materials, and other associated costs (Nazneen et al., 2024). This finding aligns with studies conducted by B. Huang et al. (2021), J. Li and Xue (2021), Xue and Zhou (2018), and Yang (2017), all of which underscored the necessity for China to broaden its compulsory education system.

### **(5) Significant Spending on Daily Essentials**

The qualitative research findings revealed that certain participants encountered difficulties with high daily expenditures, primarily attributable to the substantial size of their households. Out of the 33 respondents, four households have a size of six members, and two have a size of five members, which is significantly higher than the average household size of 2.7 in Shandong Province (Shandong Provincial Statistics Bureau, 2021). The larger the household size, the higher the expenses for basic necessities, while expenditures for other areas, such as education and healthcare, decrease. Therefore, this exacerbates the overall poverty situation within the household. This finding aligns with research conducted by K.-M. Chen et al. (2019), X. Guo and Zhou (2016), Oyekale et al. (2019), and Tran et al. (2022). Furthermore, this finding is consistent with the analysis of 2020 CFPS data, which highlighted large household size as a significant factor contributing to urban poverty ( $OR = 2.165$ ,  $p = 0.001$ ). The quantitative and qualitative findings validate each other,

enhancing the reliability and validity of the research results.

## **(6) Vulnerable to Economic Shocks**

The results of qualitative research indicate that economic vulnerability is also one of the significant challenges faced by urban poor households, including vulnerability to natural disasters and the challenges posed by the COVID-19 pandemic. Economic vulnerability has a significant inverse correlation with accumulated household assets, as financial assets can buffer negative economic shocks (Killewald et al., 2017). Research by Artha and Dartanto (2018), Oyekale et al. (2019), Sevinc (2020), and C. Wang et al. (2021) suggested that household assets represent the stock of wealth, and households lacking sufficient assets often struggle to cope with sudden financial challenges or emergencies, thus more prone to poverty.

This finding is consistent with the quantitative results. Analysis of CFPS data from 2012 to 2020 reveals that deprivation in income, employment, and household assets increased from 2018 to 2020, likely due to the economic shock caused by the COVID-19 pandemic. Studies by Ge et al. (2022), C. Huang et al. (2023), and Lai et al. (2023) support this, confirming that COVID-19 led to a decrease in income among tens of millions of vulnerable urban populations in China. Beyond the quantitative findings, the qualitative research explored the underlying reasons for this shift within the income dimension of poverty. The

qualitative results suggest that the pandemic control measures disrupted many respondents' work, making it difficult to secure long-term, stable employment, which in turn severely impacted their income. These qualitative insights provide a more detailed explanation of the quantitative findings, enriching the overall understanding of the research results.

#### **5.2.3.1.2 Health Dilemmas**

The qualitative data analysis revealed that health dilemmas are the most significant challenge faced by respondents, with 31 out of 33 households experiencing this issue. The health challenges faced by urban poor households include serious illnesses, severe disabilities, and mental disorders. Health is an essential component in Sen's Capability Approach (Alkire, 2016; Robeyns, 2017, p. 8). Poor health status of household members can deplete the household's savings, diminish their working capacity, and reduce their productivity and employment prospects, thereby heightening their risk of falling into multidimensional poverty (Adepoju & Oyewole, 2020; Gu et al., 2021). This finding aligns with studies conducted by Alkire and Fang (2019), Grabowska et al. (2021), López Barreda et al. (2019), Moyo et al. (2022), and Zhong and Lin (2020). Moreover, this qualitative finding aligns with the quantitative analysis of the data from 2020, both of which indicated that household member's health has a significant impact on the poverty status of the

household. The qualitative findings corroborated the quantitative results, thus enhancing the validity of this research.

#### **5.2.3.1.3 Poor Housing Conditions**

The qualitative research revealed that many respondents faced challenges related to a lack of stable housing and limited access to basic infrastructure. Out of the 33 respondents, 10 experienced unstable housing, primarily because their homes were demolished by the government, forcing them to rent accommodations elsewhere. Housing is an essential household asset, representing the financial stability of the household. Households without stable housing often struggle to cope with economic shocks, such as sudden increases in housing costs or loss of income, making them more vulnerable to poverty (Artha & Dartanto, 2018; Oyekale et al., 2019; Sevinc, 2020).

Regarding access to basic infrastructure, the qualitative research uncovered that the poor surrounding environment is one of the most significant factors contributing to urban poverty. This finding aligns with the studies conducted by Alkire and Fang (2019), Fonta et al. (2020), Jiao (2020), Mehra and Saxena (2020), Nadeem et al. (2018), and C. Wang et al. (2021), which all suggest that a healthy environment—such as clean air, clean water, and proper sanitation—is essential for human well-being. This is because environmental hazards such as water contamination and air pollution pose significant risks to

urban households (United Nations, 2022b; World Bank, 2022c; WHO, 2022a).

Therefore, international organizations such as the United Nations (2023b) and

WHO (2024) proclaimed that a healthy environment is a basic human right.

#### **5.2.3.1.4 Ineffective Government Administration**

The qualitative data analysis revealed that certain respondents faced challenges in non-inclusive government policies, government transparency issues, and corruption and bureaucratic barriers among local governments.

##### **(1) Non-inclusive Government Policies**

The challenges of non-inclusive government policies faced by the respondents mainly include overly stringent environmental regulations and insufficiently inclusive subsistence allowance policies.

Regarding the overly stringent environmental policies, the Chinese government has implemented a “coal-to-gas” project to replace coal with clean energy, aiming to mitigate severe air pollution (National Development and Reform Commission of China, 2017). To achieve this goal, numerous local governments have taken overly stringent measures during policy implementation, such as banning residents from burning coal for heating (Feng et al., 2020). At the same time, due to the increase in natural gas prices, the heating costs of natural gas increased to three to four times higher than when



using coal (X. Du et al., 2018). This significantly increased the financial burden of urban households. This finding aligns with Fan et al. (2022), S. Wang et al. (2020), and S. Xu & Ge (2020), which all indicated that inadequate access to clean heating facilities and cooking fuel was primarily linked to non-inclusive government policy.

Regarding the insufficiently inclusive subsistence allowance policies, while the subsistence allowance policy primarily focused on income-based poverty, it has not adequately addressed expenditure-induced poverty, despite the subsistence allowance regulations acknowledging expenditure-based poverty (Civil Affairs Bureau of Heze City, 2022). This finding is consistent with studies conducted by X. Gao et al. (2023) and Hammond (2018), all of which indicated that the coverage scope of subsistence allowance in China is too narrow; the Chinese government should expand the scope, thereby enabling more households to be lifted out of poverty.

## **(2) Government Transparency Issues**

The qualitative research findings unveiled that the respondents perceived the government's failure to promote the policies and establish effective channels for communicating with the public. The lack of government transparency is the main reason behind this (Grimmelikhuijsen & Knies, 2017; World Bank, 2017a). The lack of transparency in the policy-making process

tends to lead to the lack of consideration of public demands and, thus, the lack of inclusiveness (Alessandro et al., 2021). Furthermore, the absence of oversight and accountability mechanisms in the policy process provides fertile ground for corruption and bureaucracy (Lindstedt & Naurin, 2010; Šumah, 2018). Therefore, addressing the issue of government transparency plays a crucial role in improving government administration effectiveness.

### **(3) Corruption and Bureaucratic Barriers**

Regarding corruption and bureaucratic barriers among local governments, some respondents have suffered significant losses due to negligence of duty within the court system, while others have endured substantial economic setbacks due to corruption among community-level officials. Additionally, some respondents have been adversely affected by inadequate business regulation. Corruption often leads to the misallocation of public funds, adversely affecting the supply of basic infrastructure (Bhandari, 2023). It undermines the effective delivery of crucial social services, such as healthcare and education (Naher et al., 2020). Bribery and nepotism impede the government's regulatory oversight of markets, hindering economic growth and exacerbating societal inequalities (Spyromitros & Panagiotidis, 2022).

Compared with the quantitative findings, the qualitative research emphasized the significant challenge posed by ineffective government

administration for urban poor households. This finding serves to supplement and enrich the quantitative results, which identified low educational attainment, chronic illness, large household size, household head's gender, and poor surrounding environment as the main contributing factors of urban poverty. These factors generally correspond to the categories of financial hardship, health dilemmas, and poor housing conditions discovered through qualitative data analysis. The integration of quantitative and qualitative research findings enhanced the validity of this research (Creswell & Plano Clark, 2018).

#### **5.2.3.2 The Coping Strategies Adopted by Urban Poor Households**

In order to lay the foundation for the strategies to alleviate urban poverty, this research delved deeper into the coping strategies employed by urban poor households in addressing their challenges. Through qualitative data analysis, this research discovered that urban poor households have implemented the following coping strategies to address the challenges they face: seeking assistance to alleviate financial hardship, pursuing support to address health dilemmas, striving for improved housing conditions, and advocating for better government administration.

#### **5.2.3.2.1 Seeking Assistance to Alleviate Financial Hardship**

In order to alleviate their financial hardship, the respondents employed the coping strategies of applying for financial subsidies, seeking assistance in job placement, taking out loans to cover educational expenses, borrowing funds to cover daily expenses, and compromising living standards to make ends meet.

##### **(1) Applying for Financial Subsidies from the Government**

The subsistence allowance is a monetary subsidy provided by the Chinese government to households whose average income per member falls below the standards to ensure their basic living needs (Civil Affairs Bureau of Heze City, 2022). The subsistence allowance system plays a crucial role as a social safety net, significantly contributing to alleviating extreme poverty in urban areas (Guan, 2019b; Kakwani et al., 2019b). In this research, 25 out of the 33 respondents applied for and successfully received a subsistence allowance from the government. This finding aligns with (Nazneen et al., 2024), who also discovered that urban poor households have attempted to apply for social security programs from their governments.

However, several respondents who were facing financial hardships attempted to apply for the allowance but were unsuccessful. Some complained that the thresholds for applying for subsistence allowance are very strict; only

those with serious illnesses or severe disabilities can successfully apply. Others highlighted that obtaining the allowance has become increasingly difficult since China's declaration of eradicating absolute poverty in 2020, suspecting that the number of available slots has decreased since then. This finding is consistent with the studies of Q. Gao et al. (2019), Q. Gao and Zhai (2019), Guan (2019a, 2019b), and Kakwani et al. (2019), all of whom suggested expanding the scope of subsistence allowance for the recipients so as to better assist urban poor households, helping them to be lifted out of poverty.

## **(2) Seeking Assistance in Job Placement**

Some respondents attempted to seek government assistance in finding employment, but this proved to be challenging. Due to the low educational attainment and poor health conditions of some respondents, it would be difficult for them to find employment even with government intervention (Vancea & Utzet, 2017; Zajacova & Lawrence, 2018). Many unemployed respondents sought assistance from government-run job centers. However, most of them complain that they do not receive adequate help from these institutions. This finding aligns with the report from the Employment, Social Affairs & Inclusion Department of the European Commission (2014). The government should enhance the educational levels of urban poor households and provide vocational training to equip them with the skills needed for available job opportunities.

### **(3) Taking out Loans to Cover Educational Expenses**

China has implemented a nine-year compulsory education policy, which covers only primary and lower secondary school education, excluding preschool, high school, and university levels (J. Li & Xue, 2021; Su, 2022; M. Sun, 2022). Some respondents whose children are pursuing university education applied for student loans to relieve their burden. The student loan program is a government subsidy designed for impoverished college or university students. These loans are interest-free, which significantly alleviated the financial burden on urban poor households (Xinhua, 2023a; H. Zhang, 2023).

However, student loans do not extend to preschool and upper secondary school education (Xinhua, 2023a). Consequently, some respondents with children in kindergarten or lower secondary school have resorted to borrowing funds from relatives and friends to support their education. However, this approach is less stable than borrowing from government-backed financial institutions, and it may harm the relationships between family members (S. Lee & Persson, 2016; Nguyen & Canh, 2021). The government should enhance financial subsidies for preschool and high school education to alleviate the financial burdens on urban poor households.

#### **(4) Borrowing Funds to Cover Daily Expenses**

For households of large size, the burden of daily expenses is substantial (Amjad et al., 2008; K.-M. Chen et al., 2019; X. Guo & Zhou, 2016; Oyekale et al., 2019; Tran et al., 2022). Due to limited sources of income and numerous expenses, some households are compelled to borrow money to make ends meet. Some even resort to borrowing before each month's paycheck arrives, only to repay the debt once the paycheck is received. Although it's not an effective solution, they have no other choices in the economic downturn following COVID-19 (Lai et al., 2023; Y. Zhang et al., 2021). Robbing Peter to pay Paul merely sustains their basic subsistence and is not a long-term solution (McBride & Smith, 2022; Wexler et al., 2024). They urgently need financial support from external sources to lend them a helping hand.

#### **(5) Compromising Living Standards to Make Ends Meet**

Faced with financial hardship, many respondents chose to compromise their living standards to make ends meet. Some of them are reluctant to eat expensive meals to cut down on expenses, while others abstain from purchasing new clothes. Certain individuals are reluctant to utilize water and electricity to economize. Additionally, some resort to burning wood for cooking and heating instead of gas and electricity in order to save money.

Cutting expenses on essentials such as food, education, and healthcare is a commonly used coping strategy among impoverished households (Amendah et al., 2014; DelVillano, 2018; M. Gao & Tang, 2018; Nazneen et al., 2024; Wilfred, 2020). However, this approach poses significant challenges for urban poor households. Scrimping on necessities can affect the health of family members, and reducing expenditure on education and healthcare can hinder the accumulation of human capital. Moreover, such measures may also impact the mental well-being and quality of life of household members (d'Errico et al., 2018; Kabisch et al., 2017; World Bank, 2020b). These households need support from external sources to alleviate the financial strains (Alkire, Roche, et al., 2017; Ravallion, 2016a).

#### **5.3.2.3.2 Pursuing Support to Address Health Dilemmas**

The health dilemmas faced by the respondents mainly include serious illness, severe disabilities, and mental disorders. In order to address their health conditions, the respondents resorted to various methods, including seeking financial assistance from relatives and friends, purchasing commercial medical insurance to supplement basic coverage, and choosing self-regulation methods to alleviate mental disorder symptoms.

Regarding the methods to raise funds, many respondents seek financial assistance from relatives and friends. This is a prevalent coping mechanism



employed by impoverished households when faced with catastrophic health expenditure (Gautam et al., 2021; Kabir et al., 2019; Mazumdar et al., 2014; Nazneen et al., 2024). The advantage of this approach is that relatives and friends usually provide more flexible and lenient repayment terms compared to banks or other financial institutions, which gives the borrower a certain buffer period and room for adjustment (S. Lee & Persson, 2016; Turvey & Kong, 2010). However, the funds provided by relatives and friends may be limited and may not suffice to meet larger borrowing needs (S. Lee & Persson, 2016). Relying solely on borrowing from relatives and friends may not be sufficient; assistance from external sources is needed (Banerjee, 2013; Karlan et al., 2014).

Some respondents purchased commercial insurance to supplement basic medical insurance. Numerous municipal governments collaborated with commercial insurance companies to introduce low-budget, affordable medical insurance for their residents (Shen & Xu, 2022; J. Wu, 2023). For instance, the Heze Municipal government collaborated with commercial insurance companies to introduce “Hui He Bao,” a low-cost insurance plan that offers higher reimbursement limits compared to basic medical insurance, benefiting residents (Yuncheng County Government of Heze City, 2023). Supplementary medical insurance serves as an effective complement to basic medical insurance, substantially easing the financial burden for residents with serious illnesses (C. Liu et al., 2020; J. Sun & Lyu, 2020). Shandong Province should collaborate

with insurance companies to introduce more affordable commercial health insurance plans like this one, enhancing the accessibility of commercial medical insurance for its residents.

Regarding mental disorders, the respondents primarily faced potential challenges related to depression, anxiety, paranoia, and schizophrenia. For depression and anxiety, some respondents chose to alleviate the symptoms through self-regulation methods, which have been proven effective with consistent effort (Hagerty et al., 2020; Villaggi et al., 2015). However, some serious disorders, such as schizophrenia, cannot be alleviated through self-regulation; medical intervention is required (Goldstone, 2020). Therefore, some respondents have been admitted to specialized psychiatric hospitals for treatment. Unfortunately, the medical expenses in specialized hospitals often exceed the financial capabilities of urban poor households (M. Xie et al., 2019; J. Xu et al., 2016). Households with severe mental disorders require external aid to ease their financial strain, as they are unable to resolve their challenges independently.

### **5.3.2.3.3 Striving for Improved Housing Conditions**

#### **(1) Urging Expedited Resettlement Housing Construction**

During the urbanization process, China has embarked on extensive shantytown renovation projects in recent years, markedly enhancing urban living standards. However, this endeavor has also given rise to certain challenges, including the issue of incomplete construction of resettlement housing (Luo, 2022; Yuan & Song, 2020). Some respondents petitioned the government, urging them to expedite the construction of these resettlement housing. However, the efforts did not yield significant results. Because the construction funds were embezzled by local officials, and although they have been sentenced by the court, the embezzled funds remain unrecovered. The eradication of corruption cannot be achieved solely through the efforts of residents; it requires a systematic approach by the government at all levels to effectively address this issue (Z. Guo, 2023; Holmes, 2015; Transparency International, 2023).

#### **(2) Exploring Alternative Solutions for Basic Infrastructure**

Qualitative data analysis revealed that certain respondents lack access to basic infrastructure such as clean drinking water and cooking fuel. Consequently, some have turned to alternative sources to meet their essential needs.

For those experiencing inadequate access to clean drinking water, some respondents who have no tap water at home opted for well water instead. While others, despite having access to such infrastructure, choose to collect water from alternative sources to save money. This finding aligns with the findings of Achore et al. (2020), Nchor and Ukam (2023), and Senna (2021), who also discovered that households lacking adequate access to tap water adopted various alternative coping strategies: water conservation, fetching water from friends and family, and digging wells. The measures taken by the respondents only temporarily alleviate their difficulties. To thoroughly address this issue, it is necessary for the government to enhance infrastructure development and provide water subsidies to impoverished families (Achore et al., 2020; Achore & Bisung, 2023; Venkataramanan et al., 2020).

Regarding those experiencing limited access to clean cooking fuel, China's excessively stringent environmental policies prohibited urban residents from burning coal (Feng et al., 2020). Therefore, some respondents chose to use firewood instead of natural gas or electricity to save on expenses. This finding is consistent with those of Fan et al. (2022), S. Wang et al. (2020), and S. Xu & Ge (2020), all of which indicate that this issue is primarily associated with a lack of government policy transparency and neglect of citizens' participation and oversight rights. Residents, in particular, are dissatisfied with the insufficient government subsidies (S. Xu & Ge, 2020). The government should

enhance transparency in policy-making, consider the opinions of the public more extensively, and allocate more financial subsidies to impoverished populations, thereby ensuring a basic standard of living for urban poor households.

#### **5.3.2.3.4 Advocating for Effective Government Administration**

To address the challenge of ineffective government administration, the respondents employed several strategies, including actively seeking channels to access government policy, providing feedback to the government through alternative channels, and petitioning against corruption and bureaucracy.

The lack of transparency is the main reason for ineffective government administration (Grimmelikhuijsen & Knies, 2017; World Bank, 2017a). Poverty means powerlessness and voicelessness (Narayan, 2010). For impoverished people, there are obstacles in accessing policy information; the lack of government transparency prevents them from participating in the policy-making process; their voices are rarely heard by the government, which results in their disadvantaged position in society (Narayan, 2010). Some respondents believed that local governments failed in policy promotion. Therefore, they proactively seek information on poverty alleviation policy through channels such as television. Others hope to convey the voices of the grassroots to the government. They actively reach out to alternative channels to communicate with the

government, hoping their voices can be transmitted to the authorities.

However, most of the coping strategies did not yield the desired results, especially those aimed at addressing government corruption and bureaucracy issues. Some respondents petitioned the government for intervention regarding their companies' misconduct. However, their petitions did not yield the desired outcomes. The inadequate government regulation of businesses is a reflection of ineffective government governance (Sheehy & Feaver, 2015). Meanwhile, other respondents petitioned the government over the unfinished construction of resettlement housing but did not achieve their desired results either; it is primarily linked to government corruption. It is challenging to solve these issues solely relying on the efforts of the respondents. It requires systematic strategies such as increasing government transparency, strengthening oversight and accountability mechanisms, and promoting citizen participation in governance (Gans-Morse et al., 2018; Gaspar et al., 2019; T. Gong & Yang, 2019).

#### **5.2.3.3 Poverty Alleviation Needs of Urban Poor Households**

Despite employing various coping strategies to address their challenges, some respondents have not achieved the desired results. Urban poor households still need external assistance to address their challenges in terms of finance, health, housing conditions, and government administration.

### **5.2.3.3.1 The Need for Addressing Financial Hardship**

#### **(1) The Need for expanded Coverage of Subsistence Allowance**

In order to address financial challenges, some respondents expect the government to expand the coverage of subsistence allowances to include expenditure-based poverty, thereby allowing more urban households to benefit. For example, although some respondents meet the conditions of expenditure-based poverty, and the subsistence allowance application regulations recognize this type of poverty, they have still been unsuccessful in their applications for government assistance (Civil Affairs Bureau of Heze City, 2022). Some respondents suspected that since China announced the eradication of absolute poverty in 2020, the government has limited the available slots for low-income households, making it increasingly difficult to apply for subsistence allowances. This finding is consistent with the studies of Q. Gao et al. (2019), Q. Gao and Zhai (2019), and Guan (2019a, 2019b), all of whom indicated that the coverage scope of subsistence allowance in China is too narrow; they suggested that the government ease the criteria to extend assistance to a greater number of urban poor households, thereby lifting more of them out of poverty.

## **(2) The Need for Assistance in Job Placement**

Some respondents are unable to find jobs due to old age or low education levels. They sought help from the government, hoping that it could assist them in finding employment. Unfortunately, their efforts did not yield the desired outcome. This finding aligns with the report by the Employment, Social Affairs & Inclusion Department of the European Commission (2014), which indicated that many unemployed individuals complained about not receiving sufficient assistance from government-run job centers. Considering the significant relationship between education and employment, the government should provide education subsidies and vocational training to urban poor populations. This would enhance their skill sets and work capacity, thereby improving their employment prospects (Engbersen et al., 2019; Faturohim et al., 2023; Qin, 2023; Yirenkyi et al., 2023).

The government could also draw on the experience of the rural Targeted Poverty Alleviation initiatives, setting up poverty alleviation workshops in urban areas. During China's Targeted Poverty Alleviation initiative, the government established these workshops for rural poor households, which has created numerous job opportunities for individuals with limited work capacity (Ju & Zhao, 2017; Xinhua, 2020). Extending the poverty alleviation workshops to urban areas would help lift more urban poor out of poverty.



### **(3) The Need for Increasing Pensions for the Elderly**

China's basic pension insurance system can be divided into two categories: urban employee pension insurance and urban-rural resident pension insurance (ILO, 2022). The urban employee pension insurance system is only applicable to individuals with urban household registration (*hukou*) and formal employment. Other residents, such as temporary workers and rural migrants, are eligible only for urban-rural resident pension insurance, which significantly differs in amount from urban employee pension insurance. The average monthly pension for urban employees is around 3,100 CNY, while that for urban-rural residents is only 168 CNY in Shandong Province (Department of Human Resources and Social Security of Shandong Province, 2023).

Some respondents expect the government to increase their pension amounts. They argued that regardless of what their previous employment was, they have all contributed to the country's development and thus require an equal level of pension. This finding is supported by studies conducted by Cai and Yue (2020), J. Li et al. (2020), H. Wang and Huang (2023), Zhan and Jia (2021), and Zhu and Walker (2018), all of which argued that China's current pension system disproportionately benefits civil servants and SOE employees while failing to adequately cover other residents. This disparity exacerbates economic inequality. To address this issue, the government should develop plans to

increase pension amounts for those not employed in the public sector, ensuring that all residents receive an equal level of pension benefits (J. Li et al., 2020; H. Zhu & Walker, 2018).

#### **(4) The Need for Financial Support for Non-Compulsory Education**

In China, compulsory education encompasses only primary and lower secondary school education. Some respondents with children in kindergarten, private high schools, or universities have complained about the high education expenses, which pose a significant financial burden on them. They expect the government to provide financial subsidies to households with children in kindergarten and to offer more student loans for high school and university students, thereby alleviating their financial burden. Furthermore, enhancing education attainment can significantly bolster individuals' employment prospects, thereby helping them escape poverty (Engbersen et al., 2019; Faturohim et al., 2023; Qin, 2023; Yirenkyi et al., 2023). To effectively address this issue, the government should provide more subsidies to poor households with members at the stages of kindergarten, lower secondary school, and university to alleviate their financial burdens.

#### **5.2.3.3.2 The Need for Addressing Health Dilemmas**

Health dilemmas emerged as the predominant challenge among respondents. Out of the 33 respondents, 21 indicated that their medical expenses surpassed their budgetary limits, posing financial strain. In response, they resorted to various coping mechanisms, such as seeking reimbursement from medical insurance, borrowing funds from friends and family, and turning to charitable organizations for financial assistance. Despite these efforts, they continue to struggle to afford their medical expenses. To ease the financial strain on urban poor households and facilitate their access to improved medical care, it is essential to broaden the scope of medical insurance coverage.

##### **(1) The Need for Expanding Basic Medical Insurance Coverage**

The respondents are urging the government to extend basic medical insurance coverage to include outpatient expenses within the reimbursement range, thereby alleviating their financial burden. China's basic medical insurance primarily covers the costs of inpatient care but does not extend to outpatient treatment expenses (Borde et al., 2022; Y. Li et al., 2023; C. Liu et al., 2021; Ravangard et al., 2021; Sarker et al., 2022). This has imposed significant financial burdens on many patients with serious illnesses. It is advised that the government reforms the basic medical insurance by including more outpatient expenses within the reimbursement scope, thereby alleviating

the burden on patients with serious illnesses.

## **(2) The Need for Expanding the Medical Insurance Drug List**

Some respondents expect the government to broaden the medical insurance drug list, allowing more drugs to be reimbursed. The drug list for medical insurance comprises only basic medications; expensive drugs, such as imported ones, are not eligible for reimbursement, placing a significant financial strain on urban poor households (P. Gao et al., 2023; Gu et al., 2021; F. Yang et al., 2022). Some respondents reported that in order to save money, they had to substitute expensive medications with cheaper ones, as these can be reimbursed by basic health insurance. This finding aligns with those of Y. Li et al. (2023) and C. Liu et al. (2021), all of which advised that the government expand the medical insurance drug list. This measure would not only alleviate the financial strain on poor households but also provide them with better treatment options (J. Ma et al., 2016; Xinhua, 2023b; H. Zhu et al., 2022).

### **5.2.3.3.3 The Need for Improved Housing Conditions**

The primary challenges faced by the respondents regarding housing conditions include unstable housing and limited access to basic infrastructure. The respondents have employed various strategies to cope with this challenge. However, these measures have not yielded the desired outcomes. They still

require external assistance to improve their situation.

### **(1) The Need for Expanding the Coverage of Basic Infrastructure**

Access to basic infrastructure, including clean drinking water and cooking fuel, is widely recognized as a fundamental human right. (United Nations, 2022b; World Bank, 2022d). The qualitative data analysis revealed that some respondents lack access to tap water at home, while others do not have affordable heating facilities. Concurrently, even though some respondents have access to such facilities, they are reluctant to use them due to the high costs. This finding is consistent with previous research by Amendah et al. (2014), Nchor and Ukam (2023), and Senna (2021), all of which indicated that households lacking adequate access to tap water have resorted to alternative sources, such as well water, obtaining water from family and friends, among others. Similarly, households without affordable heating facilities have resorted to burning firewood for warmth (S. Fan et al., 2022; S. Wang et al., 2020; S. Xu & Ge, 2020). This could potentially pose a certain threat to their health. Because alternative water sources may not be sufficiently clean, and burning firewood can generate indoor air pollution (Senna, 2021; WHO, 2022a). The government needs to enhance basic infrastructure construction and provide more financial subsidies to impoverished families so that they can afford these facilities, thereby improving their living conditions.

## **(2) The Need for Expediting the Construction of Resettlement Housing**

Respondents whose housing construction was halted have collectively petitioned the government, urging the developer to expedite the construction of houses. However, their actions did not achieve the desired results. Construction was halted because the funds were embezzled by local government officials, resulting in the government's inability to provide developers with sufficient funds. Resolving this issue demands comprehensive strategies taken by the government. During China's urbanization process over the past few decades, remarkable achievements have been made, but it has also brought new issues, including numerous unfinished housing projects (Audin, 2022; Guan et al., 2018; Luo, 2022). In China's future urbanization process, the government should change its previous approach of prioritizing speed over quality, strengthen risk control capabilities, and enhance government transparency, ensuring the sustainability of urbanization (Guan et al., 2018).

### **5.2.3.3.4 The Need for Effective Government Administration**

The main challenges encountered by respondents include non-inclusive government policies, lack of government transparency, and local government corruption and bureaucracy. They employed a series of coping strategies, actively seeking channels to access government policy, providing feedback to the government through alternative channels, and petitioning against corruption

and bureaucracy. However, relying solely on the respondents' own efforts has proven insufficient; they require external assistance and support.

### **(1) The Need for Revising Non-Inclusive Government Policies**

To address air pollution, the Chinese government initiated a project to transition from coal to cleaner energy sources such as natural gas (National Development and Reform Commission of China, 2017). However, during the implementation of this plan, some respondents reported that local authorities imposed stringent bans on coal burning, compelling them to rely on firewood for cooking and heating purposes (Feng et al., 2020). These policy processes lacked inclusivity, neglecting the rights of the residents to participate and oversee, which has led to considerable challenges for them (S. Fan et al., 2022; S. Wang et al., 2020; S. Xu & Ge, 2020). The government should prioritize the perspectives of urban poor households to ensure their policies are inclusive and more targeted toward addressing the needs of urban poor households.

### **(2) The Need for Enhancing Government Transparency**

In addressing the challenges concerning government transparency, respondents have employed diverse coping strategies. These include actively seeking government policy information and providing feedback through alternative channels. However, not all of these strategies have yielded the

desired outcomes.

Some respondents reported that they could not effectively access policy information, especially the elderly, who did not know how to operate smartphones and WeChat, which hindered their access to policy information. This finding aligns with studies by Marais et al. (2017) and Vogels (2021), which indicated that governments are increasingly using digital tools to disseminate policy messages, creating a digital divide for many poor people. The government should utilize various channels such as television, radio, and door-to-door campaigns to reach the elderly and other impoverished individuals, enabling them to benefit from the policies. (Marais et al., 2017).

Some other respondents believed that the government lacks a comprehensive understanding of the needs of the grassroots and that its policies do not adequately address their interests. This finding aligns with the United Nations (2022a), which highlighted the importance of transparency and inclusivity in policy-making processes. The government's public policy process failed to seek the opinions of marginalized communities, resulting in their exclusion. Consequently, the needs and concerns of these groups are neglected in policy decisions, leaving them in a disadvantaged position in society (Narayan, 2010). The government should establish effective communication channels with the public to better reflect the interests of the grassroots in the



policy-making process, thereby enhancing policy transparency and inclusivity.

### **(3) The Need for Combating Corruption and Bureaucracy**

In terms of corruption and bureaucracy, the challenges encountered by the respondents encompass local official corruption, inadequate business regulation, and neglect of duty by the court.

Regarding local official corruption, certain respondents experienced substantial financial losses as a result. Some had their houses demolished by the government, only to find that construction of resettlement housing was halted due to funds being embezzled by local officials. The underlying issue lies in governmental corruption, a complex issue that cannot be effectively tackled by residents alone (Gans-Morse et al., 2018; Gaspar et al., 2019; T. Gong & Yang, 2019).

Meanwhile, due to the government's ineffective regulation of businesses, some respondents suffered considerable economic losses. Some respondent's pensions were misappropriated by their company. At the same time, others have their wages withheld by their company. They petitioned the government for intervention; however, the government only instructed the company to pay out the pensions after raising the funds. Ineffective regulation of businesses has a significant relationship with government corruption and bureaucracy, a

challenge that cannot be addressed solely by the efforts of urban residents (Amin & Soh, 2021; Breen & Gillanders, 2022).

Furthermore, some other respondents suffered significant losses due to judicial injustice. Despite the court's ruling, the judgment could not be enforced because the assets of the opposing party had been transferred. These individuals possess pertinent evidence, yet the court refused to acknowledge it. They suspected there was corruption within the judicial system. These issues can only be addressed through systematic measures by the government (Transparency International, 2023).

The research findings affirm that relying solely on urban residents' efforts is inadequate to combat corruption and bureaucracy effectively (Z. Guo, 2023; Holmes, 2015). Systemic measures implemented by the government are crucial, including enhancing transparency, bolstering oversight and accountability mechanisms, and fostering citizen participation in governance (Gans-Morse et al., 2018; Gaspar et al., 2019; T. Gong & Yang, 2019).

#### **5.2.4 Integration of Quantitative and Qualitative Findings**

Through the quantitative data analysis, this research identified that the primary contributing factors of urban poverty in Shandong Province include limited education levels, chronic disease, large household size, and inadequate

household surrounding environment. Meanwhile, the qualitative data analysis revealed that urban poor households mainly faced challenges in financial hardships, health dilemmas, poor housing conditions, and ineffective government administration. The quantitative results demonstrate a strong correlation with the qualitative findings. Furthermore, the qualitative findings on ineffective government administration as a challenge for urban poor households supplemented the quantitative results, thereby enhancing the overall validity of this research (Creswell & Plano Clark, 2018).

To further illustrate how qualitative and quantitative findings complement each other, a closer examination of the key dimensions is necessary.

Regarding the education dimension, the quantitative results reveal that household heads with lower educational attainment are more likely to fall into poverty, aligning with Subtheme 1a: ‘Financial Hardship. Qualitative interviews indicate that “low education” extends beyond formal schooling to include limited skills and employment opportunities. Future research should differentiate between formal education and vocational training to improve the sensitivity of quantitative measurements.

With respect to the health dimension, the quantitative analysis identifies chronic illness as a key factor in poverty, aligning with the qualitative findings in Subthemes 1b, 2b, and 3b. However, qualitative interviews reveal additional

burdens, including high medical costs, mental health issues, and disabilities, which the quantitative study could not capture due to data constraints. Future research should expand health indicators in MPI frameworks to provide a more comprehensive assessment of health-related poverty influences.

For household size, quantitative results show a significant positive correlation between household size and poverty risk, with larger households more likely to experience poverty. Although the aged- and youth-dependency ratios were not statistically significant, their coefficients suggest potential trends. This aligns with Subtheme 1: Financial Hardship, where qualitative findings highlight the financial strain of caregiving. Future studies could refine dependency ratio measurements by distinguishing between individuals with no income versus those receiving pensions or working, potentially uncovering overlooked relationships.

Regarding housing conditions, quantitative results indicate a marginal impact of the surrounding environment on poverty, while “Public Facilities” and “Total Household Housing Value” are not significant. This corresponds with Subtheme 1c: Poor Housing Conditions, which highlights unstable housing and inadequate infrastructure. The quantitative and qualitative findings capture different aspects of housing conditions, and their integration provides a more holistic perspective. Future research should incorporate additional housing

indicators to enhance measurement accuracy.

Regarding government administration, The insignificance of government subsidies in the quantitative model may reflect ineffective governance, as supported by Subtheme 1d: Ineffective Government Administration. However, qualitative findings further highlight policy exclusion, lack of transparency, inefficiency, and corruption. The binary variable for subsidy receipt may not adequately capture the impact of government policies on poverty. Future research should consider measuring subsidy amounts and incorporating indicators such as application accessibility and policy satisfaction for a more nuanced analysis.

In summary, qualitative findings suggest refinements to quantitative indicators, such as disaggregating education levels and restructuring dependency ratios, while also identifying potential mediators, including education costs and policy implementation quality. This study underscores a mixed-methods approach where quantitative analysis identifies key relationships, and qualitative insights explain underlying mechanisms, informing future methodological improvements.

## **5.3 Research Implications**

### **5.3.1 Practical Implications**

This research employs an explanatory sequential mixed-methods design, starting with a quantitative study, followed by qualitative research to further interpret and elaborate on the quantitative findings. The quantitative phase first examines the changes in the incidence and intensity of multidimensional urban poverty in Shandong Province, providing an overview of the poverty situation in the region over the past decades. Through data analysis, it was discovered that the reduction in urban poverty in Shandong Province is primarily due to the decline in poverty incidence, rather than a decrease in poverty intensity.

This research then identifies the key contributors to multidimensional urban poverty in Shandong, establishing a foundation for the subsequent qualitative investigation. Through regression analysis, this research identifies low education levels, chronic disease, large household size, household head's gender, and poor household surrounding environment were the main contributing factors to urban poverty in Shandong Province. This finding provides valuable insights into the underlying factors contributing to urban poverty in the area.

Building on the quantitative results and relevant literature, the qualitative fieldwork was designed to explore the lived experiences of urban poor households. The qualitative study delves into the challenges faced by these households, investigates their coping strategies, and examines their specific needs for poverty alleviation in these areas. Through qualitative research, implicit thoughts, interactions, and needs of the respondents were uncovered, leading to a more detailed understanding of household-specific poverty conditions, and providing help for targeted anti-poverty strategies in the future.

Regarding urban anti-poverty strategies, China has implemented Targeted Poverty Alleviation initiatives solely in rural areas, not in urban areas (World Bank, 2018a). The Targeted Poverty Alleviation is an innovative anti-poverty strategy introduced by China in 2015. It involves strategies of precise identification, precise assistance, precise management, and precise evaluation of poor households or anti-poverty efforts (Y. Gong & Tu, 2020; Y. Guo et al., 2022; L. Li, 2018). The findings of this research cover a broad range of perspectives—from macro to micro, from objective to subjective—providing a holistic and detailed view of urban poverty in Shandong Province and helping to develop the Targeted Poverty Alleviation strategies in Shandong Province. Extending this approach to urban areas will play a crucial role in effectively addressing urban poverty in China (Z. Chen et al., 2019).

### 5.3.2 Theoretical Implications

Poverty measurement is the basis for formulating anti-poverty policies (Gibson, 2016; Mueller, 2021). This research first enhanced existing poverty measurement methods by selecting the dimensions and indicators that better reflect the unique conditions of China and the average living standards in Shandong Province. The selection of dimensions and indicators is a key step in designing multidimensional poverty measures (UNDP & OPHI, 2019), and there are no fixed lists of them (Delamonica et al., 2021; Seth, 2015). However, most multidimensional poverty studies merely replicate the settings of the Global MPI without updating them according to local circumstances and customs (Alkire & Fang, 2019; X. Guo & Zhou, 2016; G. Li et al., 2019; F. Meng et al., 2024; Z. Zhang et al., 2021). This study, by contrast, takes a more comprehensive approach by considering a broad range of factors, including global indicators such as the HDI and the Global MPI, as well as MPI frameworks from upper-middle-income countries with development levels similar to that of China. (e.g., Mexico, Chile, and Malaysia). Additionally, data availability and relevant literature are taken into account. Based on this, four dimensions—income and employment, health, education, and standard of living were selected to measure multidimensional poverty in urban areas of Shandong Province. To enhance the robustness of the MPI, this research incorporates several bias tests, including Spearman's and Kendall's rank correlation test, as



well as the VIF multicollinearity test, to improve the validity and reliability of the chosen dimensions and indicators.

Furthermore, this research refined the weight settings in multidimensional poverty measurement. There are three main approaches to multidimensional poverty weighting schemes: data-driven, normative, and hybrid (Decancq et al., 2013; Nájera Catalán, 2019), with no definitive consensus. It is widely recognized that value judgments in weighting schemes are unavoidable (Alkire & Fang, 2019; Decancq et al., 2013). The problem is that most studies simply adopt the Global MPI's approach, using equal weights without testing their robustness (X. Guo & Zhou, 2016; G. Li et al., 2019; F. Meng et al., 2024; Q. Zhang & Zhou, 2015; Z. Zhang et al., 2021). Building on the Global MPI framework, this research introduces multiple evaluation techniques, including Spearman's and Kendall's rank correlation tests, as well as sensitivity analysis, to evaluate the robustness of weight settings. This approach enhances the validity and reliability of multidimensional poverty measurement methods and provides implications for future research.

Regarding deprivation thresholds, these determine whether a household or individual is considered deprived in a particular indicator. According to the UNDP and OPHI (2019), setting deprivation cutoffs is a normative process and lacks a definitive standard. Some researchers consult experts, others simply

adopt international or national standards, while some base their thresholds on government policy targets (Beccaria et al., 2020). This study, considering the national context of China and the living standards in Shandong Province, sets deprivation thresholds by referencing international standards and relevant literature. To test the robustness of these thresholds, sensitivity tests are conducted based on the guidelines provided by UNDP and OPHI (2019). For each indicator, two alternative deprivation thresholds are tested to evaluate how changes in these thresholds impact the results. This approach ensures that the chosen deprivation thresholds are not overly sensitive to minor variations, thereby strengthening the reliability of the findings.

The poverty threshold, also known as the  $k$ -value, determines the level of deprivation at which a respondent is considered multidimensionally poor (Alkire & Foster, 2011a). Most researchers simply replicated the setting of UNDP's Global MPI, adopting 1/3 or 33.33% as the poverty threshold, without critically examining its relevance. To assess the robustness of the poverty threshold in this study, a sensitivity analysis was conducted across a reasonable range of  $k$ -values (from 0.1 to 0.6), evaluating the corresponding multidimensional poverty measures ( $H$ ,  $A$ , and  $M_0$ ). Based on the results of this analysis, a robust poverty threshold was selected, capturing both the incidence and intensity of multidimensional poverty (Alkire et al., 2019; Santos, 2019). Additionally, Spearman's and Kendall's rank correlation tests were applied to

validate the stability of the selected threshold. This approach refines the setting of the poverty threshold in multidimensional poverty measurement, offering valuable insights for future research focusing on multidimensional poverty.

Moreover, current poverty research is primarily based on large-scale quantitative surveys, while qualitative studies on the lived experiences of urban poor households remain relatively limited (Jones & Tvedten, 2019; Kura & Sulaiman, 2012). This research employed a mixed-methods approach, combining quantitative and qualitative analysis. The quantitative analysis examines urban poverty from a macro perspective, while the qualitative component delves into the inner experiences and feelings of urban poor individuals. By integrating quantitative and qualitative methods, this study offers a more nuanced and comprehensive understanding of urban poverty, thus pushing the boundaries of existing poverty research. These methodological advancements provide significant implications for future studies focused on multidimensional poverty.

#### **5.4 Limitations and Recommendations for Future Research**

The strength of this research lies in the utilization of the mixed-methods approach, enabling the collection of more comprehensive and in-depth data from urban poor households in Shandong Province. This represents a significant advancement compared to previous studies solely relying on quantitative data.

One key limitation of the quantitative research phase is the lack of consideration for heterogeneity, such as spatial and household heterogeneity. As for household heterogeneity, this study focused on the overall situation of urban poverty rather than examining specific subgroups. Future multidimensional poverty research should account for diverse household structures and life-cycle stages, as poverty dynamics and coping strategies may vary significantly among different household types. Incorporating household heterogeneity could involve stratified analyses by household size, composition, or labor participation, thus providing more nuanced insights into the complexity of urban poverty.

Regarding spatial heterogeneity, this study did not incorporate it in the study mainly due to the limitations of data. The CFPS dataset only categorizes data at the provincial level, not at the city level. If researchers want to conduct regional comparison analysis, they can conduct their own field surveys or use datasets that provide detailed geographical information. There is relatively limited research that focuses on the spatial-temporal dynamics of poverty (G. Li et al., 2019). To further explore the spatial dynamics of poverty, researchers can use GIS mapping, multi-scale analysis, or remote sensing technology to collect and analyze geographical data. This approach can help more comprehensively and deeply uncover regional disparities in poverty (Han et al., 2021; G. Li et al., 2019, 2022; M. Liu et al., 2022; Ogutu & Qaim, 2019; Shao & Li, 2023; Y. Wang et al., 2021).

Another concern is that the quantitative data only covers the period from 2012 to 2020, which may not fully reflect the most recent urban poverty situation. The 2020 data is the latest available from the CFPS survey. To address this limitation in timeliness, this study employed a longitudinal study to analyze urban poverty trends in Shandong Province from 2012 to 2020. This approach may provide insights into how the situation may have evolved beyond 2020. Additionally, although China has largely eradicated absolute poverty under current standards, according to the World Bank's upper middle-income poverty line, the poverty rate in China increased from 23.9% in 2020 to 24.7% in 2022 (Burns et al., 2020; World Bank, 2023a). This indicates that China's poverty situation has not significantly improved since 2020. Considering the setback in China's poverty alleviation progress caused by the COVID-19 pandemic (Ge et al., 2022; C. Huang et al., 2023; Lai et al., 2023), the data used in this research still holds certain relevance to the current poverty situation in China.

To fully address this limitation, future studies should prioritize field research rather than relying solely on secondary data. Large-scale surveys like the CFPS, which cover multiple provinces across China and include tens of thousands of samples, typically require two or more years from data collection to publication. This delay can limit the timeliness of the data in capturing the most current socioeconomic conditions. For researchers employing mixed methods, conducting quantitative and qualitative research simultaneously is

recommended to ensure data synchronization. For those continuing to use secondary data, mitigating its limitations requires data triangulation to validate findings. Incorporating the most recent literature, such as up-to-date official statistics, government reports, and industry analysis, can help address gaps in secondary data and provide a more comprehensive understanding of the issues.

Regarding the representativeness of CFPS data for Shandong Province, this study acknowledges its limitations. The CFPS data is derived from a nationwide sampling survey covering multiple provinces. Among them, six key provinces, Henan, Beijing, Liaoning, Gansu, Guangdong, and Shanghai, are independently sampled and possess self-representativeness (Y. Xie & Hu, 2014, p. 24). However, data from the remaining provinces is pooled together, leading to a lack of self-representativeness for those regions. Despite this, CFPS data is widely recognized for its data accuracy and comprehensiveness (Y. Xie & Hu, 2014). In contrast, other national micro datasets in China cannot fully replace CFPS. For instance, the China Health and Retirement Survey (CHARLS) focuses primarily on health and aging, making it unsuitable for studies involving all age groups. The Chinese General Social Survey (CGSS) has limited provincial representativeness, and its most recent data is from 2017, which is significantly outdated compared to the timeline of this study's qualitative research. The CHNS data is similarly outdated, with its most recent data from 2015. The China Household Finance Survey (CHFS) offers provincial

representativeness, but it mainly focuses on household financial conditions and lacks detailed data on individual health and standard of living (e.g., height and weight data, as well as housing, sanitation, and access to public utility). Additionally, the most recent CHFS data is from 2019, which is also distant from the timeline of this study. Consequently, this research continues to rely on the CFPS data. Therefore, this research continues to rely on the CFPS data.

To address the issue of data representativeness, an alternative solution is to use the CFPS national data. However, given the significant developmental differences across regions in China, it is challenging to link the national urban poverty situation to the conditions in Shandong Province. Moreover, this approach would make it very difficult to address the first two research objectives of this study (RO1: To examine the incidence and intensity of multidimensional poverty among urban poor households in Shandong Province; RQ2: To identify the factors contributing to multidimensional poverty among urban poor households in Shandong Province). Modifying these research objectives would weaken their connections with the research title.

To address concerns regarding representativeness, this study compared the CFPS Shandong Province sample with Shandong Provincial government statistics on key indicators, including per capita income, educational distribution, gender ratio, age distribution, household size, unemployment rate,

per capita living area, and health insurance coverage. The Results showed that the CFPS Shandong sample closely aligned with provincial statistics, providing preliminary support for its representativeness.

To further validate the representativeness of the CFPS sample data, this research conducted statistical hypothesis tests on key demographics variables in the data, such as gender ratio, household size, educational levels, and per capita income, comparing them to government census benchmarks. As presented in Section 3.3.5, “Evaluating the Representativeness of CFPS Sample Data,” all tests failed to reject the null hypotheses, indicating no significant differences between the CFPS sample and government statistical data. These results provide support for the representativeness of the CFPS sample in Shandong Province. Therefore, this study has decided to continue utilizing the CFPS Shandong data.

Another potential limitation of the CFPS data is that its sampling weights were designed for national-level representativeness and may not fully account for provincial-level population structures. Directly applying these weights to Shandong Province in multidimensional poverty measurement could introduce bias. To address this concern, this study conducted a sensitivity analysis by estimating Shandong’s multidimensional poverty indices ( $H$ ,  $A$ ,  $M_0$ ) both with and without applying the national sampling weights. The unweighted results for Shandong Province are shown in Table 5.1.



**Table 5.1***Multidimensional Poverty Measurement Results (Unweighted)*

Year	Indicator	Estimate	SE	95% CI (Lower, Upper)
2012	<i>H</i>	60.48%	0.0313	(0.5444, 0.6653)
	<i>A</i>	0.5028	0.0095	(0.4850, 0.5220)
	<i>M<sub>0</sub></i>	0.3041	0.0167	(0.2718, 0.3371)
2014	<i>H</i>	59.58%	0.0307	(0.5375, 0.6583)
	<i>A</i>	0.4719	0.0093	(0.4540, 0.4907)
	<i>M<sub>0</sub></i>	0.2812	0.0155	(0.2516, 0.3124)
2016	<i>H</i>	53.92%	0.0295	(0.4812, 0.5939)
	<i>A</i>	0.4585	0.0091	(0.4410, 0.4771)
	<i>M<sub>0</sub></i>	0.2472	0.0144	(0.2202, 0.2749)
2018	<i>H</i>	50.90%	0.0275	(0.4578, 0.5602)
	<i>A</i>	0.4242	0.0075	(0.4096, 0.4395)
	<i>M<sub>0</sub></i>	0.2159	0.0124	(0.1919, 0.2390)
2020	<i>H</i>	47.48%	0.0300	(0.4173, 0.5324)
	<i>A</i>	0.4281	0.0075	(0.4135, 0.4432)
	<i>M<sub>0</sub></i>	0.2033	0.0133	(0.1785, 0.2301)

Comparison with the weighted estimates (Table 4.1) revealed that most differences in *H*, *A*, and *M<sub>0</sub>* values were within 5%, with a few exceptions approaching 5%–10% (e.g., *H* in 2018 and 2020). Despite these variations, the confidence intervals of weighted and unweighted estimates overlapped substantially across all indicators and years, and the directional trends remained consistent across all years. These findings suggest that the national sampling weights did not significantly distort provincial-level estimates of multidimensional poverty in Shandong, supporting the robustness of the analysis. However, to more accurately represent the total population, future research should consider adopting a sampling weighting structure that better matches population characteristics.

Concerning the use of panel data for analysis, the quantitative research primarily employs descriptive analysis and basic regression models, with logistic regression focusing solely on the 2020 data. This research aims to investigate the headcount ratio, poverty intensity, and MPI of urban multidimensional poverty in Shandong Province across five rounds of CFPS data (2012–2020) and to compare these indicators across different years. Panel data is well-suited for analyzing individual changes over time, accounting for individual heterogeneity, and studying dynamic effects. In contrast, cross-sectional data is more appropriate for examining overall trends or static characteristics at specific points in time (Baltagi, 2021, p. 6). When the research aims to explore aggregate-level associations or conduct static comparisons, cross-sectional data is sufficient (Wooldridge, 2010, pp. 4–7). Given that this research focuses on the overall trends of multidimensional poverty in Shandong Province rather than the poverty dynamics of specific households over time, panel data analysis was not employed. Nevertheless, integrating panel data analysis could enrich the study by providing more detailed and variable data (Baltagi, 2021, p. 5). This approach is particularly effective for examining how specific variables change over time or monitoring the longitudinal poverty dynamics of households (Sastry et al., 2018). Consequently, panel data methods may offer valuable insights for future multidimensional poverty research, provided they align with the study’s objectives.

Regarding the MPI framework for measuring multidimensional poverty, the dimensions explored in this study are limited. The quantitative research did not delve deeply into additional dimensions, such as the cultural and social aspects of poverty, primarily due to a lack of relevant data in the CFPS dataset. For example, regarding social dynamics, the CFPS only includes data on family dynamics, focusing on relationships between family members, while neglecting interactions with other individuals, such as friends and extended relatives (Y. Xie & Hu, 2014). Additionally, the culture of poverty involves subjective factors such as values, social norms, etc., which are difficult to measure quantitatively (Lamont & Small, 2008; Small et al., 2010). Additionally, this research focused on examining the basic needs of urban poor households in terms of finance, health, education, and living conditions, with the aim of providing practical and feasible policy recommendations to the government. Therefore, this research did not include the culture dimension in the adapted MPI. Future studies could delve into broader dimensions of poverty, such as cultural and social domains, when the data is available.

Regarding multidimensional poverty measurement methods, this research utilized the Dual Cutoff method proposed by Alkire and Foster (2011b). One of the key strengths of this approach lies in its flexibility, allowing for adaptation to diverse local contexts and customs (Alkire & Foster, 2011b; Glassman, 2021; Ismail et al., 2022; Shi et al., 2022). However, a limitation of

the Dual Cutoff method is the ongoing debate surrounding the selection of dimensions and indicators, as well as issues related to weighting and threshold setting. Nonetheless, this is inevitable for constructing any composite poverty indicator, as the process inherently involves certain value judgments (Alkire et al., 2015, Chapter 6; Betti et al., 2020).

To address this issue, this research referred to widely recognized and validated standards, including the UNDP's HDI and the Global MPI. These frameworks were further adapted to align with local contexts and customs. To ensure the reliability and validity of the method, a series of sensitivity and robustness analyses were conducted. However, the process inevitably involves a degree of researcher judgment (Sen, 1992, p. 44). To further mitigate this limitation, future studies could adopt more rigorous approaches, such as expert consultation or the Delphi method, to incorporate diverse perspectives and enhance the scientific rigor of the MPI framework. For weighting, statistical methods such as principal component analysis (PCA), factor analysis, or machine learning techniques could be employed to minimize human bias. These advanced approaches not only enhance the methodology but also improve the credibility and robustness of the findings.

During the interpretation of the quantitative analysis results, this study aimed to compare its findings with research utilizing similar MPI frameworks.

However, due to the high customizability of the Dual Cutoff method and the varying geographical focus of different studies, it is challenging to find research with directly comparable MPI frameworks. To address this, the study instead compares its results with research conducted in similar contexts—specifically, domestic studies in China (e.g., Guo & Zhou, 2016; C. Wang et al., 2021; Q. Wang et al., 2023; Y. Wang & Wang, 2016; Zhang & Zhou, 2015; Zou et al., 2023) and studies from countries with comparable development levels, such as Indonesia (Artha & Dartanto, 2018; Najitama et al., 2020), Malaysia (Ismail et al., 2022), Poland (Grabowska et al., 2021), and Vietnam (Fahad et al., 2022; Tran et al., 2022). However, the majority of these international studies utilize MPI frameworks that differ substantially from this study, thereby limiting the direct comparability of the results. To address this limitation, future studies should align their MPI frameworks more closely with the Global MPI and the official MPIs of various countries. This entails using a standardized poverty cutoff, strictly following the Global MPI-based design for setting deprivation cutoffs, and selecting core dimensions—health, education, and standard of living—consistent with the UNDP HDI and Global MPI to enhance the comparability of results across regions and studies.

Regarding the conceptual framework of this research, the explanatory variables for regression analysis are developed based on three main categories in Sen's Capability Approach: resources, capabilities, and conversion factors.

However, there is debate over whether conversion factors should be considered independent variables, given their role in shaping how resources are transformed into capabilities (Burchi & De Muro, 2016; Walker, 2019). Nonetheless, studies show that certain structural and environmental conversion factors—such as limited access to infrastructure or public services, harmful natural environments, discriminatory social norms, and restrictive political frameworks—can directly influence poverty status without interacting with other variables (Amato & Maynard, 2007; Baker, 2015; Herbst-Debby et al., 2021; Khan et al., 2018; Munoz Boudet et al., 2018; Nieuwenhuis et al., 2018; Rodrigues & Rueanthip, 2019; Zimmer, 2022). Additionally, research indicates that certain personal conversion factors, such as gender-based discrimination, have a significant direct impact on poverty (Munoz Boudet et al., 2021; Rahman et al., 2013; World Bank, 2024a). Given the study’s objective to provide clear policy recommendations to the government, a straightforward model that facilitates interpretation and practical application is preferred. Therefore, following the examples of M. Chen et al. (2023), X. Guo and Zhou (2016), Lecourt (2013), and Zhong and Lin (2020), this research treat these conversion factors as independent variables.

Another limitation of this study is that the regression analysis examines the relationship between poverty-contributing factors and poverty status (poor vs. not poor) rather than the censored deprivation score. A deeper analysis using

the censored deprivation score could provide a more nuanced understanding of urban poverty. This study prioritizes policy-oriented recommendations, and a clear cutoff between “poor” and “not poor” makes the findings more accessible to policymakers, as regression coefficients can be directly interpreted as the effect of each factor on the likelihood of falling into multidimensional poverty. In contrast, using a continuous outcome variable, such as a censored deprivation score, highlights the extent of deprivation but does not provide clear guidance for policymakers, as it lacks a defined threshold to distinguish between poor and non-poor households. However, incorporating a continuous dependent variable in regression analysis can offer a more detailed perspective on how different factors contribute to poverty. Therefore, if future studies seek a more in-depth analysis of poverty’s contributing factors, it is advisable to use the deprivation score as the outcome variable.

During the qualitative fieldwork process, a significant challenge encountered was the profound impact of the COVID-19 pandemic. Owing to lockdown policies and restrictions imposed due to COVID-19, the fieldwork could not be completed smoothly until 2022, creating a temporal discrepancy between the qualitative and previously collected quantitative data. However, this research adopted an explanatory sequential mixed-methods approach, wherein the quantitative data collection preceded the qualitative exploration, thereby mitigating the limitation. Moreover, the impact of COVID-19 has

hindered the progress of urban poverty alleviation efforts in China, with some regression observed (World Bank, 2023a). As a result, the urban poverty landscape has remained largely consistent before and after the outbreak, which has helped mitigate the timing disparity between quantitative and qualitative data collection.

Another challenge encountered in the qualitative phase was the relatively small sample size. To address this limitation, this research employed the principle of maximum variation in the sampling process, and efforts were made to select respondents with significant variations in age, gender, occupation, marital status, educational background, and residential area. However, the selected sample may still be insufficient in size and lack representativeness, potentially affecting the overall generalizability of this research (Charlick et al., 2016; Noon, 2018). Nonetheless, according to Smith et al. (2022) and Hefferon and Gil-Rodriguez (2011), studying fewer participants in greater depth is always preferable to a broader, shallow, and simply descriptive analysis of many individuals. To mitigate this limitation, future research should endeavor to increase the sample size, thereby improving the representativeness and generalizability of the study. Additionally, efforts should be made to enhance the diversity and inclusiveness of the samples through deliberate sampling strategies, provided that time, funds, and resources are available.



Additionally, the fieldwork design itself has some limitations. While most interviews were conducted face-to-face, some had to be carried out via phone or online video calls due to COVID-19-related restrictions. However, not all potential respondents may have had access to a phone, which could have introduced selection bias. To mitigate this limitation, this study strictly adhered to the sampling criteria, ensuring that all selected respondents met the established requirements. Additionally, a multi-method recruitment strategy was employed, leveraging diverse recruitment channels, including government departments, community committees, professional networks, and participant referrals—to maximize outreach and inclusivity (McRobert et al., 2018).

Finally, a notable limitation of this study is the lack of integration of urbanization trends into the analysis. Existing research highlights a significant relationship between urbanization and urban poverty. Some scholars argue that urbanization enables rural-to-urban migrants to escape poverty (Y. Zhang, 2016), while others contend that, particularly in developing countries, urbanization has often been incomplete and exclusionary, exacerbating inequality and urban poverty (Asian Development Bank, 2014; Chatterjee, 2021; Rath, 2022; United Nations, 2023; Y. Zhang, 2016). This suggests that the impact of urbanization on poverty is complex and multifaceted. However, the CFPS database used in this study lacks sufficient data on urbanization. While it includes information on respondents' place of residence and household registration (*hukou*), which

can serve as proxies for urbanization, it does not capture the full dynamic process. In particular, it lacks indicators such as urban land expansion rates, changes in population density, and measures of urban infrastructure development (H. Lu et al., 2023; Mahtta et al., 2022). Therefore, this research did not incorporate urbanization process in the study. Future studies employing macro-level urbanization data, such as geospatial information, could systematically integrate urbanization dynamics into poverty analysis, thereby enabling a more in-depth understanding of the relationship between urbanization and urban poverty.

## **5.5 Conclusion**

This research employed a mixed-methods approach. The quantitative research component utilized the Dual Cutoff method to investigate the overall situation of urban poverty in Shandong Province, including the extent and severity of urban poverty in Shandong Province. Additionally, logistic regression analysis was used to identify the primary contributing factors of urban poverty. Based on the findings from the quantitative research, a qualitative field study was designed and conducted. The qualitative data was analyzed using the IPA approach. Through the analysis, this research explored the lived experiences of urban poor households, delving into their challenges, coping strategies, and poverty alleviation needs. The findings from quantitative

and qualitative research were compared and discussed. Based on the research findings, this research has drawn the following conclusions for each RQ:

For RQ1 and RQ2, this research first explored the changes in the incidence and intensity of multidimensional poverty in Shandong Province from 2012 to 2020. Through data analysis, this research discovered that although the incidence of multidimensional urban poverty in Shandong Province decreased drastically from 2012 to 2020, the intensity of multidimensional urban poverty did not decrease correspondingly. This indicates that while the poverty rate decreased, the welfare status of the poor has not significantly improved in these years (Alkire, Roche, et al., 2017). To achieve the SDG goal of “end poverty in all its forms everywhere,” Shandong Province should shift its policy focus from prioritizing the scale of poverty reduction to addressing the depth of poverty.

This research then investigated the changes in the censored headcount ratio of each multidimensional poverty indicator. The censored headcount ratio indicates the proportion of people who are deprived in both a specific indicator and across multiple dimensions of poverty. The results showed that deprivation decreased across almost all indicators from 2012 to 2020. Notably, the most significant reductions in deprivation were observed in income, access to clean drinking water, and clean cooking fuel. These improvements highlight the substantial progress made by Shandong Province in enhancing urban residents’

income and infrastructure accessibility. In contrast, the deprivation in education and BMI remained consistently high, suggesting the persistent nature of deprivation in these areas. Nevertheless, the deprivation in several indicators resurged in recent years. For example, the deprivation rates for employment, medical insurance coverage, and household assets all increased in 2020. This trend may reflect the impact of the COVID-19 pandemic. The economic shock caused by the pandemic led to widespread job losses, resulting in higher unemployment rates (Ge et al., 2022; C. Huang et al., 2023; Lai et al., 2023). Consequently, employer-provided health insurance also declined (Jacobs & Moriya, 2023; Mandal et al., 2022). The increase in deprivation in household assets may be linked to pandemic-induced shifts in consumption patterns, as noted by Kim et al. (2022), T. Lee et al. (2022), and S. Li et al. (2022).

This research subsequently assessed the absolute and relative contribution of each indicator to multidimensional urban poverty. the impact of various indicators on poverty has generally declined in recent years. Among these indicators, education level has consistently been the largest contributor to urban poverty. Similarly, the contribution of BMI and SRH have remained relatively stable over the years. These aspects are the key challenges and focus areas in future poverty alleviation efforts. In contrast, the contributions of income and assets have declined, reflecting Shandong Province's achievement in alleviating material deprivation.

For RQ3, through regression analysis of the 2020 datasets, this research discovered that low educational attainment, chronic illness, large household size, household head's gender, and poor surrounding environment were the most significant contributing factors to urban poverty. Based on these findings, this research developed the framework of qualitative fieldwork, which includes qualitative research objectives, sampling criteria, and interview questions.

For RQ4, this study utilized the IPA approach to explore the lived experiences of urban poor households. Through data analysis, this research discovered three main themes: the challenges faced by urban poor households, the coping strategies of urban poor households, and their needs for urban poverty alleviation.

Regarding the challenges faced by urban poor households, this research discovered that financial hardship, health dilemmas, poor housing conditions, and ineffective government administration were the main challenges faced by urban poor households. These findings corroborate the results of quantitative data analysis, indicating that low education attainments, chronic disease, large household size, and poor surrounding environment are the main contributing factors to urban poverty. In addition, qualitative research also revealed that ineffective government administration poses significant challenges for urban poor families. This may help explain why government subsidies have not played

a sufficiently significant role in reducing poverty. The qualitative findings supplement the quantitative results. Qualitative data analysis indicated that due to non-inclusive government policies, transparency issues with the government, and corruption and bureaucratic barriers at the local government level, some respondents had suffered significant losses. The government should intensify its efforts to combat corruption and bureaucracy, enhance policy transparency, and establish effective communication channels with urban residents in order to create a conducive policy environment for urban residents (Arauz et al., 2017; Cheema, 2020; Prayugo et al., 2020).

Regarding the coping strategies of urban poor households, they have adopted various measures to address the challenges they face, including seeking assistance to alleviate financial hardship, pursuing support to address health dilemmas, striving for improved housing conditions, and advocating for effective government administration. However, some of the strategies proved ineffective, such as urging the government to expedite the resettlement housing construction, applying for minimum living allowance, and petitioning the government against corruption and ineffective business regulations. This underscores the difficulty of urban households solely relying on their efforts to address the challenges they face; therefore, external assistance is urgently needed to support them.

In terms of urban poverty alleviation needs, this research revealed that urban poor households need external assistance to address financial hardship, alleviate health dilemmas, improve housing conditions, and contend with ineffective government administration. To tackle financial hardships, respondents require external assistance such as expanded coverage of subsistence allowances, aid in job placement, increased pensions for the elderly, and financial support for non-compulsory education. To address health challenges, urban households require expanded coverage under basic medical insurance and an extended medical insurance drug list. To improve housing conditions, respondents need the government to expedite the construction of resettlement housing and expand the coverage of basic infrastructure. To ensure effective government administration, urban households need the government to revise non-inclusive policies, enhance transparency, and combat corruption and bureaucracy at the local level.

Through the integration of quantitative and qualitative findings, this research discovered a strong alignment between the two sets of results. Factors such as low education attainments and large household size fall under the category of “financial hardship.” The factor of “chronic disease” is categorized under the subtheme “health dilemmas,” while “poor surrounding environment” corresponds to the “poor housing conditions” subtheme. Furthermore, qualitative findings complement the quantitative results by highlighting the

significant challenge of ineffective government administration faced by urban poor households. Based on the integration of quantitative and qualitative research findings, this research puts forward policy recommendations for urban anti-poverty efforts.

## **5.6 Policy Recommendations**

Poverty alleviation is a comprehensive initiative that requires coordinated efforts from government, businesses, social organizations, and individuals (ILO, 2020). In this collaborative framework, the government plays a central role in formulating policies, allocating resources, and coordinating the actions of all stakeholders. Businesses and social organizations contribute by mobilizing funds and offering innovative solutions, while individuals are responsible for providing volunteer services and supporting one another. Based on the research findings, this study proposed the following recommendations for urban targeted anti-poverty policies in Shandong Province:

For financial hardship, China implemented subsistence allowance in urban areas, offering financial subsidies to individuals whose income falls below the standard. However, the current standard is too low and the eligibility criteria remain stringent (Guan, 2019b). To address this issue, this research suggests lowering the threshold for applying for the subsistence allowance and extending their coverage. Specifically, the government can implement the



following policies: raising minimum subsistence allowance standards to include more impoverished households while providing greater subsidies to registered ones. Additionally, the government can streamline the application process for subsistence allowances, reducing the time and effort required for applicants.

Beyond government efforts, social organizations and individuals can also play a crucial role in addressing the challenges. This could include leveraging existing charitable organizations to mobilize businesses and individuals to raise funds for those in need. Furthermore, community residents can be encouraged to form mutual aid groups voluntarily, offering emergency support to struggling households during crises.

Notably, education is one of the primary factors contributing to financial hardship. Many interviewees reflected that although China implemented compulsory education, it only covers primary and lower secondary schools. Tuition fees remain high for preschool and university education (J. Li & Xue, 2021; M. Sun, 2022). While scholarships and grants are provided to support poverty-stricken students, they often fall short due to their low standards and limited coverage (Y. Chen, 2023; Shi et al., 2022). To address this issue, it is recommended that the government expand the coverage and value of national scholarships and grants to better support students in need. Additionally, the government can leverage technologies, such as the Internet, to distribute high-

quality educational resources, reducing costs for students. Businesses and social organizations can contribute by creating education foundations or launching charitable initiatives to provide tuition, living expenses, and other forms of support through donations or fundraising for financially disadvantaged students. Additionally, individuals can play a role by participating in educational volunteer programs to assist students facing serious challenges.

Regarding health challenges, many respondents with severe illnesses or disabilities struggle to access adequate treatment and are often overwhelmed by the prohibitive costs of medical care. The main challenges encountered by urban poor households include limited health insurance reimbursement scope, which only covers hospitalization costs but not outpatient expenses. Additionally, the list of reimbursable medications is restricted to low-cost essential drugs, which often have limited efficacy (Borde et al., 2022; Y. Li et al., 2023; C. Liu et al., 2021; Ravangard et al., 2021; Sarker et al., 2022). Addressing this issue requires the collaborative efforts of the government, society, and individuals.

The government is advised to expand insurance coverage to include outpatient expenses and essential medications while increasing funding for public healthcare facilities, particularly in underserved areas, to ensure access to quality care. Corporations can be encouraged to collaborate with hospitals and pharmaceutical companies to offer discounts for low-income patients and

work with insurers to create affordable health plans tailored to impoverished groups. Non-governmental organizations (NGOs) can organize fundraising campaigns to provide financial assistance to patients in need. Civilians can contribute through donations or crowdfunding platforms, helping patients burdened by high medical costs. Community-based mutual aid initiatives can also be promoted, with volunteers providing immediate and ongoing care to those in need.

Regarding poor housing conditions, the primary challenges faced by urban households include lacking stable housing and having limited access to basic public utilities. Regarding housing difficulties, the Chinese government's main solution is to provide public rental housing and low-rent housing. However, the application requirements are quite stringent, and the policy benefits don't reach a broad enough population (G. Zhang et al., 2023; X. Zou & Wu, 2024).

In response to this issue, this research proposes the following policy recommendations. For unstable housing, the government should expedite resettlement housing with clear timelines and accountability to ensure timely completion. For residents who have to rent houses, the government should provide temporary subsidies to them until resettlement housing is available. It is also encouraged that corporations participate in providing temporary shelters or rental assistance for displaced families, as demonstrated in the case on P26.

Additionally, fostering neighborhood collaborations can help deliver both material and emotional support to families experiencing housing instability.

As for ineffective government administration, urban poor households mainly face challenges of non-inclusive government policies, government transparency issues, government official corruption, and the government's inadequate business regulation. Addressing ineffective government administration is a complex, systemic undertaking that requires coordinated efforts from the government, society, and individuals (Z. Wang & Guo, 2022). In addition to self-supervision, the government must enhance transparency by strengthening the openness of government affairs to build trust and credibility. Encouraging greater participation from social organizations and individuals in decision-making and oversight is essential for fostering a collaborative framework among the government, society, and citizens (OECD, 2024).

To address this issue, it is advisable that the government establish platforms enabling urban poor households to voice their needs and participate in decision-making, ensuring inclusive and relevant policies. To enhance transparency, the government should strengthen information disclosure through a unified online platform that provides easy public access to policy information. Combating corruption should not rely solely on government internal anti-corruption efforts but should also leverage media and public oversight,

including establishing secure reporting channels to mobilize multiple forces against corruption. Regarding inadequate business regulation, relevant laws should be enacted to ensure fair market competition, while dedicated regulatory bodies should be established to strengthen supervision and promptly address violations.

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## **APPENDIX A**

### **Participant Information Sheet for Qualitative Interviews**

#### **Introduction**

It is a great pleasure to have you in the interview. The purpose of this interview is to understand the living conditions of the urban poor and analyze the causes and effects of urban poverty so as to provide suggestions for urban poverty alleviation work in Shandong Province. The interview will last approximately 1 hour and will be held at your convenience.

#### **Informed Consent and Personal Data Protection**

The interview will be audio recorded, and a transcript will be produced. You will be sent the transcript and given the opportunity to correct any factual errors.

Your participation in the research is voluntary. You can choose not to participate in part or all of the interviews and withdraw at any stage of the study without being penalized or disadvantaged in any way.

Your responses to the questions will be used for this research only. You can ask to withdraw your data from this research at any time.

Your participation in the research will remain confidential and anonymous in any publications or reports from this research.

### **The Direct or Potential Benefits to Respondents**

This research does not directly benefit the respondents. However, this research can provide data that will help the government implement Targeted Poverty Alleviation strategies in urban areas and thus indirectly benefit the respondents.

### **The Potential Disadvantages to Respondents**

This interview may discuss traumatic experiences or private information that respondents might not wish to discuss. The respondents may feel ashamed or stigmatized for discussing the traumatic experiences or difficult situations that they do not wish to reveal.

If you agree to be interviewed, please sign here: \_\_\_\_\_



## Participant Information Sheet for Qualitative Interviews in Chinese

### 访谈协议

#### 简介

非常高兴邀请您参加访谈。本次访谈的目的是为了了解城市贫困人口的生活状况，分析城市贫困产生的原因和负面影响，从而为山东省的城市扶贫工作提供建议。访谈将持续约 1 小时，将在您方便的时候进行。

#### 知情同意和个人数据保护

访谈将被录音，并将产生一份文字记录。我们将向您发送该笔录，并给您机会纠正任何事实性错误。

您对研究的参与是自愿的。您可以选择不参加部分或全部访谈，您也可以在任何阶段退出，而不会受到任何惩罚或不利影响。

您对问题的回答将只用于本研究的目的。您可以在任何时候要求从研究中撤回您的数据。

您对研究的参与将是保密的。您的年龄在访谈中不会被记录。在本研究的任何出版物或报告中，您将保持匿名。

#### 受访者的直接或潜在利益

这项研究可以向政府部门提供有关城市贫困人口生活状况的信息，有助于政府在城市中实施有针对性的扶贫战略，从而使受访者间接受益。

#### 对受访者的潜在不利因素

这种访谈可能会讨论受访者可能不愿意讨论的创伤经历或私人经历。保密性和隐私有可能被泄露。受访者可能会因为披露他们的艰难生活状况而感到难堪。

如果您同意接受采访，请在此签名 \_\_\_\_\_。

## **APPENDIX B**

### **Informed Consent for Participation in Qualitative Interviews**

The respondent's personal data will remain confidential. The respondents will remain anonymous in any publications or reports from this research.

The respondent's responses to the questions will be used for the purpose of this research only. The respondent can ask to withdraw data from the research at any time.

The participation of the respondents in this research is voluntary. The respondent can choose not to participate in part or all of the interview. The respondent can withdraw at any stage of the study without being penalized or disadvantaged in any way.

This research may cause inevitable adverse consequences. This interview may discuss traumatic experiences or private information that the respondent might not wish to discuss. Confidentiality and privacy are at risk of disclosure, which may increase the vulnerability of the respondent. The respondents may feel ashamed or stigmatized for discussing the traumatic experiences or difficult situations that they do not wish to reveal.

The respondent has agreed and signed the informed consent form.

The signature of the respondent: \_\_\_\_\_

## Informed Consent for Participation in Qualitative Interviews in Chinese

### 知情同意书

受访者的个人数据将被保密。在本研究的任何出版物或报告中，受访者将保持匿名。

受访者对问题的回答将仅用于本研究的目的。受访者可以在任何时候要求从研究中撤回数据。

受访者参与本研究是自愿的。受访者可以选择不参加部分或全部访谈。受访者可以在研究的任何阶段退出，而不会受到任何惩罚或处于不利地位。

本研究尊重受访者的不同性别、种族、民族、性取向、政治信仰和宗教信仰。

本研究可能会引起某些不良后果。本次访谈可能会讨论受访者可能不愿意讨论的创伤性经历或私人信息。保密性和隐私有可能被披露，这可能会增加受访者的脆弱性。受访者可能会因为讨论他们不愿意透露的创伤经历或困难情况而感到难看或被污名化。

受访者已被告知研究目的，并已签署知情同意书。

受访者的签名：\_\_\_\_\_。

## **APPENDIX C**

### **Interview Questions for Urban Poor Households**

#### **I. Demographic Information**

1.1 Please introduce your family's basic situation, including the age, gender, number of family members, and their relationships with one another.

1.2 How would you describe the roles of each family member in your household?

#### **II. Education Status**

2.1 What are the education levels of you and your family members?

2.2 How do you think your education levels have influenced your family's life opportunities or challenges?

2.3 If you have children, are they currently attending school? What are your thoughts on their education experience?

#### **III. Financial Situation**

3.1 How would you describe your family's financial situation?

3.2 What challenges, if any, does your family face in managing daily expenses?

3.3 Are you able to meet your financial needs? If not, what are the main reasons?

3.4 If your family has debt, how does it affect your financial decisions and overall well-being?

#### **IV. Health Conditions**

4.1 How are the physical and mental health of you and your family members?

4.2 Has anyone in your family experienced serious health issues or disabilities? If so, how has this affected your family life?

4.3 Do you and your family have access to medical insurance? How has it helped (or not helped) in addressing health or financial concerns?

#### **V. Housing Conditions**

5.1 Do you and your family own or rent your home? How would you describe its quality, including size, condition, and living environment?

5.2 What is the condition of your home's infrastructure, such as access to electricity, water, heating, and internet?

5.3 How do you feel your housing situation affects your family's overall well-being and daily life?

#### **VI. Social Participation**

6.1 Can you tell me about your social life? Who do you usually interact with, and how often?

6.2 How do you typically spend your free time? Do you participate in recreational activities, travel, or pursue hobbies? What do these activities mean to you?

## **VII. Coping Strategies**

7.1 How do you perceive your current situation? What are the main challenges your family faces?

7.2 Have you taken any steps to address these challenges? For example, seeking government assistance, asking for help from family or friends, or participating in social welfare programs?

7.3 What are your future plans to improve your family's living conditions or overcome challenges?

## **VIII. External Support**

8.1 What kind of support do you feel would help your family the most, either from the government or other organizations?

8.2 Have you experienced any difficulties accessing external support? If so, what were they?

8.3 If you could suggest changes to the government's anti-poverty policies, what would they be?

## **Interview Questions for Urban Poor Households in Chinese**

### **一、人口统计信息**

1.1 请介绍一下您家庭的基本情况，包括年龄、性别、家庭成员人数以及他们之间的关系。

1.2 你如何描述你家庭中每个家庭成员的角色？

### **二、教育状况**

2.1 您和您的家庭成员的教育水平如何？

2.2 你认为你的教育水平如何影响了你家庭的生活机会或挑战？

2.3 如果您有孩子，他们目前是否在上学？您对他们的教育经历有何看法？

### **三、财务状况**

3.1 您如何描述您家庭的财务状况？

3.2 您的家庭在管理日常开支方面面临哪些挑战（如果有的话）？

3.3 你能满足你的财务需求吗？如果没有，主要原因是什么？

3.4 如果你的家庭有债务，它如何影响你的财务决策和整体福祉？

### **四、健康状况**

4.1 您和您的家人的身心健康状况如何？

4.2 您的家庭成员中是否有人经历过严重的健康问题或残疾？如果是这样，这对你的家庭生活有什么影响？

4.3 您和您的家人是否有医疗保险？它如何帮助（或没有帮助）解决健康或财务问题？

## 五、住房条件

5.1 您和您的家人是拥有还是租用您的住房？你会如何描述它的质量，包括大小、状况和生活环境？

5.2 你们家的基础设施状况如何，比如水电、供暖和互联网的接入情况？

5.3 您的住房情况如何影响您家庭的总体幸福感和日常生活？

## 六、主观感受和社会生活

6.1 您如何描述您和您家人的心理健康状况？你目前的状况是否影响了你的心理健康？

6.2 你能告诉我你的社交生活吗？你通常与谁互动，多久一次？

6.3 你通常如何度过你的空闲时间？你参加娱乐活动、旅行或追求爱好吗？这些活动对你来说意味着什么？

## 七、应对策略

7.1 你如何看待你目前的状况？你的家庭面临的主要挑战是什么？

7.2 您是否采取了任何措施来应对这些挑战？例如，寻求政府援助，向家人或朋友寻求帮助，或参加社会福利项目？

7.3 你未来有什么计划来改善家庭生活条件或克服挑战？

## 八、外部支持

8.1 你认为哪种支持最有帮助，无论是来自政府还是其他组织？

8.2 在获取外部支持方面，您是否遇到过困难？如果有，是什么？

8.3 如果你可以建议改变政府的反贫困政策，那会是什么？



## **APPENDIX D**

### **Questions for Government Officials and Community Committees**

1. Could you briefly introduce yourself, including your age, occupation, and your professional background or experience in this field?
2. How long have you been in your position? Could you share your experience in poverty alleviation within your position?
3. How does your organization acquire information about urban poverty?
4. What are your primary job responsibilities, and how do they directly or indirectly contribute to alleviating urban poverty?
5. What standards or procedures does your organization follow when identifying urban poor households?
6. What are the typical characteristics or compositions of urban subsistence allowance households in your city, and how does this reflect the overall poverty situation in your city?
7. What is your perspective on the urban anti-poverty strategies in your city? In your opinion, which aspects of the current approach are effective, and what areas require improvement?
8. What recommendations do you have for future urban anti-poverty policies based on your experience and observations?

## **Questions for Government Officials and Community Committees in Chinese**

1. 您能否简单介绍一下自己，包括您的年龄、职业以及您在这个领域的专业背景或经验？
2. 您在目前的职位上工作了多长时间？能否分享一下您在该职位上参与扶贫工作的经历？
3. 您的组织是如何获取有关城市贫困的信息的？
4. 您的主要工作职责是什么，这些职责是如何直接或间接地为缓解城市贫困做出贡献的？
5. 您的组织在识别城市贫困家庭时遵循什么标准或程序
6. 您所在城市的城镇最低生活保障户构成是怎样的，这反映了您所在城市整体的贫困状况如何？
7. 您如何看待您所在城市的城市反贫困策略？您认为目前的方法哪些方面是有效的，哪些方面需要改进？
8. 基于您的经验和观察，对于未来城市扶贫政策您有什么建议？

## APPENDIX E

### Ethical Clearance Letter from UTAR



**UNIVERSITI TUNKU ABDUL RAHMAN**  
Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

Re: U/SERC/80/2022

11 April 2022

Dr Cheah Phaik Kin  
Department of Public Relations  
Faculty of Arts and Social Science  
Universiti Tunku Abdul Rahman  
Jalan Universiti, Bandar Baru Barat  
31900 Kampar, Perak

Dear Dr Cheah,

#### **Ethical Approval For Research Project/Protocol**

We refer to your application for ethical approval for your research project (PhD student's project) and are pleased to inform you that your application has been approved under Expedited Review.

The details of your research project are as follows:

<b>Research Title</b>	Multidimensional Poverty and Anti-poverty Strategies in Urban China: A Case Study of Shandong Province
<b>Investigator(s)</b>	Dr Cheah Phaik Kin Dr Priscilla a/p Moses Zhao Bo (UTAR Postgraduate Student)
<b>Research Area</b>	Social Sciences
<b>Research Location</b>	Shandong Province, China
<b>No of Participants</b>	Minimum 50 participants (Age: 18 and above)
<b>Research Costs</b>	Self-funded
<b>Approval Validity</b>	11 April 2022 - 10 April 2023

The conduct of this research is subject to the following:

- (1) The participants' informed consent be obtained prior to the commencement of the research,
- (2) Confidentiality of participants' personal data must be maintained; and
- (3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines.
- (4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.

**Kampar Campus :** Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia  
**Tel:** (605) 468 8888 **Fax:** (605) 466 1313  
**Sungai Long Campus :** Jalan Sungai Long, Bandar Sungai Long, Cheras, 43000 Kajang, Selangor Darul Ehsan, Malaysia  
**Tel:** (603) 9086 0288 **Fax:** (603) 9019 8868  
**Website:** www.utar.edu.my



Should you collect personal data of participants in your study, please have the participants sign the attached Personal Data Protection Statement for your records.

The University wishes you all the best in your research.

Thank you.

Yours sincerely,



**Professor Ts Dr Faidz bin Abd Rahman**  
Chairman  
UTAR Scientific and Ethical Review Committee

c.c     Dean, Faculty of Arts and Social Science  
           Director, Institute of Postgraduate Studies and Research

**Kampar Campus** : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia  
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**Tel:** (603) 9086 0288 **Fax:** (603) 9019 8868  
**Website:** [www.utar.edu.my](http://www.utar.edu.my)



## APPENDIX F

### Hypothesis Test for the Income Variable in the CFPS Sample

**Table F.1**

*One-Sample Statistics*

	N	Mean	Std. Deviation	Std. Error Mean
Income	278	40448.02976181	49259.219774119	2954.371674033

**Table F.1**

*One-Sample Test*

Test Value = 43726						
				Mean	95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Difference	Lower	Upper
Income	-1.110	277	.268	-3277.9702	-9093.8430	2537.9026

## APPENDIX G

### Hypothesis Test for Education Levels in the CFPS Sample

**Table G.1**

*Case Processing Summary*

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Observed_Frequency *	4	100.0%	0	0.0%	4	100.0%
Expected_Frequency						

**Table G.2**

*Observed\_Frequency \* Expected\_Frequency Crosstabulation*

Count		Expected_Frequency				
		116.00	120.00	132.00	206.00	Total
Observed_Frequency	113.00	1	0	0	0	1
	119.00	0	1	1	0	2
	198.00	0	0	0	1	1
Total		1	1	1	1	4

**Table G.3**

*Chi-Square Tests*

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	8.000 <sup>a</sup>	6	0.238
Likelihood Ratio	8.318	6	0.216
Linear-by-Linear Association	2.954	1	0.086
N of Valid Cases	4		

*Note.* a. 12 cells (100.0%) have expected count less than 5. The minimum expected count is .25.

## APPENDIX H

### Hypothesis Test for the Gender Variables in the CFPS Sample

**Table H.3**

*Binomial Test*

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (1-tailed)
gender	Group 1	0	304	.491115	.506587	.233 <sup>a</sup>
	Group 2	1	315	.508885		
	Total		619	1.000000		

*Note.* a. Alternative hypothesis states that the proportion of cases in the first group < .506587.

## APPENDIX I

### Hypothesis Test for Household Size in the CFPS Sample

**Table I.1**

*One-Sample Statistics*

	N	Mean	Std. Deviation	Std. Error Mean
Household_Size	278	3.06	1.463	.088

**Table I.2**

*One-Sample Test*

Test Value = 3						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Household_Size	.738	277	.461	.065	-.11	.24



## APPENDIX J

### Evaluation of the Logistic Regression Model

**Table J.1**

*Model Summary*

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	158.142 <sup>a</sup>	0.557	0.744

*Note.* a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

**Table J.2**

*Classification Table<sup>a</sup>*

			Predicted		
			Poverty		Percentage Correct
Observed			0	1	
Step 1	Poverty	0	134	12	91.8
		1	18	114	86.4
Overall Percentage					89.2

*Note.* a. The cut value is .500.

**Table J.3**

*Omnibus Tests of Model Coefficients*

		Chi-square	df	Sig.
Step 1	Step	226.542	23	0.000
	Block	226.542	23	0.000
	Model	226.542	23	0.000

**Table J.4**

*Hosmer and Lemeshow Test*

Step	Chi-square	df	Sig.
1	4.544	8	0.805

## APPENDIX K

### Logistic Regression Results Incorporating the Rural Migrant Variable

**Table K.1**

*Logistic Regression Results Incorporating the Rural Migrant Variable*

	B	S.E.	Wald	df	Sig.	Exp(B)	VIF
Head has no education	6.636	1.635	16.484	1	0	762.31	1.671
Head with primary education	6.903	1.421	23.585	1	0	995.162	2.132
Head with lower secondary education	1.676	0.823	4.147	1	0.042	5.342	2.004
Head with upper secondary education	1.647	0.893	3.402	1	0.065	5.193	2.751
Head is unmarried	0.33	1.812	0.033	1	0.856	1.39	1.495
Head is married	1.24	1.293	0.919	1	0.338	3.454	1.204
Head is divorced	-0.31	3.782	0.007	1	0.935	0.734	1.533
Head's gender	1.072	0.637	2.831	1	0.092	2.922	1.436
Head's age	0.02	0.027	0.558	1	0.455	1.021	4.413
Head is employed	-0.172	0.557	0.096	1	0.757	0.842	1.145
Head is unemployed	-0.298	4.538	0.004	1	0.948	0.742	1.412
Rural migrants	-0.034	0.474	0.005	1	0.943	0.967	1.196
Household receives government subsidies	-0.026	0.674	0.001	1	0.969	0.974	1.185
Aged-dependency ratio	1.283	0.883	2.109	1	0.146	3.607	2.653
Youth dependency ratio	-2.926	1.805	2.629	1	0.105	0.054	2.027
Household size	0.772	0.224	11.918	1	0.001	2.165	2.214
Household members with chronic diseases	1.511	0.555	7.415	1	0.006	4.531	1.116
Total household healthcare expenditure	0.012	0.022	0.292	1	0.589	1.012	1.14
Total household housing value	0	0	0.108	1	0.742	1	1.462
Total Household financial assets	-0.002	0.002	1.311	1	0.252	0.998	1.145
Total value of durable goods	-0.003	0.003	0.958	1	0.328	0.997	1.456
Public facilities	-0.255	0.269	0.898	1	0.343	0.775	1.516
Surrounding environment	0.456	0.263	3.01	1	0.083	1.578	1.48
Surrounding environment	0.277	0.565	0.24	1	0.624	1.319	2.049
Constant	-8.439	2.184	14.925	1	0	0	