Multidimensional Poverty in Algeria.

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MENASP Network Webinar Series

26 January 2022

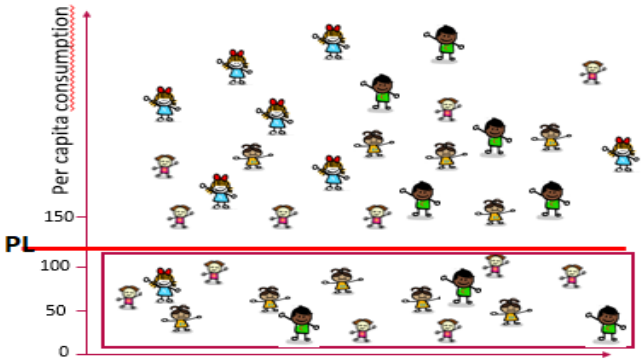
Plan

Motivations

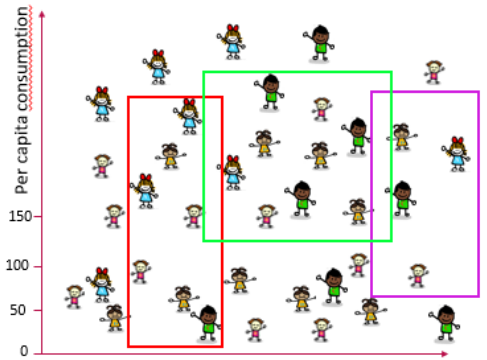
1. The extreme poverty has increased in 2020 first time in over 20 years (The World Bank, 2020)
2. 7 millions people worldwide has been pushed into extreme poverty between September 2020 and March 2021 (The World Bank, 2021)
3. Scarcity of data on money metric poverty : Multidimensional poverty as an alternative.
4. Poverty is multidimensional and money-metric poverty can miss a lot (OPHI, 2020)

Multidimensional VS Money metric poverty

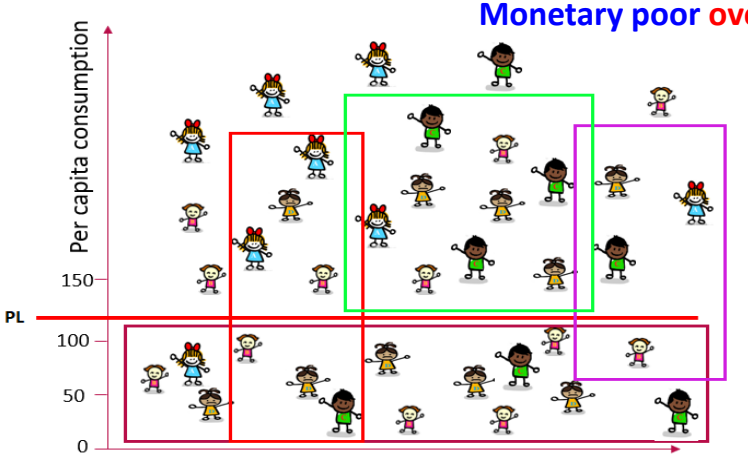
Money-metric poverty

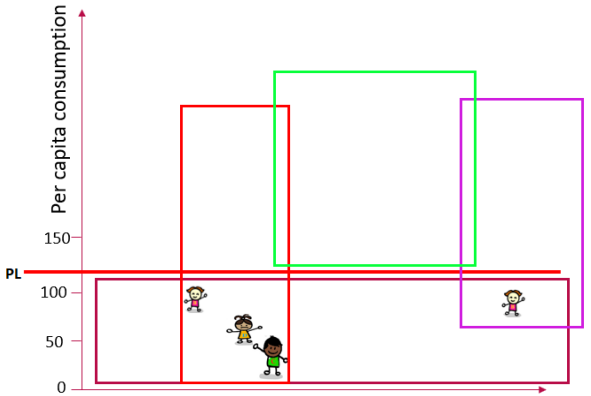


Multidimensional poverty (deprivation)



Monetary poor overlap multidimensional poor





What is Multidimensional poverty ?

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Multidimensional poverty estimates different deprivations experienced by population, such us lack of access to health, education and inadequate standard of living.

MPI in two steps

- Individuals are identified based on household achievements to determine if they are below the deprivation cut-off in each indicator
- Individuals are considered to be multidimensionally poor if the sum of weighted deprivations is higher than the setted cut-off

Steps to measure Multidimensional Poverty Index (MPI)

Following the Alkire-Foster (AF) method :

1. Select the unit(s)of identification and analysis.
2. Select the dimensions and indicators.
3. Set the deprivation cut-offs for each indicator.
4. Set the weights for each dimension/indicator.
5. Set the poverty cut-off.
6. Computation of the incidence and intensity of poverty, and of the MPI.

Example of the AF method

Deprivation Matrix	Years of schooling	Health	Sanitation	Water	
	0	0	0	0	Person 1
	1	0	0	1	Person 2
	1	1	1	1	Person 3
	0	1	0	0	Person 4
Weights	0,25	0,25	0,25	0,25	

Weighted deprivation matrix	Years of schooling	Health	Sanitation	Water	Deprivation score
	0	0	0	0	0
	0,25	0	0	0,25	0,5
	0,25	0,25	0,25	0,25	1
	0	0,25	0	0	0,25

Example of the AF method (poverty cut-off=0.5)

The **headcount ratio *H*** is the proportion of people who are poor.

$$H=\frac{Number\ of\ poor}{Total\ population}$$

$\mathbf{H=\frac{2}{4}=50\%}$ in the previous example.

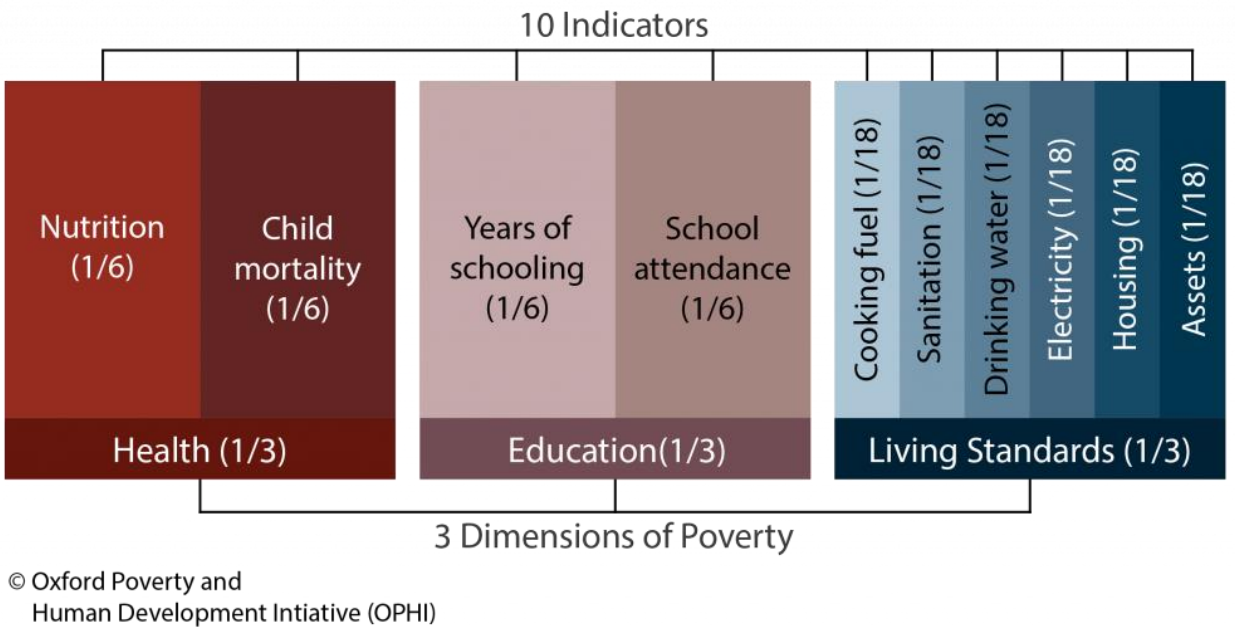
The **intensity of poverty** A is the average deprivation score among the poor.

A=75%

The **MPI** can then be obtained as the product of the incidence and the intensity of poverty.

MPI = *H* x *A* = 50% x 75% = 0.375.

OPHI's dimensions for Multidimensional Poverty



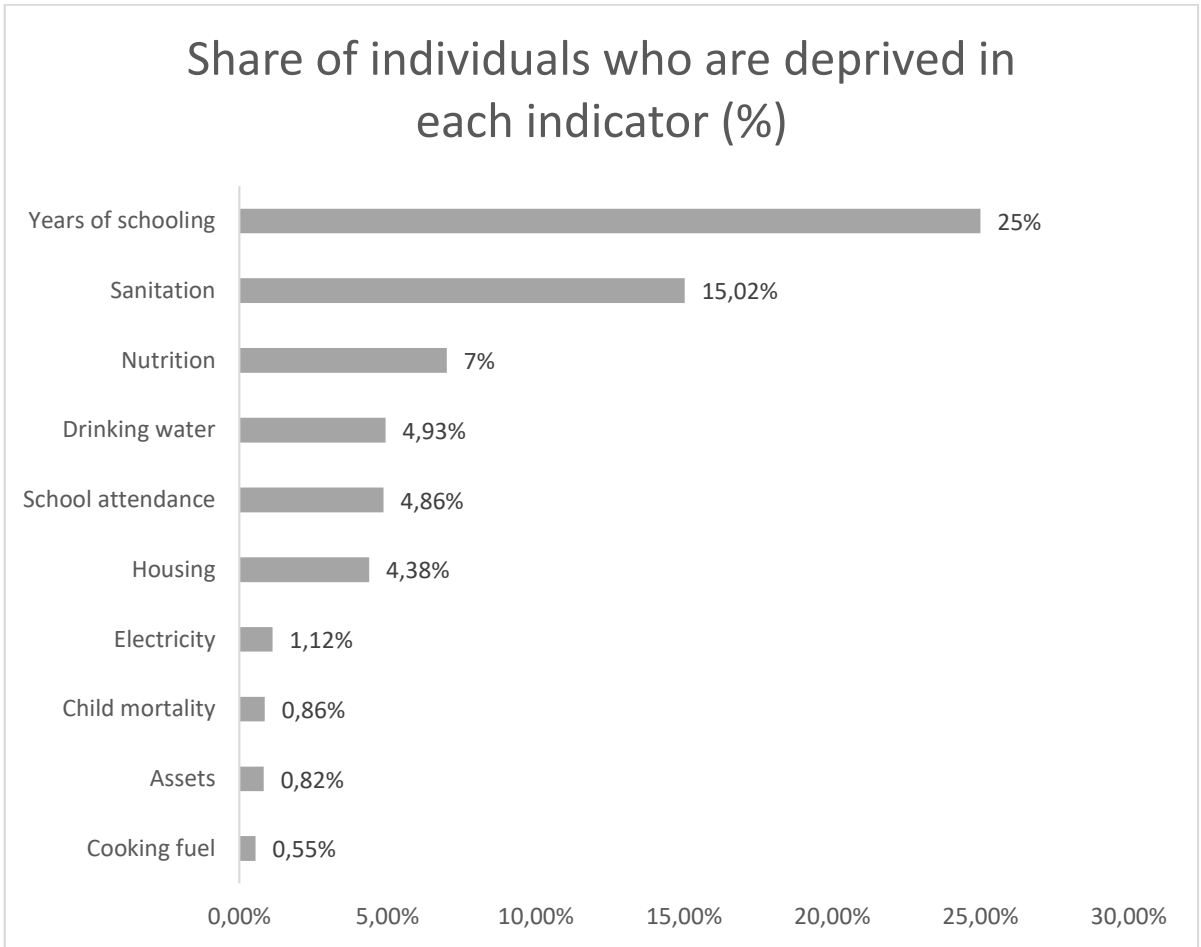
OPHI's Indicators for Multidimensional Poverty

DIMENSIONS OF POVERTY	INDICATOR	DEPRIVED IF LIVING IN A HOUSEHOLD WHERE...	WEIGHT	SDG AREA
Health (1/3)	Nutrition	Any person under 70 years of age for whom there is nutritional information is **undernourished**.	1/6	SDG 2
	Child mortality	A child **under 18** has **died** in the household in the five-year period preceding the survey.	1/6	SDG 3
Education (1/3)	Years of schooling	**No** eligible household member has completed **six years of schooling**.	1/6	SDG 4
	School attendance	Any school-aged child is **not attending** school **up to** the age at which he/she would complete **class 8**.	1/6	SDG 4
Living Standards (1/3)	Cooking fuel	A household cooks using **solid fuel**, such as dung, agricultural crop, shrubs, wood, charcoal, or coal.	1/18	SDG 7
	Sanitation	The household has **unimproved** or **no** sanitation **facility** or it is improved but **shared** with other households.	1/18	SDG 6
	Drinking water	The household's source of **drinking water** is **not safe** or safe drinking water is a **30-minute** or **longer walk** from home, roundtrip.	1/18	SDG 6
	Electricity	The household has **no electricity**.	1/18	SDG 7
	Housing	The household has **inadequate** housing materials in **any** of the three components: **floor**, **roof**, or **walls**.	1/18	SDG 11
	Assets	The household does **not own more than one** of these **assets**: radio, TV, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck.	1/18	SDG 1

MICS 6 Survey 2019

1. National representative survey covering more than 29 900 households in Algeria
2. Working on individual file (more than 151 000 individuals).
3. Focus on variables related to multidimensional poverty(SDGs indicators)

Application for Algeria



Source: Authors relying on MICS survey 2019.

MPI Algeria using OPHI dimensions (Poverty cut-off=0.33)

The **headcount ratio *H*** is the proportion of people who are poor.

$$H=\frac{Number\ of\ poor}{Total\ population}$$

H=4.76% in the previous example.

The **intensity of poverty A** is the average deprivation score among the poor.

A=38.19%

The **MPI** can then be obtained as the product of the incidence and the intensity of poverty.

MPI = *H* x *A* = 4.76% x38.19% =0.0181

Dimensions of Algeria MPI framwork

Education			Health				Living condition									Employment		Financial Inclusion
0,10	0,10		0,067	0,067	0,067		0,025	0,025	0,025	0,025	0,025	0,025	0,025	0,025		0,20		0,20
Years of schooling	School attendance		Nutrition	Mortality	Social security		Water	Sanitation	Cooking	Electricity	Waste management	Floor/roof	Overcrowding	Assets and information		Employment		Bank account
15 indicators																		

Dimension 1 : education

Dimension	Weight	Indicators name	Individual is deprived if living in household with	SDG
Education	0,10	Years of schooling	No member of the household has completed 9 years of study	SDG 4: Quality Education
	0,10	School attendance	At least one child aged between 6 and 15 at the start of the school year is not in school	SDG 4: Quality Education

Dimension 2 : health

Dimension	Weight	Indicators name	Individual is deprived if living in household with	SDGs
Health	0,067	Nutrition	Child (0-59 months) is stunted (height for age <-2) or any child is wasted (weight for height <- 2) or underweighted	SDG 2: Zero Hunger
	0,067	Mortality	At least one death of less than 18 years in the household during the last five years	SDG 3: Health and Well-being
	0,067	Social security	Not having social insurance	SDG 3: Health and Well-being

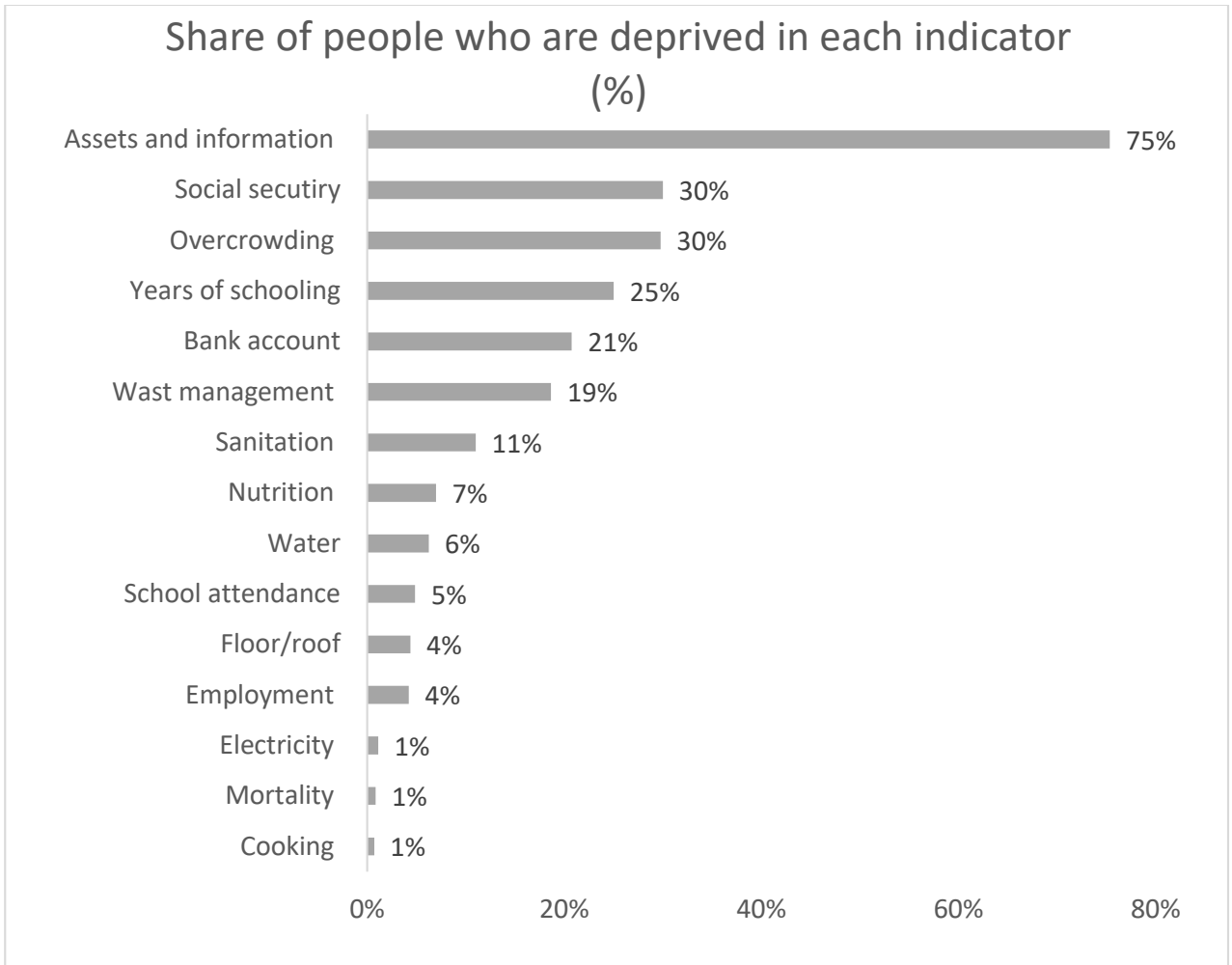
Dimension 3 : Living condition

Dimension	Weight	Indicators name	Individual is deprived if living in household with	SDG
Living condition	0,025	Water	household is not connected to the drinking water network	SDG 6: Clean Water and Sanitation
	0,025	Sanitation	Sanitations are not in the accommodation / yard / garden plot or if they are shared with people who are not members of the household	SDG 6: Clean Water and Sanitation
	0,025	Cooking	Household without a gas stove / using fuel	SDG 7: Affordable and Clean Energy
	0,025	Electricity	Households without an electric meter	SDG 7: Affordable and Clean Energy
	0,025	Waste management	Household has no garbage collector or unclean area	SDG 15: life and Land
	0,025	Floor/roof	Rammed earth / sand floor, natural or rudimentary roof and natural or rudimentary exterior walls	SDG 11: Sustainable Cities and Communities
	0,025	Overcrowding	If there are 3 or more people per room used for sleeping	SDG 11: Sustainable Cities and Communities
	0,025	Assets and information	Households with no water heater / cumulus, no oil bath or heating, no television or refrigerator, no internet or means of access to information (television, radio, smartphone, pc / laptop, tablet)	SDG 1: No poverty

Employment and financial inclusion dimensions

Dimensions	Weight	Indicators name	Individual is deprived if living in household with	SDG
Employment	0,20	Employment	Household member 16-65 looking for job	SDG8. Decent work and economic growth
Financial inclusion	0,20	Bank account	No household member has bank account	SDG 1: A end poverty

Overall deprivation by indicator



Estimation of Multidimensional Poverty Index (poverty cut-off=0.33)

The **headcount ratio *H*** is the proportion of people who are poor.

$$H=\frac{Number\ of\ poor}{Total\ population}$$

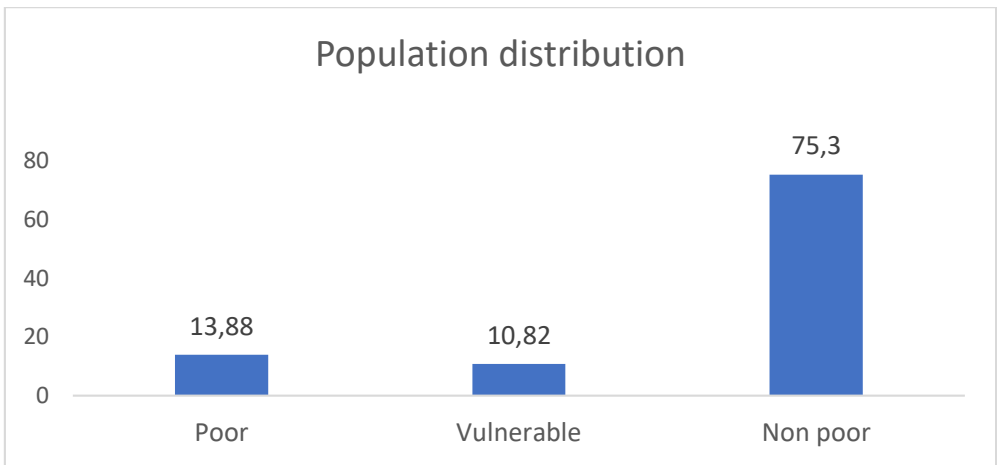
$$\mathbf{H=13.88\%}$$

The **intensity of poverty** A is the average deprivation score among the poor.

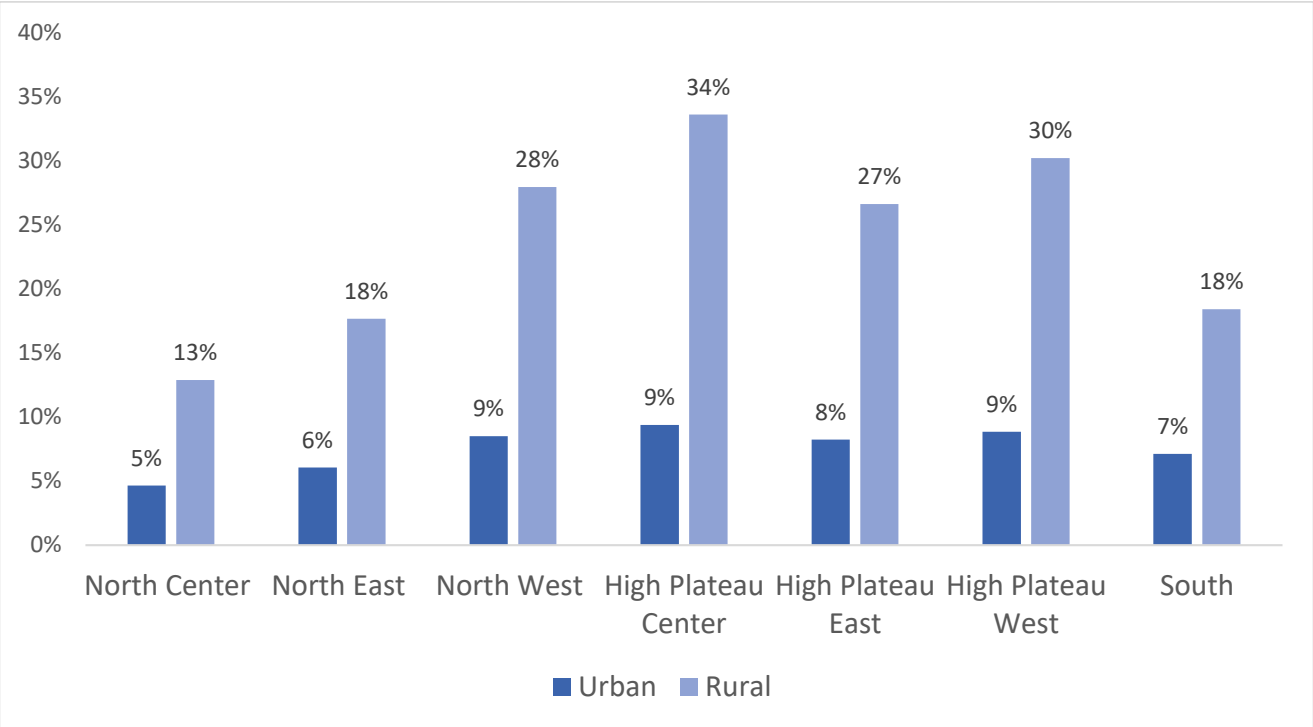
A=42.02%

The **MPI** can then be obtained as the product of the incidence and the intensity of poverty.

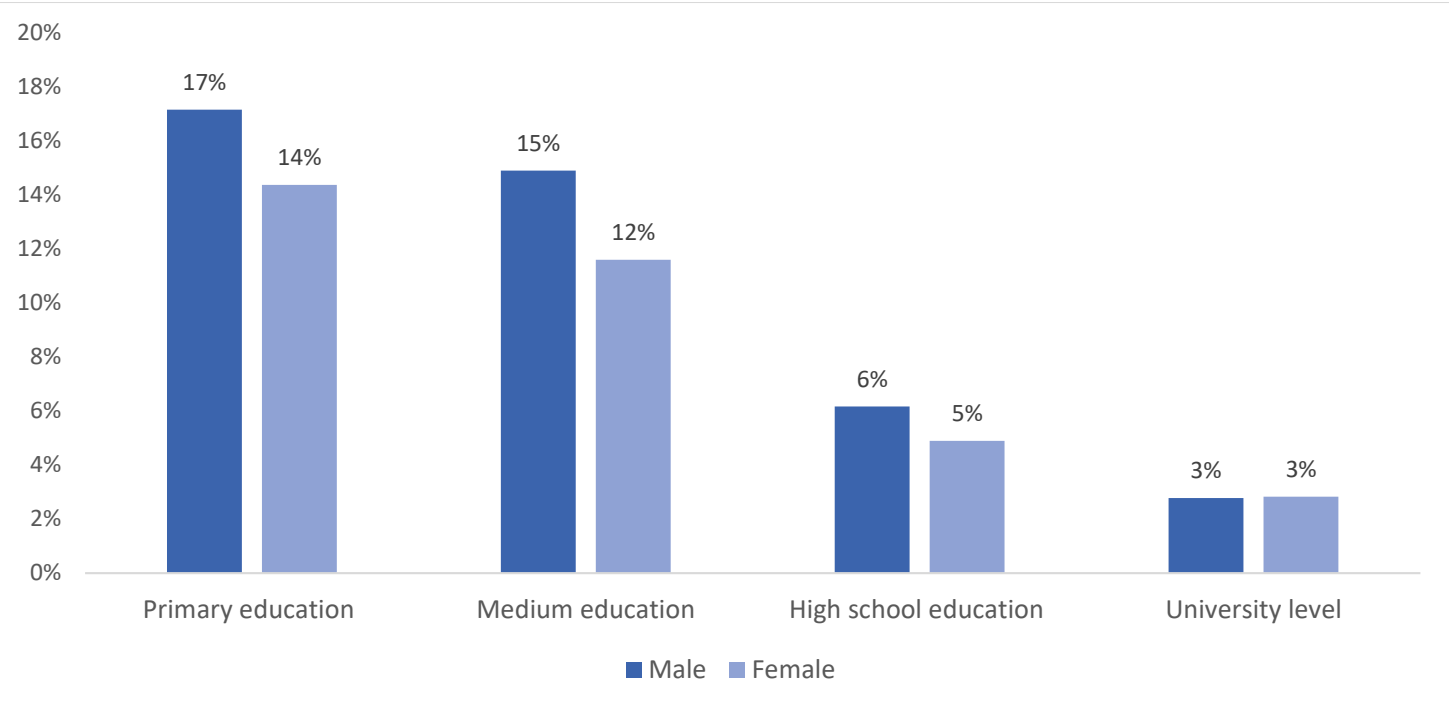
MPI = *H* x *A* = 13.88% x42.08% = 5,8%



Poverty headcount by region



Poverty headcount by education and gender



Econometric models (binary logit)

$$PH = \gamma * SB_i + \delta * SD_i + \varepsilon_i$$

- PH : The probability of being poor
- SB : receiving social benifits
- SD : socio-demographics

The result of the logit model

Variables	Likelihood of being poor
Youth	1.88 more likely
Female	1.25 less likely
Medium education	1.36 less likely
Secondary education	3.70 less likely
University education	7.69 less likely
Rural	3.03 more likely

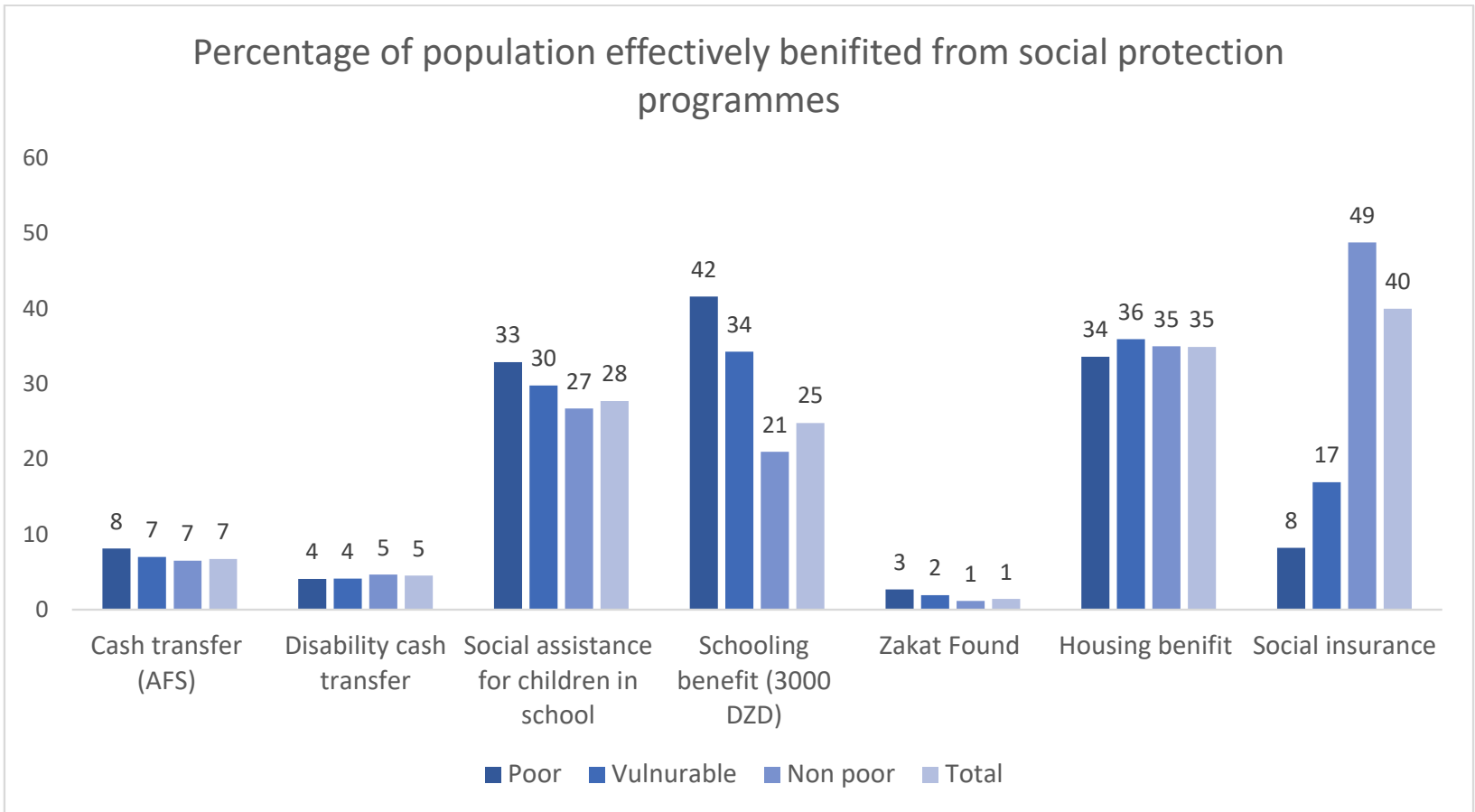
0. Results of the logit model having being poor (dummy) as dependant variable

The result of the logit model

Variables	Likelihood of being poor
North east	1.43 more likely
North west	2.03 more likely
High plateau center	2.2 more likely
High plateau east	2.05 more likely
High plateau west	2.09 more likely
South	1.28 more likely
Benefited social housing aid	1.26 less likely
Benefited from social assistance	1.16 more likely

0. Results of the logit model having being poor (dummy) as dependant variable

Social protection exclusion and inclusion errors



Policy recommendations enhancing social coverage

- Facilitate access to equipment and information by developing the banking system and allowing people to have loans for consumption, particularly for consumption of local products
- Rethink social protection programmes to target the poor more effectively.
- Social policy programmes need to pay more attention to people in rural areas and the high plateau, young people, and informal workers who have no social security coverage.
- Find an additional fiscal space to invest in social infrastructure covering all the Algerian territories.
- Invest more in quality education.

Comments very much appreciated !