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The Capability Approach to Adolescent Poverty in China: the Profile, Decomposition and Predictors of Deprivation

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Abstract

In response to the government's policy to reduce child poverty, there has been a decade-long wave of child poverty measurement in China, with the majority of this work having considered the matter in terms of material life conditions. However, from the viewpoint of capability theorists, material affluence cannot guarantee human well-being alone. They argue for a more comprehensive poverty analysis in terms of freedom, opportunities and development. Accepting this idea, we decided to apply the capability approach to analyze the 2014 adolescent sample within the Chinese Family Population Study. Through the capability lens, we mapped various profiles of functionings and capabilities poverty, according to the features of these adolescents. Also, through poverty decomposition analysis, physical ill-health and severe lack of participation were found to be the major contributors to the distinct forms of adolescent poverty. Moreover, regression analysis helped us to identify four types of factors exhibiting a significant relationship with the development of adolescents, namely: geographical location, adolescent romance, pocket money and parental involvement in children's education. It is anticipated that the findings will advance our understanding of adolescent poverty in China, thus allowing for a more empowering policy approach to expand the capabilities and freedoms for this age group.

Keywords Adolescent poverty · Functionings · Capabilities · Capability approach · China

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1 Introduction

With considerable economic growth over the last two decades, this has helped China's government to obtain abundant resources for tackling child poverty (State Council 1992, 2001). As a consequence, there has been a plethora of studies tracking this problem (Chen et al. 2015; Qi and Wu 2014, 2019; Wang et al. 2014; Wang et al. 2015). Amidst this wave of child poverty studies, we have witnessed the methodological transition from unidimensional measurement to multidimensional forms (Gabel and Zhang 2017). Regarding the former, this type of assessment was criticized for its mere focus on income shortage, thus failing to provide a rounded view of poor children's lives (Qi and Wu 2014). In response, domestic researchers have proposed incorporating other material life conditions than income into poverty assessment (Qi and Wu 2019; Wang et al. 2014; Wang et al. 2015). However, more recently a robust debate has taken place over whether material input can fully account for a human's actual life (Gasper 2007). In this respect, the proponents of the capability approach (CA) have contended that a more comprehensive understanding of human well-being should not be restricted to material items, but rather, it should be expanded to incorporate how much freedom people have in the pursuit of their lives. To transcend effectively the merely materialist perspective to poverty, capability-oriented theorists have developed a specific framework for analyzing human well-being (Sen 1999). Of relevance to child poverty considered here, children could be deprived of many opportunities to live the life they wish for in addition to material shortage (Ballet et al. 2011). Even for those children without material deprivation, many of them still have difficulty in converting their resources into effective usage (Nussbaum 2011). Given these realities, CA can provide us with a more complex and real picture of child poverty than previously. As a consequence, it has triggered an international wave of CA-based poverty studies (Graf and Schweiger 2015).

However, little attention has been paid to such a perspective on child poverty study in China (Gabel and Zhang 2017). In order to fill this knowledge gap, for this paper, we have adopted CA to measure China's child poverty. Moreover, since the demand for freedom and agency increases as a child ages, it was deemed more salient to focus on adolescents for the analysis (Dominguez-Serrano and Espin 2018). In accordance with CA, our measurement is focused on two well-being aspects of crucial importance to adolescent development, namely, functionings and capabilities. Also, adolescent poverty of interest is reconcptualized as two particular forms of impoverishment, those of functionings poverty and capability poverty. With a new poverty focus, there will be three relevant issues being particularly dealt with in this paper. First, we will utilize a nationally representative dataset for studying how these two forms of poverty have been experienced by China's adolescents in general and their different subgroups, in particular. Second, since both functionings and capability poverty are composed of multiple dimensions, we wanted to distinguish which dimensions have contributed most to these two forms of poverty. Third, we have endeavored to identify whether there are specific groups of factors in relation to functionings or capability poverty experienced by adolescents in the Chinese scenario. Based on the CA perspective, we want to provide a much broader and more comprehensive understanding of adolescent poverty in China than previously.

With regard to the paper's structure, it consists of five sections. First, the socio-demographic backdrop to the child population in China and relevant child poverty measurements are discussed in historical terms. The second section explicates the insights of CA in the international child poverty scholarship, in general and relevant field study in China, in particular. Subsequently, the methodological section deals with issues regarding the database deployed, the design of the adolescent poverty measurement and the statistical methods utilized. The fourth section reports both the profiles and dimensional breakdown of functionings and capabilities poverty experienced by adolescents overall as well as for their different subgroups. Also, the section will present the regression results in relation to the predictors of these two forms of poverty. The final section will summarize the major findings in theoretical and policy terms so as to further this approach to childhood scholarship in the Chinese context.

2 Child Population in China: Socio-Demographical Change and Relevant Child Poverty Measurement

Since the Chinese government introduced family planning policy in the late 1970s, it has led to sustained low birth rates and a resultant decline in the child population in this country. According to the most recent official statistics, the child population (aged 0–17) has reduced to 271 million, accounting for about one fifth of the total national population (UNICEF 2016). Moreover, such demographic change took place amidst rapid economic growth, which has raised a series of issues for child well-being. For example, because of substantial migration of parents for economic opportunities, both migrant and left-behind children increased dramatically in number, many being vulnerable and in need of special attention (Ren and Treiman 2016).[1] With continuing migration from rural to urban areas, this also led to the number of urban children coming close to that of rural children today. However, due to unbalanced economic growth between these two areas, how to address the rural-urban divide in child development has become a big challenge to the government (Qi and Wu 2019).

In the face of these dramatic changes to children's life, China's researchers started to track their development. From the beginning of research on this matter, there have been different income-based criteria employed to measure child poverty, such as USD 1.9 per day and the official poverty lines employed in different localities (Qi and Wu 2019). Also, all these income-centric studies have found a considerable decline in the rates of child poverty over time (Aiguo and Zhong 2001). However, as argued by the new generation of China's poverty researchers, household income is unable to reflect fully the actual life of the child population. Consequently, some proposed to embrace the multidimensional approach to measuring child poverty (Qi and Wu 2014; Wang et al. 2015). In particular, guided by the international convention of rights of the child, they have incorporated multiple requisites of adequate life conditions into local child poverty assessment (Qi and Wu 2014, 2019). Regarding the measuring indicators employed, the majority of them are about basic material resources, such as food, clean drinking water and sanitation facilities (Gabel and Zhang 2017). Given this, the nature of child

[1] Both child groups accounted for 38% of total child population in 2015 (UNICEF 2016).

poverty has been reconceptualized as a broad issue of child material deprivation. Based on this new definition of poverty, empirical studies have discovered a gradual decline in child deprivation for the last decade, but there is a still significant disparity between rural and urban areas (Qi and Wu 2019). We argue that with continuingly economic and demographic change in China, the extant measurement of child deprivation still suffers from following two major shortcomings.

First, while overcoming material deprivation is appropriate to the survival needs of children in developing countries, it has become insufficient to secure child flourishing in increasingly urbanized China (Gabel and Zhang 2017). Second, with the growing international emphasis on child agency, how to respect their subjective experience regarding their own living situation has become a prerequisite for poverty study (Ballet et al. 2011). In response, international welfare scholarship has proposed conceptualizing child poverty as capabilities deprivation beyond mere material shortfall (Graf and Schweiger 2015). The major advantage of this approach is that it helps in capturing more delicate nuances of child poverty and giving more respect to child agency than those simply focusing on material constraints (Hick 2012; Peleg 2013). Regarding how the capability approach could provide new insights to adolescent poverty measurement, this is discussed in the next section.

3 The Capability Approach to Adolescent Poverty: Conceptual Framework and Empirical Findings

The capability approach stemmed from considerable critique of material resources often used by economists as the chief proxy for human well-being. Its proponents hold that the interplay of personal and environmental factors can affect individuals' abilities to convert their possessed resources into well-being, which the material perspective cannot take into account (Sen 1999). Also, the CA-oriented theorists have argued against some psychologists' claim that human happiness can fully stand for his/her well-being. The reason for this has lot to do with the fact that disadvantaged people often accommodate their subjective feelings to adverse situations (Robeyns 2005). In order to address the above limitations, CA proponents have proposed that a more holistic conceptualization of human well-being needs to focus on individual freedom, capabilities and development (Nussbaum 2011; Sen 2009). According to the CA perspective, human well-being is considered as being composed of two major components as follows.

(a) Functionings: This refers to a person's achieved doing and being. Regarding the adolescents of interest, this has the same meaning of adolescent well-being as often discussed in child welfare literature (Gabel and Zhang 2017). In order to secure a minimum level of well-being, each adolescent has to meet the necessary requisites in key aspects of his/her life, such as being healthy and being well-educated (Alkire and Roche 2011; Callander et al. 2012).
(b) Capabilities: This pertains to the freedom each human being has in pursuing the life they value and the more capabilities they have, then the more options for their future. Given this definition, this concept is closely linked to adolescent well-

becoming (Ballet et al. 2011). As argued by capability researchers, some types of capabilities are of crucial importance to adolescent development, such as competences, opportunities, agency and talent (Gasper 2007).

Guided by the CA perspective, we reconceptualize adolescent poverty in the following ways. First, for any adolescent who is deprived of basic functionings, they can be identified as functionings-poor. As to those who severely lack the needed capabilities, they would be regarded as being capability-poor (Hick 2012). In addition, CA researchers are interested in which factors affect adolescent functionings and capability. In this regard, two groups of factors are particularly outlined by the extant literature for their significant impacts on these new forms of poverty as follows.

(a) Resource factors: Whilst CA theorists are opposed to the materialist approach to poverty measurement, they do not deny the fact that some material resources (e.g. clean drinking water) function as a precondition for human development (Sen 1999). Regarding the importance of some resource items for adolescent development in China, it will be discussed in the methodology section.
(b) Conversion factors: According to the CA perspective, these refer to whether an individual can successfully convert the possessed resources into capabilities and subsequently, into functionings (Robeyns 2005). As to the factors of this category for examination in Chinese context, they will be also considered in our introduction to the methodology.

With there being international wave of CA analyzing child poverty, this has enhanced our knowledge of this problem in the following respects: First, both functionings-poor or capability-poor children are not always the children living in income poverty (Wüst and Volkert 2012). Second, only a small minority suffer from CA-based poverty and income poverty at the same time (Chzhen and Ferrone 2017; Kim 2019). Third, as many country studies have shown, there are more children suffering from deprivation of either functionings and capabilities than those with income-poverty (Kim 2019). Despite the above research efforts, CA researchers still face two major challenges to such research endeavors. The first challenge relates to the stark difference between adult and child development, which is why it would be inappropriate to copy the measuring indicators for the former to study the latter (Kim and Nandy 2018; Wüst and Volkert 2012). Regarding the second challenge, this concerns the fact that younger children often lack the capability of self-determination. As a consequence, it often leads to researchers prioritizing functionings over capabilities for child well-being measurement (Robeyns 2005).[2]

Returning to China's academia, there has been little research using this perspective to study domestic child poverty. Undoubtedly, this has a lot to with real methodological challenges to be dealt with by researchers. Accordingly, next, we discuss how to tackle these issues.

[2] In addition, there is growing opinion that childhood has the value in itself rather than a merely preparatory period for adulthood. Due to this consideration, some researchers have prioritized functiongings over capabilities for child poverty measurement (Graf and Schweiger 2015).

4 Method

In this section, a series of methodological issues, including the database, measuring dimensions, indicators and the statistical methods employed, are covered.

4.1 Database

Regarding the dataset for analysis, we utilized the 'China Family Panel Studies' (CFPS), which was initiated by the Institute of Social Science Survey at Peking University in 2010. In order to create a nationally representative sample, CFPS covered 25 provinces in Mainland China for study. Also, it involves a complex, multistage, implicit stratification and probability sampling procedure. Moreover, the CFPS has been designed as a longitudinal survey with the aim of tracking changes to Chinese family well-being. Each wave of survey contains on average over 40,000 eligible individuals in over 13,000 households (Xie et al. 2014). For this paper, we selected the adolescent sample (age 10 to 15 years) within the 2014 CFPS survey for analysis, the original size of which amounted to 2956 adolescents, However, since some had not answered the needed questions, we discarded them and brought the total sample size to 1663 cases for further study. In the subsequent poverty analysis, we also weighted the analytical sample using the sampling weights specified by the designers of the CFPS.

4.2 The Measuring Dimensions, Indicators and Cutoffs

In the first research stage, we took consideration of child experts' suggestions and the extant literature in the selection of measuring dimensions and indicators regarding functionings and capabilities.[3] Four essential aspects of functionings are selected for measurement, including: physical health, mental health, education and parental care. For each dimension, according to data availability, we picked up eight appropriate indicators of this aspect for measurement, as shown in Table 1. As to the assessment of capabilities, we drew upon Gasper's (2007) proposal to conceptualize this concept as consisting of the following dimensions (see Table 1).

(a) Skilled-based Capabilities: this type of capability refers to the opportunities to obtain both hard and soft skills useful for the child's future development (Nussbaum 2011). Due to data limitations, we only chose teenager performance in two main courses (i.e. Chinese and math) and rule-abiding behavior for investigation.
(b) Opportunity-based Capabilities: this type of ability concerns whether adolescents are provided with opportunities to engage in meaningful activities (Lippman et al. 2011). Three indicators were selected for measurement, including: a teenager's

[3] We have engaged in consultation with three Chinese researchers of different professional backgrounds, including demographics, social work and child laws. Also, because of their cultural background, this ensured that they were able to make helpful suggestions as to the measuring dimensions of Chinese child well-being.

extracurricular activities at school,[4] online participation and the chance for reading recreational books.[5]

(c) Goal-based Capabilities: this group of capabilities outlines the importance of people's goals, aspirations and agency for their future (Burchardt 2009). Within the database, we chose adolescents' goal-setting, schedule, educational aspiration and self-control as measuring indicators.

(d) Potentiality-based Capabilities: This type of capability pertains to the endowments people possess in their lives (Nussbaum 2011). Under the CA perspective, the more endowments adolescents feel they have at the present time, then the more potentialities they can expect in the future. For this paper, adolescents' self-reported advantages and self-affirmation were selected for assessment.

4.3 Analytical and Statistical Methods

In order to assess both functionings and capabilities poverty effectively, we adopted the method put forward by Alkire and Forster (i.e. A-F method) (Alkire et al. 2015). As suggested by this method, equal weights were first assigned to each measuring dimension and indicator for both functionings and capabilities. Subsequently, the so-called dual-cutoff method was employed to identify adolescents who were in functionings or capability poverty (Alkire and Roche 2011). The first cutoff concerns the thresholds for each indicator, as shown in Table 1. As to the second cutoffs for functonings and capabilities, they ascertain the minimum number of dimensions that an adolescent should secure in order not to fall into either type of poverty. For this paper, we adopted the intermediate approach and set the cutoffs for functionings and capabilities as one third of their respective dimensions.[6] Following this, the A-F method guided us to map the profiles of functionings and capabilities poverty by calculating three sets of indexes as follows (Alkire and Roche 2011).

First, for the headcount ratios of poverty (H), this index is aimed at measuring the percentages of adolescents in functionings and capability poverty, respectively. As to the average intensity of these two forms of poverty (A), this is geared towards calculating the average proportions of deprivations experienced by either type of poor adolescent according to different specific dimensions. The third index proposed takes into account both the breadth and depth of poverty measured above. Accordingly, the adjusted headcount ratios of poverty (M_0) were designed as the product of the specific H and A for functionings or capability poverty. Based on these calculations, we attempted to map the profiles of the two forms of poverty for all the focal adolescents. Also, these poverty profiles were mapped for different adolescent groups with four

[4] Adolescents' participation in school clubs will help their positive engagement and connection with diverse school community (Blackwood and Friedman 2015).

[5] Recreational book reading reflects more freedom of choice regarding reading materials than textbook reading does. Also, this can facilitate adolescent development, especially in terms of mentality (Majid 2018).

[6] Extant well-being indexes often adopt the intermediate approach to set poverty thresholds (e.g. Multidimensional Poverty Index (MPI)). Also, these indexes often identify multidimensional poor as individuals suffering deprivation across one-third or more of the measuring dimensions or indicators (Alkire and Roche 2011).

Table 1 Measuring dimensions, indicators and cutoffs for functionings and capabilities

Fucntionings' domains	Cutoff	Weight	Deprivation (%)
Physical health			
Adolescent's Body Mass Index (BMI)	If an adolescent's BMI was outside the appropriate range defined by the US CDC, he/she is defined as being physically deprived.	1/8	34.22
Adolescent's regular exercise	If an adolescent did not do any exercise in the last week, he/she is classified as being physically deprived.	1/8	24.48
Mental health			
Adolescent's emotional well-being	If an adolescent' score on the Depression Scale (CES-D) was below the defined threshold, he/ she is classified as being emotionally deprived.	1/4	10.55
Education			
Adolescent's satisfaction with his/her studies	If adolescent felt unsatisfied or very unsatisfied with his/her studies, he/ she is classified as being deprived.	1/8	10.50
Adolescent's satisfaction with his/her school	If adolescent felt unsatisfied or very unsatisfied with his/her school, he/she is classified as being deprived.	1/8	7.90
Parental care			
Parental knowledge of adolescent's whereabouts	If an adolescent replied his/her parents did not know his/her whereabouts, he/she is classified as being deprived.	1/12	16.49
Parents listening and talking to adolescents	If an adolescent replied his/her parents never truly listened and talked to him/her during last month, he/ she is classified as being deprived.	1/12	44.64
Parent-child rows	If an adolescent replied he/she had at least one row with his/her parents over last month, he/ she is classified as being deprived.	1/12	41.10
Capabilities' domains	Cutoff	Weights	Deprivation (%)
S-Capabilities			
Adolescent's performance in any two major courses (i.e. Chinese and math)	If an adolescent performed badly or very badly in any two major courses, he/she is classified as being deprived.	1/8	15.33
Adolescent's rule-abiding behaviors	If an adolescent never or rarely abides by the rules, he/she is classified as being deprived.	1/8	4.81
O-capabilities			
Adolescent's extracurricular activities in schools	If an adolescent reported no clubs in his/her school or non-participation in school clubs over last 12 months, he/she is classified as being deprived.	1/12	88.98
Online opportunities for the adolescent	If an adolescent had never had on-line opportunities in their daily lives, he/she is classified as being deprived.	1/12	48.58
		1/12	24.60

Table 1 (continued)

Adolescent's reading of recreational books	If an adolescent had never had the chance to read recreational books over the last 12 months, he/she is classified as being deprived.		
G-capabilities			
Adolescent's goal-setting	If an adolescent had very few or no life objectives, he/she is classified as being deprived.	1/16	11.72
Adolescent's schedule	If an adolescent rarely had any schedule or none at all in his/her life, he/she is classified as being deprived.	1/16	22.44
Adolescent's educational aspiration	If an adolescent was planning not to continue his/her study, he/she is classified as being deprived.	1/16	8.23
Adolescent's self-control in his/her life	If an adolescent replied low or extremely low control over his/her life, he/ she is classified as being deprived.	1/16	24.13
P-capabilities			
Adolescent's self-report of his/her own good quality	If an adolescent reported that he/she had no or very few good qualities, he/she is classified as being deprived.	1/8	12.31
Adolescent's self-affirmation	If adolescent had low or no self-affirmation, he/she is classified as being deprived.	1/8	13.94

important features highly debated in extant studies, namely gender, household income status, family structure and geographical location.

Regarding the second analytical task, we decomposed the M_0 of the functionings and capabilities poverty. By so doing, the aim was to examine how each dimension contributes to these two forms (Alkire et al. 2015). As held by the A-F method, we denote the contribution of dimension j to given M_0 by Φ_j. Then, the percentage contribution of dimension j to given M_0 (e.g. functionings or capabilities) is:

$$\Phi_j = \frac{h_j}{M_0}$$

where, h_j is the share of adolescents who are experiencing simultaneously a given type of poverty and the deprivation of dimension j.

For the decomposition analysis discussed above, this was applied to the overall adolescent sample and their different subgroups, including gender, household income status, family structures and geographic area.

For the final statistical analysis, logistic regression was used to identify the predictors of functionings or capabilities poverty among the investigated adolescents. Regarding the resource factors, owing to the following considerations, two items were particularly picked up for further investigation.

(a) Pocket money: As the relevant literature shows, a child's pocket money could have the potential for enhancing autonomy (Ridge 2002), but the unwise amongst

them can also run into a series of problems, such as purchasing cigarettes or alcohol (Weiss et al. 2006).

(b) Mobile phones: Recently, having a mobile phone has become increasingly prevalent among teenagers. In spite of its benefits in maintaining and expanding their friendships, this resource item has been also found to bring undesirable side effects, such as mobile phone addiction (Liu et al. 2018).

As to the conversion factors examined, in addition to the four social features considered above, the regressions included the following factors as control variables.

(a) Adolescent romance: Extant literature has gradually found that adolescent romance can have negative impacts on their emotional and behavior development (Chen et al. 2009). In contrast to Western culture regarding romantic involvement during adolescence as being a welcomed developmental milepost, Chinese society often attaches social stigma to it (Shen 2015). Bearing this in mind, it becomes imperative to ascertain whether adolescents with such experience could be subject to greater poverty risk.

(b) Hukou: In China, the hukou institution has functioned like a caste system because it classifies every citizen into two fixed social classes (i.e. rural or urban hukou) according to their birth place. Due to such an institutional design, this has led to two different forms of social citizenship irrespective of whether citizens migrated from birth places to other areas (Ren and Treiman 2016).

(c) Family support: The extant literature has shown the importance of parental factors for child development (Wang et al. 2019). In this paper, three relevant factors are selected for further examination, including parental education, parental educational expectation and parental saving for the child's education.

5 Results

In this section, the statistical results regarding sample features, poverty profiles, dimensional breakdown and logistic regression are presented in this order.

5.1 The Characteristics of the Sample

Regarding the sample characteristics, we first concentrate on the four aforementioned social features for discussion (see Table 2). From the table, it can be seen that the share of males was 53% of the sample. When considering their economy, about one fifth of adolescents were defined as income-poor, according to their family eligibility to receive public assistance benefits (i.e., Diabo scheme). Following this is the consideration of family structure, with there being about 67% of adolescents coming from intact two-parent families. The second major family type is that of having a left-behind background (15% of the overall sample), where children's parents have migrated to other areas to find work. Both migrant children and single-parent/ orphan groups stand for a roughly similar 9% of the adolescent sample. As to location, those living in Eastern and Western areas accounted for 64% of the overall sample, splitting roughly fifty-fifty. Regarding the remainder, living in

Table 2 Descriptive statistics for the adolescent sample

	%
Gender	
Male	53.10
Female	46.90
Household income status	
Non-income poor	80.14
Income-poor	19.86
Family structure	
Intact two-parents	66.60
Left-behind children	15.44
Migrant children	9.14
Single-parent/orphan	8.82
Geographical location	
East	30.49
North-East	10.16
Central	26.34
West	33.00
Pocket money	
None	18.91
Yes	81.09
Mobile phone	
None	68.54
Yes	31.46
Adolescent romance experience	
Non-experience	85.10
Yes	14.90
Hukou	
Rural	51.40
Urban	48.60
Parental education	
Senior high school or below	89.09
College and above	10.91
Parental expectation of adolescent's education	
Low expectation	3.45
Medium and high expectation	96.55
Parental saving for adolescent's education	
Low	75.43
Medium and high	24.57
N (Weighted)	1663

Northeastern and Central regions, they occupied 10% and 26% of the sample, respectively.

When considering the resource ownership of adolescents, our data show that about of 81% of the sample received pocket money from their parents, while only 32% of them had their own mobile phone. When referring to the distribution of other conversion factors, the ratio of adolescents with urban hukou status to those with a rural one was close to 50:50. Also, less than 15% of the sample had experience of romantic relationships. Moreover, 89% of adolescents had parents with a relatively low educational background, but despite this, almost 97% of parents had high expectations regarding their children's education. However, regarding parents who had actually saved for their child's education, they only amounted to one fifth of the sample.

5.2 Poverty Profiles of Functionings and Capabilities for all Adolescents and their Different Subgroups

Table 3 maps the poverty profiles of functionings and capabilities for the full sample and the different subgroups. Regarding the full sample, the headcount ratio of functionings poverty is very close to that for capability poverty. Also, the same situation is found in the comparison of the average intensity (A) of functionings and that of capability poverty. Due to the design nature of M_0 (H*A), there were about the same portion of adolescents suffering from poor well-being and having gloomy prospects (10% vs. 9%).

Regarding the findings of gender subgroups, we observe that male adolescents were more vulnerable to functionings poverty than their female counterparts in terms of breadth (H), depth (A) and adjusted headcount ratio (M_0). In respect of the comparison results of capability poverty, males fared more badly than females mainly in terms H and M_0. In order to identify whether these gender differences are statistically significant or not, we ran the F-test of the different group means of all these indexes. The analytical results show no significant gender difference in terms of the indexes for functionings and capability poverty. When turning to comparing poverty profiles by income disparity, nearly all the indexes demonstrate that income-poor adolescents exhibited a higher risk of functionings and capability poverty than their non-poor counterparts. As our F-test results show, statistically significant differences are found between income subgroups in terms of H and M_0, whether for functionings or capability poverty.

In respect of the results among different family groups, the table illustrates that compared to those in intact two-parent families, those in either left-behind or single parent/ orphan families had experienced much more functionings poverty in terms of H, A and M_0. As to the results of capability poverty, both left-behind and single-parent/ orphan families are found to be more vulnerable than the other family groups. However, our F-test result does not show any significant difference between these family structures in terms of all these indexes. Regarding the final comparison, this is on the poverty profiles by geographical region. Our data show that the Western adolescents suffered from the most deprivation of functionings and capabilities among the different regional groups. As demonstrated by the F-test results of all the indexes, it emerges that there are statistically significant regional differences in terms of H and M_0, whether for functionings or capability poverty.

Since there is a regional effect on functionings and capability poverty, we need to compare each region with every other region to establish which ones differ significantly from each other. To this end, a post-hoc Bonferroni test was carried out. As Appendix

Table 3 Adolescent poverty profiles of functionings and capabilities

		H (%)	A (%)	M_0 (%)
Functionings poverty	Overall	23.85	41.18	9.82
Capabilities poverty	Overall	23.77	41.50	8.96
Functionings poverty	Male	25.38	41.95	10.64
	Female	22.13	40.19	8.89
	F-statistics	1.35	1.69	2.17
Capability poverty	Male	25.13	40.79	9.43
	Female	22.23	42.43	8.42
	F-statistics	1.06	2.07	0.78
Functionings poverty	Non-income poor	22.16	40.95	9.07
	Income-poor	30.69	41.88	12.85
	F-statistics	4.93*	0.40	5.31*
Capability poverty	Non-income poor	21.71	40.93	8.09
	Income-poor	32.07	43.10	12.51
	F-statistics	7.37**	2.99	7.49**
Functionings poverty	Intact two-parents	23.33	40.80	9.52
	Left-behind children	28.66	41.20	11.81
	Migrant children	17.80	44.24	7.87
	Single parent/ orphan	25.67	41.57	10.67
	F-statistics	1.34	0.51	1.05
Capability poverty	Intact two-parents	22.67	40.83	8.22
	Left-behind children	25.65	42.69	10.54
	Migrant children	21.56	43.67	7.98
	Single parent/ orphan	31.11	41.78	12.61
	F-statistics	0.85	1.05	1.61
Functionings poverty	East	18.11	38.62	6.99
	North-East	19.10	40.33	7.70
	Central	21.11	41.29	8.72
	West	32.82	42.59	13.98
	F-statistics	5.92***	2.39	6.81***
Capability poverty	East	19.87	40.16	7.22
	North-East	14.13	38.89	5.34
	Central	21.34	43.29	8.28
	West	32.28	41.72	12.29
	F-statistics	6.18***	2.71*	5.74***

Weighted data are used; *p<0.05; **p<0.01; ***p<0.001

Table 5 shows, the Western region suffered from much more functionings poverty than the East and Central regions in terms of poverty headcount ratio (H). Also, compared to the other three areas Western region had a much higher adjusted headcount ratio (M_0) in the aspect of functionings poverty. Moreover, Western region was found to have been more poverty-stricken than the other three areas in terms of H of capability poverty.

Furthermore, in terms of M_0 of capability poverty the Western region fared much more badly than the East and North-East regions. However, regarding the other three regions, we did not identify any significant subgroup differences in these poverty indexes.

Equally important, based on the above poverty profile findings we further identified the adolescent subgroups that manifested more vulnerability to functionings and capability poverty. In this regard, we first created a series of adolescent subgroups according to the configuration of the four investigated features. Subsequently, through the comparison of each group's functionings and capability poverty rates (H) in terms of their respective averages, we could rank their vulnerability according to these two poverty forms. As found in the Appendix in Table 6 and Table 7, compared to the other regions, the Western region seems to feature prominently in the top five vulnerabilities of functioning poverty. Also, poor male adolescents who lived in left-behind families in the Western region have been found to have been most vulnerable to functionings poverty. Regarding the most vulnerable subgroup to capability poverty, this belonged to the poor females who lived in intact two-parent families in the Western region. Moreover, this female subgroup was in the top five disadvantaged subgroups simultaneously in functionings and capability poverty. In sum, according to the analytical results, some of the social characteristics considered have emerged as being highly related to different aspects of both types of poverty.

5.3 Dimensional Breakdown of the Results for Different Subgroups of Adolescents

Figure 1 provides the decomposition results for the full sample and subgroups classified by gender and household income status. From the figure, it can be seen that the findings for adolescents overall are that physical ill-health and severe lack of participation contribute most to their functionings and capability poverty, respectively. When turning to the results for male and female adolescents, we can see that physical ill-health still contributes most to adolescents' functionings poverty regardless of their gender. After that, male and female adolescents experience a different second-biggest contributor to their poor functionings (i.e., insufficient parental care for males and mental disturbance for females). As to the decomposition of capability poverty for the different genders, both severe lack of O-capability and P-capability contribute to both genders' capability deprivation to the tune of at least 69%. Regarding the comparative results between non-poor and poor adolescents, as previously, physical ill-health continues to contribute most to their functionings poverty regardless of their household income status. Moreover, insufficient parental care contributes the second most (27%) to non-income deficiency, while mental disturbance is the second–biggest challenge to the income-poor adolescents' functionings (28%). As to the dimensional breakdown of capability poverty, severe lack of child participation is still found to contribute most to this difficulty for the two subgroups. Also, for both poor and non-poor adolescents, low self-affirmation is the second-biggest contributor to their capability shortage.

Figure 2 displays the decomposition results according to different family structure. With the exception of migrant children's family, physical ill-health is found to contribute most to functionings poverty for the remaining three family groups (ranging from 30% to 36%). As to the migrant children, mental disturbance would appear to have posed the biggest threat to their functionings. Next, all the investigated family groups faced similar second-biggest challenges of insufficient parental care to the development of their

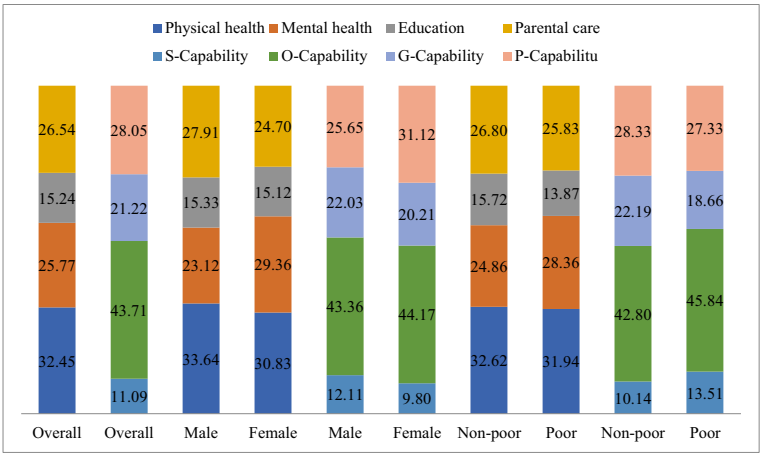

Fig. 1 Percentage contribution of each dimension to functionings and capability poverty for full sample and different gender and income groups (%)

functionings. Regarding the results of capability poverty, severe lack of O-capability and P-capability contributed to at least 67% of these groups' capability shortfall.

The last results breakdown is for the different regional groups (see Fig. 3). As before, physical ill-health still manifests itself as the biggest contributor to functionings shortage regardless of adolescents' location. However, when considering the second-biggest challenge, this would appear to vary according to the child's geographical location. For adolescents in both the Eastern and Central regions, insufficient parental care contributed to close to 30% of their poor functionings outcome. As to those living in the West and North-East, mental disturbance was the second-biggest challenge in this respect. When turning to the capability results, it can be seen that severe deprivation of participation and self-affirmation would appear to contribute to at least 63% of this form of poverty regardless of where adolescents live.

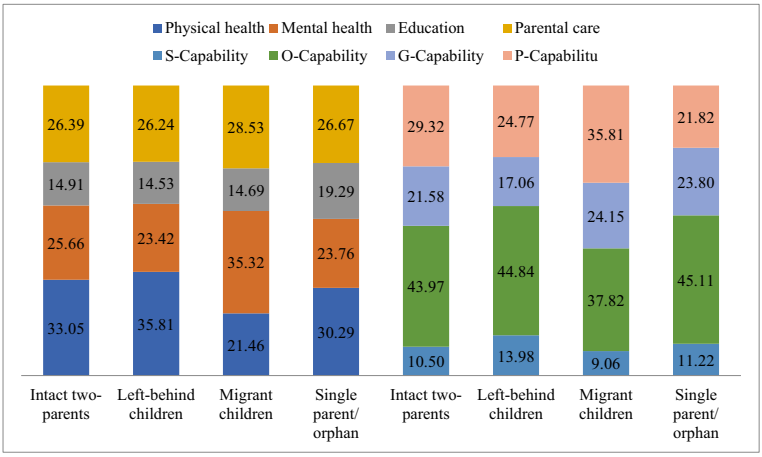

Fig. 2 Percentage contribution of each dimension to functionings and capability poverty in terms of family structure (%)

5.4 The Logistic Regression on Functionings and Capability Poverty

For the final statistical analysis, two logistic regressions were conducted on the two forms of poverty, with Table 4 presenting the results. From the table, four correlates of adolescents' functionings poverty can be identified. Among the four social features considered, our analysis only identified the geographical effect here. In particular, compared to the adolescents in the East region, those in the West were much more deprived in terms of functionings (OR = 2.36; 95% CI: 1.54–3.60). In addition, those with experience of romantic relationships are found to have fared worse than those without (OR = 2.08; 95% CI: 1.38–3.15). The third correlate is regarding the receipt of pocket money, which has a reduced possibility of functionings deprivation (OR = 0.61; 95% CI: 0.42–0.89). The last predictor, high parental education, is positively associated with much less likelihood of adolescent functionings poverty. When turning to the capabilities results, among the four social features considered, geographical effect emerges as being significant. Specifically, the adolescents in the Western region were more likely to fall into capability poverty than their Eastern counterparts (OR = 2.03; 95% CI: 1.36–3.04). Also, the adolescents receiving pocket money had much less likelihood of being capability-poor than their counterparts receiving none. In contrast, romantically involved adolescents would be more likely to be deprived of the needed capabilities than their non-involved counterparts. Regarding the parental-related factors, two of them, including parental expectation on education and parental saving for education are found to be positively related to capability development.

6 Conclusion: Discussion and Policy Implications

Guided by the capability approach, the work reported on in this paper has advanced our understanding of adolescent poverty in China in multiple ways. In particular, we

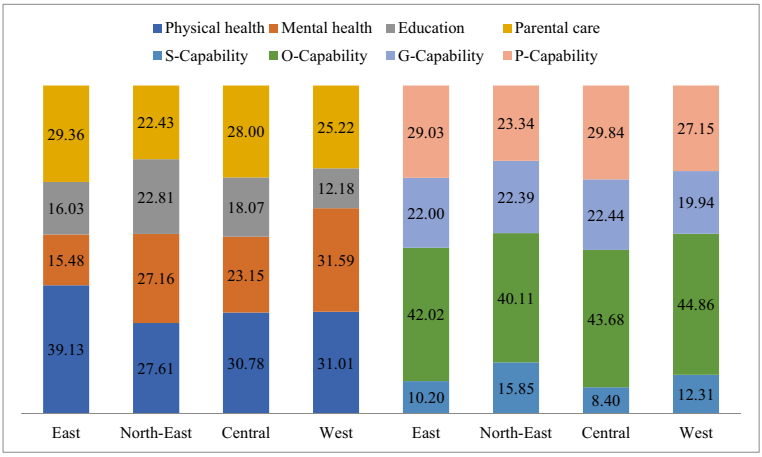

Fig. 3 Percentage contribution of each dimension to functionings and capability poverty in terms of geographical locations (%)

Table 4 The results of logistic regression models

	Functionings poverty versus non-poverty		Capability poverty versus non-poverty	
	OR (95% CI)	*P value*	OR (95% CI)	*P value*
Gender of Adolescent (Male = referent)	0.898 (0.660–1.223)	0.496	0.916 (0.671–1.251)	0.582
Household income status (Non-poverty = referent)	1.303 (0.892–1.903)	0.171	1.345 (0.924–1.957)	0.122
Family structure (Intact two-parents family = referent)				
Left-behind children	1.184 (0.794–1.764)	0.408	1.000 (0.661–1.512)	0.998
Migrant children	0.647 (0.347–1.207)	0.171	0.941 (0.504–1.758)	0.849
Single- parent/ orphan	1.073 (0.610–1.889)	0.806	1.448 (0.806–2.600)	0.215
Geographical location (East = referent)				
North-East	1.183 (0.623–2.247)	0.608	0.737(0.379–1.432)	0.368
Central	1.405 (0.928–2.128)	0.108	1.224 (0.822–1.821)	0.319
West	2.358*** (1.544–3.602)	< 0.-0-01	2.031*** (1.357–3.039)	< 0.-0-01
Pocket money (no pocket money = referent)	0.610* (0.418–0.890)	0.010	0.608* (0.416–0.888)	0.010
Mobile phone (no mobile phone = referent)	1.176 (0.811–1.705)	0.392	0.737 (0.507–1.071)	0.110
Adolescent with romance experience (Non-experience = referent)	2.084*** (1.381–3.147)	< 0.-0-01	1.581* (1.010–2.474)	0.045
Hukou (Urban hukou = referent)	1.145 (0.814–1.610)	0.438	1.041 (0.732–1.480)	0.825
Parental education (Senior high school or below = referent)	0.342** (0.175–0.669)	0.002	0.545 (0.272–1.092)	0.087
Parental expectation of adolescent's education (Low expectation = referent)	0.901 (0.451–1.798)	0.766	0.285*** (0.140–0.582)	< 0.-0-01
Parental investment in adolescent's education (Low investment = referent)	0.855 (0.583–1.253)	0.421	0.620* (0.419–0.918)	0.017
N	1663		1663	

Weighted data are used; *$p < 0.05$; **$p < 0.01$; *** $p < 0.001$

believe the findings can provide useful feedback to childhood poverty scholars whether in both China and the international arena as follows.

First, through our analysis of a nationally representative dataset, it has been found that adolescents in China do face considerably high risk of functionings and capabilities poverty. This is consistent with early studies in other countries (Wüst and Volkert 2012). However, the particularity of the Chinese case is that some specific groups (e.g. income-poor family, and/or living in the Western region) have been highly susceptible to the breadth and/or depth dimensions of two forms of poverty examined. Given these findings, they give weight to our proposal for further investigation into both the functionings and capability of adolescents in China.

Second, our decomposition results have identified priority domains where adolescents' lives could be improved. Regarding this, physical ill-health and severe lack of participation are found to pose major challenges to their well-being and well-becoming, respectively. Regarding the former challenge, despite decades-long economic growth, this has not resulted in improvement in the physical health of a substantial number of adolescents. Regarding the reasons for this, in addition to the heath infrastructure backwardness in the Western region (Qi and Wu 2014), we cannot ignore the fact that health-related risk factors have loomed large especially for urban children (Miao and Wu 2016). As to the other challenge of extremely low child participation, this could be attributed to both the digital gap and diplomaism prevalent in China. Regarding the former, extant surveys have shown that there is still unequal access to the internet, according to the geographical regions in which children live (Li and Ranieri 2013). As to the latter, this refers to the persistent strong parental desire for child academic success, rather than supporting children in broadening their experiences outside academic study. This has not only led to heavy learning pressure on school-age children, but also deprived them of opportunities to participate in meaningful school activities (Zhao 2015).

Third, this study contributes to the extant literature by the identification of specific groups of predictors of functionings and capability poverty. In particular, the adolescents living in the Western region have been found to fare more badly than their counterparts in other regions. Also, in line with some CA researchers' assumption of resource effects, pocket money has particularly been proved to have a positive relationship with child's functionings and capability development (Ridge 2002). Moreover, one of the most unique findings in this study is that romantic involvement seems to be harmful to an adolescent's overall development (i.e., functionings and capabilities) rather than specific emotional and behavioral aspects, as outlined by previous studies. However, as mentioned above, such negative impacts could be further aggravated by the conservative nature of Chinese culture (Chen et al. 2009). Furthermore, in accordance with an ecological perspective in social work, a variety of parental factors have demonstrated their positive relationship with reduced likelihood of children falling into either functionings or capability poverty (Wang et al. 2019).

In terms of policy implications, we believe all our research findings could help inspire the Chinese government to incorporate the following empowering elements into the extant design of the national action program for child development.

First of all, we recommend the government's policy priority should be given to ensuring the promotion of children's physical health and social participation. Regarding the former, this not only requires the government to continue investment in health infrastructure, for health bureaucrats also need to contemplate how to educate this age group in leading a healthy life style (e.g., diet and exercise). As to the latter, it suggests there should be child policy to increase internet connection amongst the adolescent population. Also, in order to promote their participation in extracurricular activities at school, the government needs to educate parents about the benefits of child participation rather than singularly pursuing excellent credentials.

Second, since the Western region in which adolescents live has been identified as exhibiting an increase poverty risk, whether in breadth or severity terms, we suggest that the national action plan for poverty reduction should extend its coverage to more vulnerable children living there. Also, the government should put forward a more inclusive policy package so as to alleviate the poverty of Western adolescents. These could include healthy lifestyle education, mental health services and more provisions for child participation whether in school and in relation to the on-line community.

Thirdly, in order to mitigate the potential negative effects of adolescent romance, the government should consider comprehensive sex and relationship education, which is still absent for this age group. Also, programs for de-stigmatizing adolescent romance should be included as part of this education curriculum. By so doing, it could more effectively help these children deal with both opportunities and challenges presented by romantic relationships during adolescence. Fourthly, owing to the uncovered beneficial effects of parental involvement in education, this implies more positive parenting programs should be delivered to poor children's families. Finally, due to the positive influence of pocket money, future childhood policy could consider assisting parents in giving children pocket money but in a framework within which children can make good use of them.

When turning to methodological reflection on the current study, we accept that there are some limitations that would need addressing in future research. Regarding these, since CFPS did not ask the adolescents the same set of questions in each survey, this has led to problems of missing data and a reduced sample size. For this reason, we need to be cautious in generalizing our findings to larger adolescent population. Also, the present study was restricted by data availability in incorporating more important child indicators for measurement. Moreover, in contrast to a longitudinal study, our cross-sectional research would have experienced difficulty in tracking adolescent poverty dynamics in capability terms. Despite these limitations, this is the first study exploring Chinese adolescent poverty under the capability lens. Moreover, several of the main findings present here have laid out an important empirical foundation for policymakers to provide more effective policy provision. Based on these research efforts, we hope it will stimulate more researchers into applying this perspective to other Chinese contexts involving children and adolescents.

Appendix

Table 5 The result of post-hoc Bonferroni test

		(I)Regional Groups	(J)Regional Groups	Main difference (I- J)	Bonferroni test
Functionings poverty	H (%)	East	Central	−3.01%	
			West	−14.71%	***
			North-East	−0.99%	
		Central	West	−11.70%	**
			North-East	2.01%	
		West	North-East	13.72%	
Functionings poverty	A (%)	East	Central	−2.68%	
			West	−3.98%	
			North-East	−1.72%	
		Central	West	−1.30%	
			North-East	0.96%	
		West	North-East	2.26%	
Functionings poverty	M_0 (%)	East	Central	−1.73%	
			West	−6.99%	***
			North-East	−0.71%	
		Central	West	−5.26%	**
			North-East	1.02%	
		West	North-East	6.27%	*
Capability poverty	H (%)	East	Central	−1.46%	
			West	−12.41%	**
			North-East	5.74%	
		Central	West	−10.95%	*
			North-East	7.21%	
		West	North-East	18.15%	***
Capability poverty	A (%)	East	Central	−3.13%	
			West	−1.56%	
			North-East	1.27%	
		Central	West	1.57%	
			North-East	4.40%	
		West	North-East	2.83%	
Capability poverty	M_0 (%)	East	Central	−1.06%	
			West	−5.06%	**
			North-East	1.88%	
		Central	West	−4.00%	
			North-East	2.94%	
		West	North-East	6.94%	***

Weighted data are used *$p < 0.05$; **$p < 0.01$; *** $p < 0.001$

Table 6 The ranking of adolescent subgroups in terms of functionings poverty rates (H) for those above average (sample size ≥10)

Gender	Household economy	Family structure	Geographical area	Sample	H (%)
Male	Poor	Left-behind children	West	10	63.28
Male	Poor	Intact two-parents	West	55	49.81
Female	Poor	Intact two-parents	West	45	39.35
Female	Not Poor	Left-behind children	West	45	37.62
Female	Not Poor	Intact two-parents	West	117	36.93
Male	Not Poor	Left-behind children	East	19	36.80
Male	Not Poor	Left-behind children	Central	33	35.78
Female	Poor	Left-behind children	West	17	34.72
Male	Not Poor	Single parent/ orphan	West	22	34.05
Female	Not Poor	Single parent/ orphan	Central	14	33.01
Male	Poor	Intact two-parents	East	37	31.38
Male	Poor	Left-behind children	Central	12	30.04
Male	Not Poor	Migrant children	East	20	26.77
Male	Not Poor	Intact two-parents	West	155	25.06
Female	Not Poor	Intact two-parents	Central	134	24.14

Table 7 The ranking of adolescent subgroups in terms of capability poverty rates (H) for those above average (subsample size ≥10)

Gender	Household economy	Family structure	Geographical area	Sample	H (%)
Female	Poor	Intact two-parents	West	45	58.84
Female	Poor	Left-behind children	West	17	41.37
Male	Poor	Left-behind children	Central	12	40.18
Female	Not Poor	Single parent/ orphan	Central	14	39.12
Male	Not Poor	Single parent/ orphan	Central	14	38.43
Male	Poor	Intact two-parents	West	55	37.78
Male	Not Poor	Intact two-parents	West	155	36.35
Female	Not Poor	Migrant children	Central	10	35.73
Male	Not Poor	Left-behind children	West	44	31.06
Female	Not Poor	Left-behind children	East	24	30.99
Female	Not Poor	Left-behind children	Central	33	30.09
Male	Poor	Intact two-parents	East	37	30.01
Male	Not Poor	Migrant children	Central	18	29.15
Male	Not Poor	Migrant children	West	15	27.88
Female	Not Poor	Left-behind children	West	45	26.65
Male	Poor	Left-behind children	West	10	25.90
Female	Not Poor	Migrant children	West	18	25.79
Male	Not Poor	Single parent/ orphan	West	22	25.65

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