

Exploring Multidimensional Poverty in China

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Multidimensional Poverty in China affects nearly 5.5 per cent of the population, with variation across regions and by social groups. Multidimensionally poor people are not necessarily income poor and vice versa.

China, one of the 29 Upper Middle Income countries covered by the Global Multidimensional Poverty Index (MPI), is well-known for its significant reduction of income poverty since the 1990s. But what is the level of multidimensional poverty in China? Are the same people MPI poor and income poor? How does multidimensional poverty vary by area, and social group?

This briefing presents and analyses the Global MPI estimations for China using 2012 data. It aims to explore in a preliminary way how the Global MPI may vary across different groups and regions. Overall, 5.5% of the Chinese population are MPI poor, and the average intensity of poverty is 40.9%. China's Global MPI value is 0.023 – making it similar to Colombia's MPI levels, significantly poorer than Brazil or Mexico, and much less poor than India.

INTRODUCING CHINA'S MPI

The Global MPI estimations for China are based on China Family Panel Studies (CFPS) that was fielded in 2012. The CFPS was conducted by the Institute of Social Science Survey at Peking University. The survey covers just over 42,000 people, and is rich in that it is representative of rural and urban areas, and contains variables to construct both MPI and income poverty. It is drawn from 25 provinces² and regional decompositions are presented for three large regions.

As in other countries that have low levels of acute multidimensional poverty as measured by the Global MPI, we recommend that a second Global MPI be implemented – one that assesses *moderate* multidimensional poverty. For example, it might include schooling through 9 years, which is compulsory in China. Just as the \$1.25/day measure of extreme income poverty is not adequate in all settings – and \$2/day, \$4/day and \$10/day results are also scrutinised – extensions of the Global MPI to moderate poverty should be produced in the near future.

The precise definitions of the poverty indicators that make up China's MPI appear in table 1. China's MPI estimations draw on nine Global MPI indicators. Flooring

Key Findings

- **The MPI complements income poverty measures: nationally, 12.6% of people are income poor, and 5.5% of people are MPI poor, but only 1.6% of people are poor by both measures.**
- **Multidimensional poverty in Western China is significantly¹ higher than in Eastern or Central China.**
- **In rural areas, MPI poverty and incidence are significantly higher than in urban areas.**
- **People receiving government subsidies are significantly poorer than those who are not.**
- **The indicators contributing most to poverty are nutrition and school attendance.**

The Global MPI

The Global MPI is a measure of acute multidimensional poverty in developing countries. For each country, it is calculated by multiplying the incidence of poverty (the percentage of people who are poor) by the intensity of poverty (the average proportion of deprivations poor people experience). If people are deprived in at least one-third of 10 weighted poverty indicators, they are identified as multidimensionally poor.

is not present in the CFPS dataset. Some of China's MPI indicators have slight differences compared to the Global MPI indicators, which are elaborated in the table. For example, the assets indicator does not include having a radio or landline telephone; and motorised bicycle is used instead of bicycle. The 'access to safe water' indicator does not consider the time taken to reach water. Nutritional information is used for all household members up to 70 years of age.

Table 1: The dimensions, indicators, deprivation thresholds and weights of China's MPI

The dimensions, indicators, deprivation thresholds and weights of the MPI			
Dimension	Indicator	Deprived if...	Relative Weight
Education	Years of Schooling	No schoolgoing household member has completed five years of schooling and no member has completed primary school.	1/6
	Child School Attendance	Any child aged 7–15 is not attending school up to the age at which they would complete class 8. ³	1/6
Health	Child Mortality	Any child has died in the family.	1/6
	Nutrition	Any person under 70 years of age is malnourished. ⁴	1/6
Living Standard	Electricity	The household has no electricity.	1/15
	Improved Sanitation	The household does not have a private toilet whether indoor or outdoor, flush, or non-flush. ⁵	1/15
	Improved Drinking Water	The household does not have access to improved drinking water, here defined as well/ spring water, tap water, or mineral/ purified/ filtered water.	1/15
	Cooking Fuel	The household cooks with dung, wood or charcoal.	1/15
	Assets ownership	The household does not own more than one of the following: TV, mobile telephone, bike (motorised), motorbike or refrigerator, and does not own a car or similar vehicle.	1/15

MPI IN RURAL AND URBAN AREAS

By the definition used in the survey,⁶ about 52% of the population in China reside in rural areas. The MPI in these rural areas is 0.034, and 8.1% of the rural population are MPI poor. In contrast, among urban populations, the MPI is 0.011, and 2.8% of people are poor. So in rural areas, poverty is significantly higher than in urban areas.

As figure 1 shows, in both areas, the indicators that contribute most to poverty are under-nutrition and children out of school, followed by years of schooling. Rural areas also experience marked deprivations in solid cooking fuel. Electricity is near universal, and there are few deprivations in access to water.

MPI IN GEOGRAPHIC REGIONS

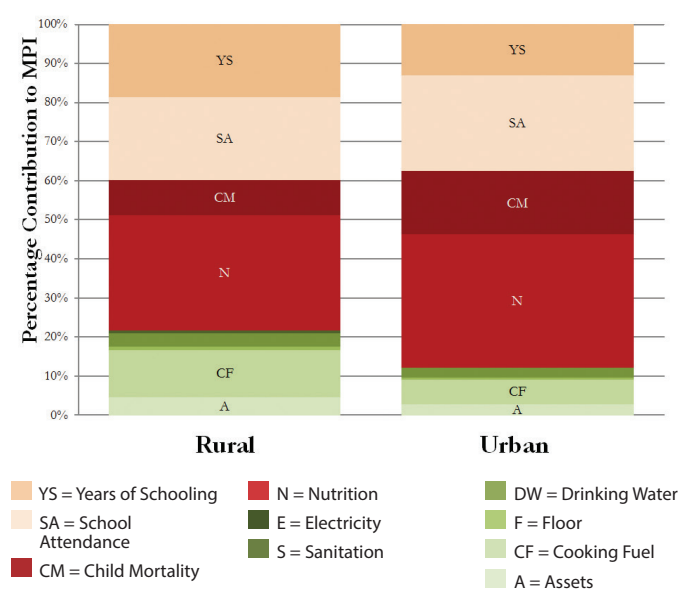
China's provinces are customarily divided into three major regions: East, Central, and West.⁷ As Table 2 shows, the Eastern and Central regions have similar MPI values, and both are lower than the national average. The West shows a higher incidence of poverty – with 10.4% of people being MPI poor – compared to 4% or less elsewhere. In addition, the average intensity of poverty in the West is higher: on average MPI poor people are deprived in 42.8% of the poverty indicators. This is equivalent to being deprived in, for example, roughly one health indicator, one education indicator, and two living standard indicators. Together the higher incidence and intensity means that **poverty in the Western region is significantly higher than in Eastern or Central provinces.**

MPI BY SOCIAL GROUPS

Table 2 provides the disaggregated information of MPI for different groups of the population, including the percentage of poor people (H), the average intensity of poverty among the poor (A), and the percentage of the population who are poor and experience a deprivation in each of the 9 indicators (censored headcount ratios). The analysis presented here should be considered illustrative, because the standard errors are high, but they indicate relationships worth exploring in detail.⁸

While some of the subgroup patterns are expected, some are quite fascinating. We start with the gender of the household

Figure 1



head. Interestingly, there is no statistically significant difference between the poverty levels of **female- vs male-headed households**, and female-headed households in the sample are slightly less poor. The MPI requires additional gendered data to better capture the situation of women.

When we consider the **age of the household head**, we find that poverty is significantly lower in the 50% of households whose head is age 36–60 than in other groups.

Figure 2

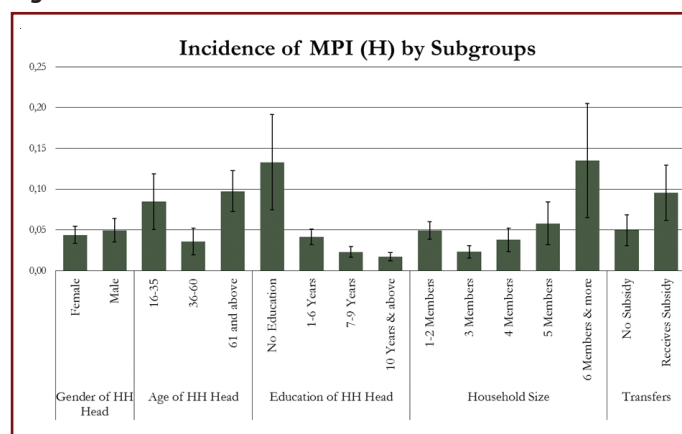


Table 2: Poverty across geographic and social groups and household characteristics

		Multidimensional Poverty				Composition by Indicator (percentage of people who are poor & deprived)								
		Pop. Share (%)	MPI	Head-count Ratio (H)	Intensity (A)	Years of Schooling	School Attendance	Child Mortality	Nutrition	Electricity	Sanitation	Water	Cooking Fuel	Assets
National	National	100	0.023	5.5%	40.9%	2.4%	3.0%	1.4%	4.1%	0.2%	1.1%	0.3%	3.6%	1.4%
Rural/Urban	Rural	51.51	0.034	8.1%	42.2%	3.8%	4.4%	1.8%	6.0%	0.3%	1.8%	0.4%	6.2%	2.4%
	Urban	48.49	0.011	2.8%	37.3%	0.8%	1.6%	1.0%	2.2%	0.0%	0.4%	0.1%	1.0%	0.5%
Region	East	37.13	0.013	3.4%	38.4%	1.2%	1.9%	0.9%	2.8%	0.0%	0.5%	0.0%	1.7%	0.5%
	Central	34.96	0.016	4.0%	39.5%	1.4%	2.1%	1.2%	3.1%	0.0%	0.5%	0.1%	2.7%	0.4%
	West	27.91	0.045	10.4%	42.8%	5.2%	5.7%	2.5%	7.3%	0.6%	2.8%	0.7%	7.4%	4.0%
Gender of Household Head	Female	25.61	0.018	4.4%	40.9%	3.2%	1.0%	1.8%	2.6%	0.0%	1.0%	0.2%	2.6%	1.6%
	Male	74.39	0.020	4.9%	40.8%	2.6%	2.1%	1.3%	3.6%	0.1%	1.1%	0.2%	3.4%	1.5%
Age of Household Head	16–35	31.31	0.034	8.5%	40.8%	2.4%	4.7%	3.2%	6.6%	0.3%	1.4%	0.3%	5.5%	1.9%
	36–60	49.48	0.015	3.6%	41.2%	1.6%	2.4%	0.3%	2.8%	0.1%	0.9%	0.2%	2.3%	1.0%
	61 and above	19.21	0.040	9.7%	40.7%	8.0%	1.5%	4.0%	5.3%	0.0%	2.0%	0.4%	6.8%	3.4%
Education of Household Head	No Education	19.05	0.057	13.3%	42.9%	9.7%	4.0%	3.6%	8.4%	0.5%	3.6%	0.9%	10.5%	5.5%
	1–6 Years	29.55	0.016	4.1%	39.6%	0.9%	2.4%	1.3%	3.6%	0.0%	0.8%	0.1%	2.5%	0.6%
	7–9 Years	30.12	0.009	2.3%	37.4%	0.0%	1.7%	0.7%	2.1%	0.0%	0.3%	0.1%	1.1%	0.2%
	10 Years and above	21.28	0.006	1.7%	36.3%	0.0%	1.3%	0.6%	1.6%	0.0%	0.1%	0.0%	0.5%	0.1%
Household Size	1–2 Members	21.37	0.020	4.9%	41.1%	4.4%	0.2%	1.8%	2.8%	0.0%	1.3%	0.3%	3.7%	1.9%
	3 Members	24.97	0.009	2.3%	38.6%	1.0%	1.2%	0.6%	1.7%	0.0%	0.2%	0.1%	1.0%	0.4%
	4 Members	20.87	0.015	3.8%	39.7%	1.6%	2.3%	0.4%	3.1%	0.2%	0.8%	0.2%	2.0%	0.8%
	5 Members	16.87	0.025	5.8%	42.5%	1.5%	4.4%	1.5%	4.6%	0.2%	1.1%	0.1%	4.2%	1.4%
	6 Members or more	15.92	0.056	13.5%	41.3%	3.8%	8.9%	3.6%	10.5%	0.5%	3.0%	0.7%	9.2%	3.4%
Transfers	No Subsidy	87.54	0.020	5.0%	40.7%	2.0%	3.0%	1.1%	3.8%	0.1%	1.0%	0.2%	3.0%	1.2%
	Receives Subsidy	12.46	0.040	9.6%	41.8%	4.8%	3.3%	3.6%	6.6%	0.6%	2.2%	0.5%	7.9%	3.2%
Quintiles of income	1st-quintile	19.35	0.051	11.7%	43.5%	7.3%	5.1%	3.0%	7.1%	0.8%	3.8%	0.8%	9.4%	5.2%
	2nd-quintile	19.39	0.023	5.8%	40.4%	2.2%	3.6%	1.0%	4.9%	0.0%	0.7%	0.4%	3.7%	0.8%
	3rd-quintile	19.33	0.023	5.9%	38.7%	1.3%	3.2%	2.0%	5.0%	0.0%	0.8%	0.0%	3.2%	1.0%
	4th-quintile	19.32	0.008	2.1%	37.8%	0.5%	1.4%	0.8%	1.6%	0.0%	0.3%	0.0%	0.8%	0.1%
	5th-quintile	22.6	0.010	2.7%	39.0%	0.8%	1.8%	0.4%	2.3%	0.0%	0.3%	0.0%	1.4%	0.4%

In terms of **education**, as expected, poverty is highest for the 19% of the population whose household head has not attended school, and is significantly higher than those whose head has one or more years of education. Poverty tends to decrease as education levels increase. As we see in the figure on the right, censored headcount ratios show deprivations in ‘cooking fuel’, ‘years of schooling’ and ‘nutrition’ are markedly greatest for households whose head has no education.

In terms of **household size**, poverty is significantly higher among small households with 1–2 members, than among those with 3 or 4 members. Poverty again increases significantly in households of 5 or more members.

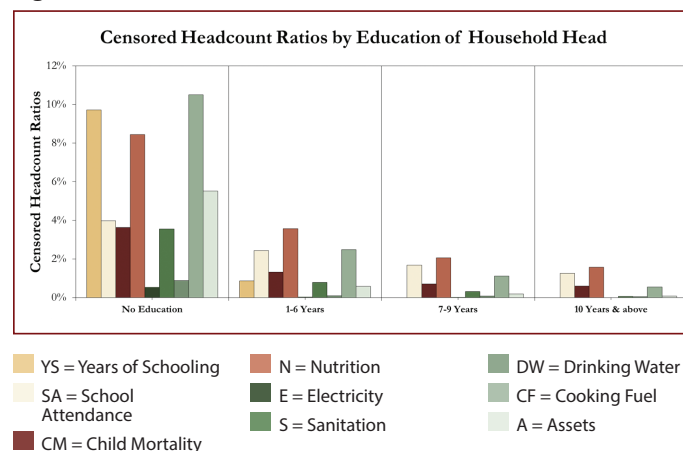
When we scrutinise the people who receive **government subsidies** we find that their MPI levels seem to be nearly twice as high and they are significantly poorer than those who do not receive subsidies. Even so, 5% of people who are not receiving subsidies are MPI poor.

Many differences are not statistically significant here but such analysis is important and, in a larger sample, could be decisive.

MPI AND INCOME POVERTY

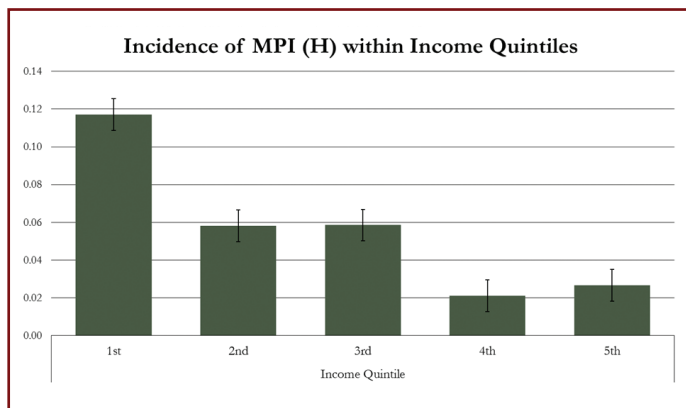
The CFPS includes an income aggregate, thus we are able to construct income poverty levels using the survey data. Officially there are 122 million income poor people in rural areas (2011). If we combine this with 2011 rural population statistics, we obtain a rural income poverty headcount ratio

Figure 3



of 12.7%.⁹ The World Bank 2011 figure for China shows that 6.3% of people live on less than \$1.25/day (2005 PPP).

The CFPS dataset includes income poverty, so we can see whether the people who are income poor are MPI poor and vice versa. When we apply the national income poverty line (2300 RMB) to the CFPS dataset, we find that 12.6% of people nationally are poor.¹⁰ We might expect that all of the multidimensionally poor people – that is, 5.5% of the population – would also be income poor, because the level of income poverty is higher than acute multidimensional poverty. However this is not the case. In fact, only 1.6% of the population are poor according to both measures.

Figure 4

To investigate this mismatch further, we divide the population into 5 groups, called quintiles, each having roughly 20% of the population. The first quintile contains the people who have the lowest income. The fifth quintile contains the 20% of the population with the highest income. We might presume that if only 5.5% of the population are income poor, all MPI poor people would be found among the 20% of the population that have the lowest income in the society. However, they are not. According to this sample, less than half of the MPI poor people (41.0%) belong to the bottom income quintile (2.3% of the total population in China). Fully 20.4% of the MPI poor are in each of the second and third quintiles, 7.4% in the 4th quintile, and nearly 10.9% of the MPI poor people have incomes in the top (richest) quintile. This finding is surprising, even shocking, but it is not uncommon; for example Tran et al. (2015) found that 16% of the MPI poor in Vietnam were in the top two quintiles of consumption.

Among the poor in each quintile, people whose income falls in the bottom 40% are significantly poorer than those with incomes in the top 40% of the distribution. The composition of poverty is not radically different even for those in the top quintile. The presence of MPI poor people in the top quintiles both in this dataset and many others may reflect non-sampling measurement error, or volatility and seasonality of income data, but in any case is a finding worth exploring vigorously using qualitative methods.

Overall, the Global MPI shows low levels of acute multidimensional poverty in China, which are higher in the West, in rural areas, and in households with uneducated household heads. It complements income poverty measures, bringing into view poor people who are not income poor.

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A moderate MPI, whose indicators more fully reflect the aspirations of Chinese people and policy makers, may usefully complement the acute Global MPI to incentivise and celebrate progress.¹¹

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NOTES:

- Significance of difference in all cases is assessed according to one-tailed tests with 95% confidence level unless otherwise indicated.
- The sample of CFPS is drawn from 25 provinces/cities/autonomous regions in China excluding Hong Kong, Macao, Taiwan, Xinjiang, Qinghai, Inner Mongolia, Ningxia, Tibet, and Hainan. Xie et al (2012) says, "CFPS chooses 25 provinces which include 94.5% of the population in mainland China. From this point of view, CFPS could be considered to be nationally representative." The Manual for the 2010 CFPS also states that "After weighting, the complete national sample represents the national population" (Xie 2012:47 6.1).
- The starting age for primary school in China is 6 or 7, depending on the area. We used 7–15 as the cutoff, because in no other country do we use province specific cutoffs, and the misidentification seemed lower.
- The CFPS dataset shows slightly higher rates of under-nutrition for children and adults than national averages.
- The dataset does not discriminate between protected and non-protected pit latrines. Unprotected pit latrines are inadequate by the MDG definitions, so if they are in use, this indicator under-estimates sanitation deprivations.
- CFPS includes three definitions of rural-urban areas: 1) Rural-urban division standard defined by the National Bureau of Statistics (NBS) of China; 2) Division by the type of village/ neighbourhood community; and 3) Rural/urban division by *hukou*. These decompositions use 1) – the NBS definitions.
- Eastern** provinces (municipalities) include: Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, and Guangdong; **Central** provinces include: Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan; **Western** provinces (autonomous regions and municipalities) include: Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Shaanxi, and Gansu.
- The full paper presents standard errors and confidence intervals in the tables and elaborates these issues further.
- Office of Household Surveys, NBS (2013). Note China does not publish official statistics of urban poverty.
- CFPS 2010 was found to have higher rates of poverty than the official estimates (Gustafsson et al. 2014, Xie et al 2014). We have also found the 2012 CFPS results to be higher: when using the national poverty line of 2300 RMB, we find 12.6% of people to be income poor, and the rural poverty headcount ratio to be 16.2%.
- We warmly acknowledge Dr Xiaolin Wang at IPRCC for drawing our attention to this dataset, and the Institute of Social Science Survey at Peking University for providing data from the China Family Panel Studies (CFPS), and for responding in a timely and precise way to our questions. We are also grateful to Gisela Robles Aguilar, Ana Vaz, Suman Seth, and Adriana Conconi.