



Republic of Lebanon
Presidency of the Council of Ministers

***Emergency National Poverty
Targeting Program***
Central Management Unit

***Extreme Poverty Gap, Severity and
Exit Time***

This report calculates extreme poverty gap, severity and exit time for the beneficiary Households of the Emergency National Poverty Targeting Program.

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In this report, the Central Management Unit, of the Emergency National Poverty Targeting Program at the Presidency of the Council of Ministers, calculates the extreme poverty gap, severity¹ and extreme poverty exit time².

The above mentioned poverty indicators were calculated for 77,028 HHs (337,465 members) that were classified as beneficiaries by CMU until December 2014.

I. Poverty Gap

Poverty gap is defined as the mean shortfall from the poverty line expressed as a percentage of the poverty line. It is calculated by:

$$PG = \frac{1}{n} \sum_{i=1}^n \frac{(z - y_i)}{z}; \text{ where}$$

PG: poverty gap

n: number of HHs

z: extreme poverty line

y: expenditures/capita/day (derived from the scores of the HHs)

i: index number

The poverty gap had a value of 30.3% of the poverty line. This shows that on average, the beneficiaries of the ENPTP are around 30% below the extreme poverty line which is equal to 3.84\$/capita/day. In other words, the beneficiaries are living on an average of 2.7\$/capita/day.

But since the expenditures of the extreme poor HHs are not homogenous and have a lot of variation amongst them, the beneficiaries were divided into quintiles and the poverty gap was calculated for each quintile.

The most extreme poor HHs, HHs in the 1st quintile, have the highest poverty gap value with 55% of the extreme poverty line, while the least extreme poor, 5th quintile, have the least PG value with 6%.

Table 1: Poverty Gap by Quintile

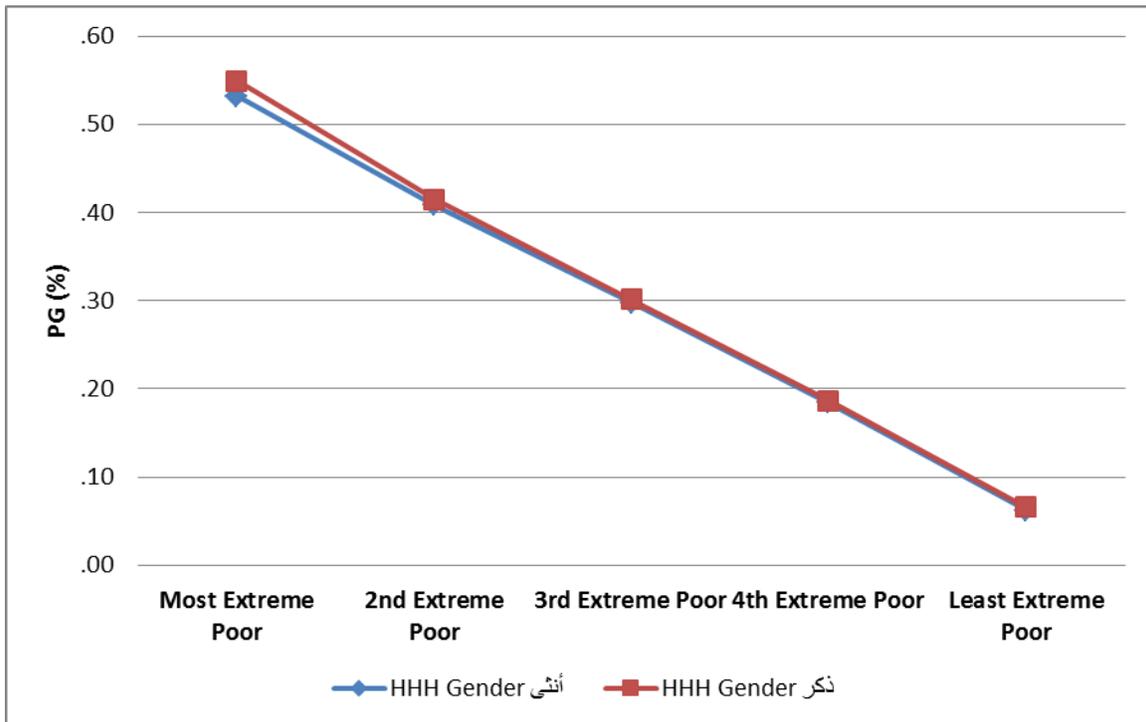
Quintiles	PG
Most Extreme Poor	55%
2nd Extreme Poor	41%
3rd Extreme Poor	30%
4th Extreme Poor	19%
Least Extreme Poor	6%

1. "Poverty Measures". The World Bank. 2009

2. Morduch, J.1998, Poverty, economic growth and average exit time, Economics Letters, 59: 385-390.

When HH head gender is taken into consideration, male headed HHs have an average PG of 32.8% versus 21.7% for female headed HHs ($p < 0.05$). This shows that female headed HHs are closer to the poverty line than those HHs headed by a male. This result is also valid when quintiles were included in the analysis. But in every quintile, the difference between male and female headed HHs is slightly lower in favor of female headed HHs.

Figure 1:Poverty Gap By Quintile and HH Head Gender



After calculating the poverty gap, CMU calculated the amount of transfers needed to eliminate extreme poverty assuming all the transfers are perfectly targeting the extreme poor HHs without any costs.

$$\text{Amount needed per year to eliminate extreme poverty} = (PG) \times (\text{yearly extreme poverty line}) \times (\text{number of beneficiary members})$$

The calculations shows that for the 337,465 beneficiary members to exit extreme poverty, we need perfect transfers of around \$144 Mill USD per year.

II. Poverty Severity

Squaring the poverty gap will give us an indicator to the severity of poverty, inequality among the poor. The same formula that is used to calculate the poverty gap is used to calculate poverty severity but with a squared numerator.

Poverty severity for all the beneficiaries has a value of 12.2%. This indicator is calculated by quintile.

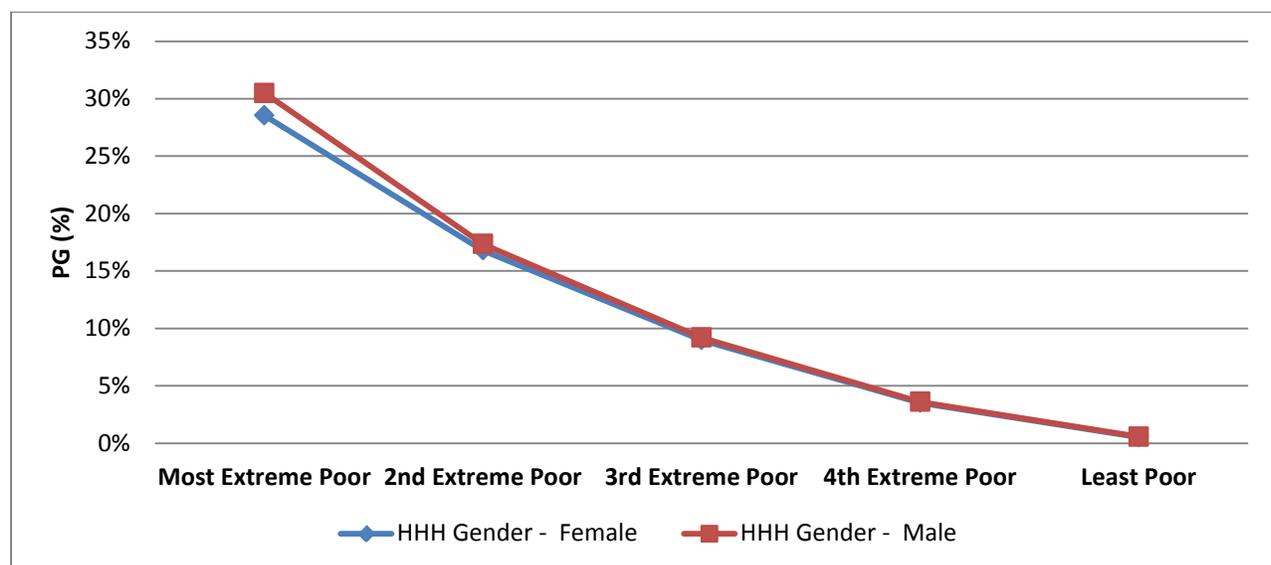
Table 2: : Poverty Severity by Quintile

Quintiles	PS
Most Extreme Poor	30.3%
2nd Extreme Poor	17.0%
3rd Extreme Poor	9.0%
4th Extreme Poor	3.5%
Least Extreme Poor	0.5%

Severity or inequality between the extreme poor HHs is highest in the 1st quintile, HHs suffering from most extreme poverty. This indicator decreases significantly when we go from the 1st till the fifth quintile. The least extreme poor HHs, HHs in the 5th quintile, have a very low severity indicator less than 1%. This shows that inequality between HHs in this group is negligible.

PS was calculated by HH head gender and it was found that male headed HHs have 2x the inequality of female headed HHs, 13.76% versus 6.84% respectively. As for PS in quintiles by HH head gender, male headed HHs has slightly higher PS values than females headed HHs.

Figure 2: Poverty Severity By Quintile and HH Head Gender



III. Poverty Exit Time

Poverty exit time is the average time needed by a Household living below poverty line to exit poverty when its income or expenditures increases by a fixed constant growth rate over the years with all other factors being constant.

To calculate the average poverty exit time, we used the following formula:

$$T_g = \frac{1}{n} \sum_{i=1}^n \frac{\ln(z/y_i)}{g}; \text{ where}$$

T: average exit time in years

g: fixed growth rate

n: number of HHs

z: extreme poverty line (monthly)

y: expenditures/capita/month (derived from the scores of the HHs)

i: index number

Extreme poverty exit times were calculated for all the beneficiary HHs and it was found to be 40 years for a growth rate of 1% and 5.6 years for a growth rate of 5%.

As in poverty gap, the beneficiaries were divided into quintiles and the exit times were calculated for each quintile.

Table 2 shows the different poverty exit times for the quintiles for several scenarios of percentage increase in expenditures. For the 1st quintile, most extreme poor HHs, if growth rate is set at 1%, then it would take the HHs around 80 years to exit extreme poverty and 16 years if growth rate is set at 5%. As for the 5th quintile, the least extreme poor HHs, the average extreme poverty exit time is 6.7 years for a growth rate of 1 % and around 1 year if growth is set at 7%.

Table 2: Estimation of the Average Extreme Poverty Exit Time (yrs) based on Several Scenarios of Percentage Increase in Expenditures

Quintile	Exp. +1%	Exp. +2%	Exp. +5%	Exp. +7%	Exp. +10%
Most Extreme Poor	80.2	40.1	16	11.4	8
2nd Extreme Poor	53.6	26.8	10.7	7.6	5.3
3rd Extreme Poor	35.8	17.9	7.1	5.1	3.5
4th Extreme Poor	20.6	10.3	4.1	2.9	2
Least Extreme Poor	6.7	3.3	1.3	0.9	0.6

We realized that the variation in exit times is large within the most poor HHs and small within the least poor HHs when compared with different growth scenarios.

Figure 2: Estimation of the Average Extreme Poverty Exit Time (yrs) based on Several Scenarios of Percentage Increase in Expenditures

