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Impact of Universal and Conditional Cash Transfers on Poverty and Inequality
Poverty Analysis

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1 Introduction

Ending poverty and reducing inequality are at the heart of the Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities). Despite global progress, many developing economies, including Senegal, continue to face persistent disparities in wealth distribution and access to essential resources. Social protection policies, particularly cash transfer programs, have emerged as critical instruments in the fight against poverty, aiming to provide financial support to vulnerable populations while stimulating inclusive economic growth. However, the effectiveness of these interventions remains a subject of debate, with questions surrounding their impact, efficiency, and sustainability.

This paper evaluates the impact of cash transfer programs on poverty and inequality in Senegal, using data from the 2018 Harmonized Survey on Households' Living Conditions (EHCVM). To ensure relevance to current economic conditions, the dataset has been adjusted to reflect the demographic and economic context of 2023 through a process of data aging, which accounts for population growth, inflation, and GDP evolution. The study examines how different cash transfer scenarios affect poverty levels, income distribution, and financial vulnerability, offering valuable insights into their role in poverty alleviation. By leveraging the Foster-Greer-Thorbecke (FGT) indices and the Gini coefficient, this analysis provides a comprehensive assessment of how various policies reshape economic disparities and improve household welfare. The theoretical foundation of this study draws from Amartya Sen's capability approach, which emphasizes that poverty is not merely a lack of income but a deprivation of basic freedoms and opportunities. Cash transfers have the potential to expand these capabilities, enabling households to make autonomous financial decisions and invest in health, education, and economic opportunities. Furthermore, research by Ravallion (2016) and Devereux (2019) highlights that well-designed social protection programs can generate long-term socio-economic benefits, but their success depends on targeting mechanisms, financial feasibility, and overall policy coherence.

This paper seeks to answer a fundamental question : How do different social protection policies impact poverty and inequality in Senegal in 2023 ? By analyzing a range of cash transfer scenarios, we aim to identify the most effective and efficient interventions that can inform evidence-based policymaking. Given the limited fiscal space of many developing economies, understanding the trade-offs between cost, coverage, and effectiveness is crucial in designing sustainable poverty reduction strategies. Ultimately, this study contributes to the broader discourse on the role of social protection in fostering economic resilience and reducing structural inequalities.

2 Policy description

2.1 List of policy scenarios

We are studying the impact of eight (08) different cash transfer policies. The first of is universal when the others are Conditional Cash Transfers (CCT).

The Universal Cash Transfer policy provides an annual stipend of 100,000 CFA to all households, ensuring widespread coverage without any eligibility restrictions. This approach aims to provide broad financial support to the population, reducing overall poverty but at a high financial cost due to its universal nature. While it guarantees inclusivity, it may not be the most efficient way to target the poorest households.

The Rural Universal Cash Transfer policy restricts benefits to rural households, where poverty levels tend to be higher. By focusing on rural areas, the policy aims to bridge the economic gap between urban and rural communities.

The Households with Children Under 2 policy directs financial assistance to families with infants under the age of two. This policy can be designed to support early childhood development, covering essential needs such as healthcare, nutrition, and childcare expenses.

A more targeted version, the Households with Children Under 2 in Rural Areas policy, limits transfers to rural families with infants under two. This refined approach ensures that aid reaches those facing both geographic and age-related vulnerabilities, maximizing efficiency by assisting the most at-risk households.

Expanding the scope slightly, the Households with Children Under 5 policy provides financial aid to families with children under five years old. This policy can support early childhood education, healthcare, and overall family welfare.

The Households with Children Under 18 policy extends support to families with minors, offering financial assistance for education, healthcare, and basic needs. This policy can seem more inclusive than previous child-focused scenarios, ensuring that older children also benefit.

The Households with Elders policy targets families with at least one member aged 65 or older. Given that elderly individuals often face financial insecurity, health issues, and limited employment opportunities, this policy seeks to provide stability and support for aging populations.

Finally, the Households with a Disabled Member policy provides cash transfers to households with at least one disabled member. This approach prioritizes individuals who may face employment barriers and additional healthcare expenses.

Each policy varies in coverage, cost, and efficiency, balancing broad support with targeted assistance to specific vulnerable groups. Below is a description summary of the different policies.

Scenarios	Implementation
Universal Cash transfer	All households receive an annual stipend of 100,000.
Rural Universal Cash Transfer	All rural households receive the stipend.
Households with children under 2	Only households with children aged under 2 receive the stipend
Households with children under 2 in rural area	Only households in the rural area with child aged under 2 receive the stipend
Households with children under 5	Only households with children aged under 5 receive the stipend.
Households with children under 18	Only households with children aged under 18 receive the stipend
Households with elders	Only households with a member aged more than 65 receive the stipend
Households with member with disability	Only households containing at least one disabled member receive the stipend

FIGURE 1 – List of Scenarios

2.2 Costs assessesments

Scenario	Cost	Pct of GDP
Scenario 1	206 581 530 624	1,34%
Scenario 6	182 663 299 072	1,18%
Scenario 5	132 564 426 752	0,86%
Scenario 2	96 149 929 984	0,62%
Scenario 3	79 166 627 840	0,51%
Scenario 7	61 841 682 432	0,40%
Scenario 8	49 469 530 112	0,32%
Scenario 4	45 833 060 352	0,30%

FIGURE 2 – Table : Costs of policies

The previous table provides a breakdown of the cost of each cash transfer scenario and its share of Senegal's 2023 GDP. Note that these are assessments. The Universal Cash Transfer (Scenario 1) is the most expensive policy, with a total cost of 206.58 billion CFA, representing 1.34% of GDP. This is expected, as this policy provides financial support to all households, making it the broadest and most costly intervention.

The second most expensive policy is Scenario 6, which targets households with children under 18. It requires 182.66 billion CFA, or 1.18% of GDP. Since this scenario includes a large portion of the population, it remains one of the more significant financial commitments. Scenario 5, which supports households with children under 5, is also among the higher-cost policies, amounting to 132.56 billion CFA (0.86% of GDP).

On the other hand, the least expensive policy is Scenario 4, which provides transfers only to households with children under 2 in rural areas. This scenario costs 45.83 billion CFA, representing just 0.30% of GDP. Because it targets a small, specific group, it requires significantly fewer resources. Similarly, Scenario 8, which supports households with a disabled member, and Scenario 7, which focuses on households with an elderly member, are among the lower-cost policies, requiring 49.47 billion CFA (0.32% of GDP) and 61.84 billion CFA (0.40% of GDP), respectively.

This cost assessment shows that more universal policies, such as Scenario 1, demand a much higher financial effort, while targeted policies, like Scenario 4, are more affordable but benefit fewer people. Policymakers must balance coverage and affordability when choosing the most effective approach to poverty reduction. Below is a ranking of policies from most expensive to least expensive.
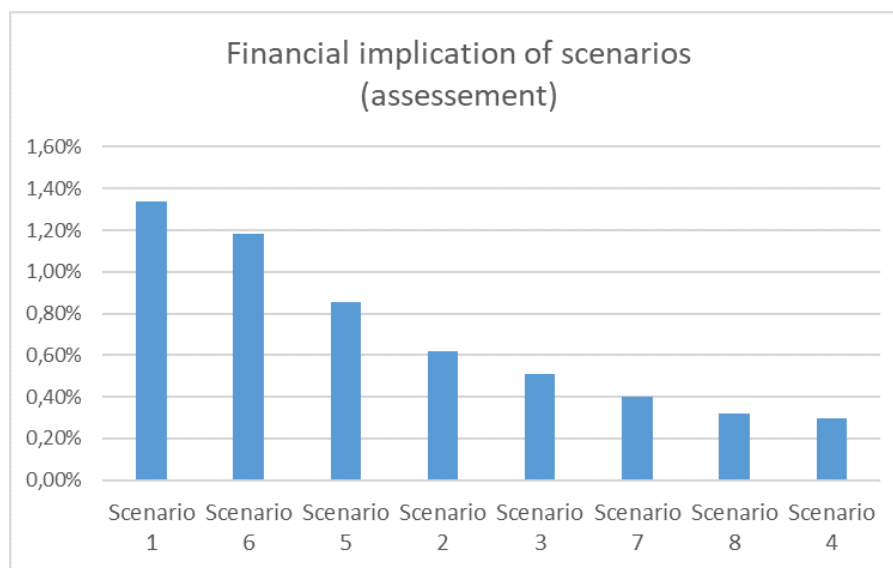

FIGURE 3 – Percentage of GDP Cost

3 Methodology

3.1 Data Source

The 2018 EHCVM dataset is a nationally representative survey that assesses poverty, inequality, and living conditions in Senegal. It provides detailed household and individual data on demographics, income, consumption, education, employment, and access to services. The dataset includes expenditure information, allowing for the calculation of poverty and inequality indicators. It serves as the baseline for this study, with adjustments made to reflect 2023 economic conditions for a more relevant analysis of cash transfer impacts.

3.2 Data Aging : to simulate 2023 conditions

To evaluate the impact of cash transfer policies in 2023, it was necessary to age the 2018 EHCVM dataset by adjusting key economic and demographic variables. This process ensures that the analysis reflects current population size, economic growth, and inflation, making the results more relevant for policy evaluation.

3.2.1 Defining Growth Parameters and Adjusting some variables

Here are the growth parameters used :
— Population growth : 15.3%. It was calculated using ANSD (Agence nationale de la Statistique et de l'Analyse Économique Pierre Ndiaye) data on their website. According to them, senegalese population in 2018 amount to 15 726 056 and the one in 2023 amounts to 18 126 390. Therefore, the population grow rate is 15.3%. This value will be used to adkust household weights.
— GDP per capita growth : 8.0%. Using World Bank data (World development indicators), we calculate the per capita DGP growth rate. The value in 2018 is 1355 dollars USD while the one in 2023 is 1463 dollars USD. It then gives us a growth rate of 8.0% (7.97
— Inflation (CPI growth) : 24.5%. It is used to upd te poverty line. The source of data is the same as the previous one. We have annual inflation rates from 2018 to 2023, representing the growth in the general price level each year. To adjust the poverty line for 2023, we need to calculate the cumulative growth factor over this period. It represents the total proportional change in the price level over multiple years, accounting for the compounded effects of annual inflation rates. Its calculation is done by multiplying the annual growth rates sequentially, ensuring the poverty threshold reflects the overall price increase from 2018 to 2023.

The following figure summarise the inflation rate beetween 2018 and 2023.

Year	Inflation rate (%)	Cumulative factor
2018	0,46%	1,005
2019	1,76%	1,022
2020	2,54%	1,048
2021	2,18%	1,071
2022	9,70%	1,175
2023	5,94%	1,245

FIGURE 4 – Calculus of Inflation rate

These rates allow to makee a realistic adjustment of household weights, per capita expenditures, and poverty thresholds.

The following transformations were applied to key household variables :
— **Household weight (hhweight_23)** : Adjusted to reflect **population growth** $\rightarrow$

$$hhweight_{23} = hhweight \times 1.153 \tag{1}$$

— **Per capita expenditure (pcexp_23)** : Adjusted based on **GDP per capita growth** $\rightarrow$

$$pcexp_{23} = pcexp \times 1.080 \tag{2}$$

— **Poverty threshold (zref_23)** : Adjusted for **inflation** $\rightarrow$

$$zref_{23} = zref \times 1.245 \tag{3}$$

3.2.2 Merging Individual-Level Data

To simulate cash transfer policies, individual characteristics (age and disability status) were extracted from the 2018 dataset and aggregated to the household level. This allowed for identifying households with children, elderly members, or disabled individuals, ensuring proper targeting for different transfer scenarios.

3.2.3 Implementing Cash Transfer Scenarios

Eight cash transfer scenarios were simulated, each applying a 100,000 CFA stipend to specific household categories. For each scenario, the per capita expenditure was recalculated to assess its impact on poverty. This adjustment allowed for measuring how different policies affected poverty indicators after the transfers were applied. For example, for Scenario one, the followong computation is done.

$$pcexp\_tran_i = pcexp\_23 + \frac{100,000}{hhsize} \tag{4}$$

Then, the dataset with the different wellfare aggregates for each scenario is put into Adept software to compute poverty and inequality indicators.

3.3 Indicators Calculation

3.3.1 Computing FGT and Gini indices

In this study, the indicators used to measure poverty and inequality are respectively FGT indicators and Gini index.

The Foster-Greer-Thorbecke (FGT) poverty measures, introduced in 1984 by James Foster, Joel Greer, and Erik Thorbecke, provide a framework for assessing poverty beyond simple headcount measures. These indices take into account not only the proportion of poor individuals but also the depth and severity of poverty. By incorporating different levels of poverty aversion, they allow for a more comprehensive analysis of poverty within a given population.

The general formula for the FGT poverty measure is given by

$$P_\alpha = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{z - y_i}{z} \right)^\alpha \tag{5}$$

where P_α represents the poverty measure for a given parameter α, N is the total population, q is the number of individuals below the poverty line, z is the poverty line, and y_i is the income or consumption level of the i-th poor individual. The parameter α determines the sensitivity of the measure to the distribution of poverty among the poor.

The first measure in the FGT class is the Headcount Ratio, obtained by setting $\alpha = 0$. This measure simply calculates the proportion of the population living below the poverty line. The formula is given by

$$P_0 = \frac{q}{N} \tag{6}$$

where P_0 represents the share of individuals whose income or consumption falls below z. Although straightforward, this measure does not account for the extent of poverty among the poor.

The second measure is the Poverty Gap Index, derived by setting $\alpha = 1$. This measure captures the average shortfall of the poor relative to the poverty line, reflecting the depth of poverty. It is defined as

$$P_1 = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{z - y_i}{z} \right) \tag{7}$$

where the poverty gap $z - y_i$ expresses the difference between the poverty line and the income of each poor individual. This measure provides insight into the cost of eliminating poverty by transferring resources to the poor.

The third measure in this framework is the Squared Poverty Gap Index, obtained by setting $\alpha = 2$. This measure places greater emphasis on the poorest individuals by squaring the poverty gaps, thus considering the severity of poverty. It is formulated as

$$P_2 = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{z - y_i}{z} \right)^2 \tag{8}$$

By giving additional weight to individuals with larger shortfalls, this index accounts for inequality among the poor and is particularly useful in policies aimed at alleviating extreme poverty.

The Gini Index, or Gini Coefficient, measures income inequality within a population. It ranges from 0, representing perfect equality where all individuals have the same income, to 1, indicating maximum inequality where all income is concentrated in a single individual.

The Gini Index is given by :

$$G = \frac{1}{2n^2\mu} \sum_{i=1}^{n} \sum_{j=1}^{n} |x_i - x_j| \tag{9}$$

where n is the total population size, x_i and x_j are individual incomes, and μ is the mean income.

The Gini Index is widely used by economists, governments, and international organizations to analyze income inequality and social disparity. It helps assess economic policies, wealth distribution, and social justice. A Gini coefficient close to 0 indicates an equal income distribution, while values closer to 1 suggest significant inequality. Countries with Gini indices below 0.3 are considered relatively equal, while those above 0.5 experience high inequality.

3.4 Comparing 2018 and 2023 situations

The data aging process reveals a sharp deterioration in poverty indicators between 2018 and 2023. The poverty headcount rate increased from 37.8% to 48.1% nationally (+27.4%), with urban areas experiencing the largest relative increase (+45.1%), while rural poverty, already high, rose from 53.6% to 65.1% (+21.6%). This suggests that economic conditions have worsened, particularly in cities.

The poverty gap, which measures how far below the poverty line poor individuals are, expanded by 42% nationally, rising more in urban areas (+56.0%) than in rural areas (+38.3%). The squared poverty gap, which reflects the severity of poverty, saw a dramatic increase of 63.1% in urban areas and 51.7% in rural areas, highlighting a deepening of poverty, especially among the most vulnerable. Despite worsening poverty, income inequality (Gini coefficient) remained unchanged at 35.1 nationally and 27.3 in rural areas. This indicates that poverty has risen across all income groups rather than being concentrated in specific segments. These findings underscore the growing need for targeted social protection measures to mitigate rising poverty and vulnerability.

Below is a table showing the results for the different years.

	Poverty Headcount Rate			Poverty Gap			Squared Poverty Gap			Gini Coefficient	
	2018	2023	Variation	2018	2023	Variation	2018	2023	Variation	2018	2023
Urban	19,8	28,8	45,1%	4,6	7,2	56,0%	1,7	2,7	63,1%	35,1	35,1
Rural	53,6	65,1	21,6%	15,3	21,1	38,3%	5,9	9,0	51,7%	27,3	27,3
Total	37,8	48,1	27,4%	10,3	14,6	42,0%	3,9	6,0	54,0%	35,1	35,1

FIGURE 5 – Comparison Table : 2018 vs. 2023

4 Results

4.1 In terms of Efficiency

Efficiency in poverty reduction policies measures how much impact is achieved per unit of financial resources spent. In this table, efficiency is expressed in points of percentage reduction in the poverty gap per 1 billion CFA spent. It is calculated as follows

$$\text{Efficiency} = \frac{\text{Gap}_{\text{Baseline}} - \text{Gap}_{\text{Endline}}}{\text{Total transfers}} \tag{10}$$

A higher efficiency value indicates that a policy achieves more poverty gap reduction per unit of money spent, making it more cost-effective.

Scenario	Cost	GAP baseline	GAP endline	Efficiency (points of pct of PG per 1B CFA)
Scenario 4	45 833 060 352	14,62	14,23	0,0086
Scenario 2	96 149 929 984	14,62	13,95	0,0070
Scenario 3	79 166 627 840	14,62	14,10	0,0067
Scenario 5	132 564 426 752	14,62	13,83	0,0060
Scenario 8	49 469 530 112	14,62	14,37	0,0052
Scenario 6	182 663 299 072	14,62	13,69	0,0051
Scenario 7	61 841 682 432	14,62	14,31	0,0051
Scenario 1	206 581 530 624	14,62	13,69	0,0045

FIGURE 6 – Efficiency of Different Scenarios

Among the different scenarios, Scenario 4 (Households with children under 2 in rural areas) is the most efficient, with 0.0086 points of poverty gap reduction per 1 billion CFA. This suggests that targeting a specific vulnerable group in rural areas leads to higher cost-effectiveness, as the funds are concentrated where the need is greatest. Scenario 2 (Rural Universal Cash Transfer) follows with an efficiency of 0.0070, confirming that focusing on rural poverty is an effective strategy. On the other hand, Scenario 1 (Universal Cash Transfer) is the least efficient, with only 0.0045 points per 1 billion CFA. This reflects the downside of broad, untargeted policies, where significant funds go to households that may not be in extreme poverty, reducing overall impact per unit of cost. Similarly, Scenario 6 (Households with children under 18) and Scenario 7 (Households with an elderly member) also show lower efficiency values (0.0051), suggesting that while they reduce poverty, their cost-effectiveness is lower compared to more targeted interventions.

4.2 In terms of impact on Poverty (FGT Indicators) and Inequality (Gini Index)

4.2.1 Comparison at national level

The table presents the impact of different cash transfer policies on poverty and inequality at the national level, using key poverty and inequality indicators : the Gini coefficient, the poverty head-

count rate, the poverty gap, and the squared poverty gap. Each scenario represents a different policy intervention, and the variations indicate how much they improve poverty and inequality compared to 2023 baseline values. The greater the variation (in terms of absolute value), the more effectively the policy reduces poverty.

	National							
	Gini Coefficient		Poverty Headcount Rate		Poverty Gap		Squared Poverty Gap	
	Value	Variation	Value	Variation	Value	Variation	Value	Variation
2023	35,1		48,1		14,6		6,0	
Scénario 1	34,8	-0,9%	46,3	-3,8%	13,7	-6,4%	5,5	-8,7%
Scénario 2	34,7	-1,2%	47,1	-2,1%	14,0	-4,6%	5,6	-6,6%
Scénario 3	34,8	-0,9%	47,2	-1,8%	14,1	-3,6%	5,7	-5,1%
Scénario 4	34,8	-0,8%	47,6	-1,0%	14,2	-2,7%	5,8	-4,0%
Scénario 5	34,7	-1,2%	46,6	-3,2%	13,8	-5,4%	5,6	-7,5%
Scénario 6	34,7	-1,2%	46,3	-3,8%	13,7	-6,4%	5,5	-8,6%
Scénario 7	35,0	-0,4%	47,5	-1,3%	14,3	-2,1%	5,9	-3,0%
Scénario 8	35,0	-0,3%	47,7	-0,9%	14,4	-1,7%	5,9	-2,4%

FIGURE 7 – National Level Comparison

The most effective policies in reducing the poverty headcount rate are Scenario 1 (universal cash transfer) and Scenario 6 (households with children under 18), both reducing the poverty rate by -3.8%. These policies cover large portions of the population, making them effective at lifting a significant number of people above the poverty line. Scenario 5 (households with children under 5) also performs well (-3.2%), indicating that supporting families with young children has a strong impact on poverty reduction. Conversely, Scenario 8 (households with a disabled member) and Scenario 4 (households with children under 2 in rural areas) are the least effective in reducing the poverty headcount, with reductions of only -0.9% and -1.0%, respectively. While these policies target specific vulnerable groups, their narrow reach limits their ability to significantly reduce overall poverty levels.

The poverty gap shows the average distance of poor individuals from the poverty line, while the squared poverty gap gives more weight to the poorest individuals. Larger reductions indica te that a policy not only lifts people out of poverty but also improves conditions for the poorest households. The strongest reductions in the poverty gap and squared poverty gap are seen in Scenario 1 (universal cash transfer) and Scenario 6 (households with children under 18), both reducing the poverty gap by -6.4% and squared poverty gap by approximately -8.6% to -8.7%. This confirms that these policies not only reduce poverty rates but also significantly improve the living conditions of the poorest households.

Scenario 5 (households with children under 5) follows closely behind, with a poverty gap reduction of -5.4% and squared poverty gap reduction of -7.5%, reinforcing the importance of early childhood support. At the other end, Scenario 8 (households with a disabled member) and Scenario 7 (households with an elderly member) are the least effective in improving poverty depth, with reductions of only -1.7% and -2.1% in the poverty gap and -2.4% and -3.0% in the squared poverty gap, respectively. This suggests that while these groups are vulnerable, the amount of support provided through these policies is not enough to make a substantial difference in reducing extreme poverty among beneficiaries.

The Gini coefficient measures income inequality, with lower values indicating a more equal income distribution. All cash transfer policies reduce inequality, but to varying degrees. The most effective scenarios in reducing inequality are Scenario 2, Scenario 5, and Scenario 6, all showing a -1.2% variation in the Gini coefficient. Scenario 2 (cash transfers for all rural households), Scenario 5 (households with children under 5), and Scenario 6 (households with children under 18) seem to be the most efficient in narrowing income disparities, likely because they target large vulnerable groups with high financial needs. On the other hand, Scenario 8 (households with a disabled member) and Scenario 7 (households with an elderly member) have the least impact on inequality, with reductions of only -0.3% and -0.4%, respectively. This suggests that while these groups are vulnerable, fewer

households qualify for these transfers, making the overall effect on inequality less significant. Below is a graph showing the variation of each indicator by scenario.
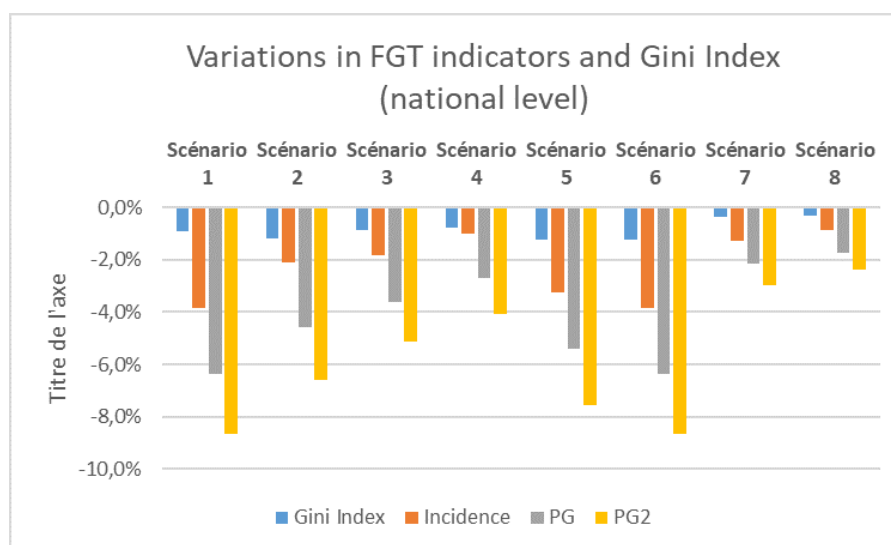

FIGURE 8 – Graph : National Level Comparison

4.2.2 In Urban and Rural areas

The previous analysis can be done for urban and rural areas separately. The following table presents the impact of different cash transfer policies in rural areas, using key poverty (FGT indices) and inequality (Gini coefficient) indicators. The variations indicate how much each policy improves the situation compared to 2023 baseline values.

	Urban							
	Gini Coefficient		**Poverty Headcount Rate**		**Poverty Gap**		**Squared Poverty Gap**	
	Value	**Variation**	**Value**	**Variation**	**Value**	**Variation**	**Value**	**Variation**
2023	35,1		28,8		7,2		2,7	
Scénario 1	34,9	–0,7%	27,0	–6,2%	6,7	–7,7%	2,5	–9,8%
Scénario 2	35,1	0,0%	28,8	0,0%	7,2	0,0%	2,7	0,0%
Scénario 3	34,9	–0,6%	27,9	–3,0%	7,0	–3,9%	2,6	–5,0%
Scénario 4	35,1	0,0%	28,8	0,0%	7,2	0,0%	2,7	0,0%
Scénario 5	34,8	–0,9%	27,3	–5,2%	6,8	–6,2%	2,5	–7,9%
Scénario 6	34,7	–1,1%	27,0	–6,2%	6,7	–7,6%	2,5	–9,7%
Scénario 7	35,0	–0,2%	28,2	–2,2%	7,1	–2,3%	2,6	–2,9%
Scénario 8	35,0	–0,3%	28,4	–1,4%	7,1	–2,1%	2,6	–2,8%

FIGURE 9 – Urban Level Comparison

The most effective policies in reducing poverty are Scenario 1 (Universal Cash Transfer) and Scenario 6 (Households with children under 18), both reducing the poverty headcount by -6.2%. These two policies cover large portions of the population, making them highly effective in lifting people out of poverty. Scenario 1 is particularly impactful because it reaches all households, while Scenario 6 specifically targets families with children, ensuring resources go to households that are likely to face higher financial needs. Another strong performer is Scenario 5 (Households with children under 5), which reduces the poverty headcount by -5.2%. This suggests that supporting younger children is an effective way to alleviate poverty in rural areas. Since early childhood is a critical stage for development, policies targeting these households are particularly beneficial for long-term poverty reduction.

On the other hand, Scenario 2 (Rural Universal Cash Transfer) and Scenario 4 (Households with children under 2 in rural areas) show no impact on poverty, with a 0.0% variation across all FGT

indicators. This suggests that these policies either do not sufficiently cover the poorest groups or do not provide enough financial support to make a noticeable difference. Similarly, Scenario 8 (Households with a disabled member) and Scenario 7 (Households with an elderly member) have the smallest effects, with a poverty headcount reduction of only -1.4% and -2.2%, respectively. While these groups are vulnerable, their limited size means that the overall effect on poverty is smaller compared to broader policies.

Looking at the poverty gap, Scenario 1 and Scenario 6 again show the largest reductions at -7.7% and -7.6%, respectively, confirming that these policies not only reduce the number of poor people but also help improve conditions for the poorest households. Scenario 5 follows closely (-6.2%), reinforcing the importance of child-focused interventions. Finally, the squared poverty gap, which focuses on the poorest of the poor, shows the biggest reductions in Scenario 1 (-9.8%) and Scenario 6 (-9.7%), with Scenario 5 also performing well at -7.9%. This confirms that these policies are the most effective in reaching and improving the conditions of the most vulnerable rural populations.

Most cash transfer policies have only a slight impact on inequality. The strongest reduction in inequality is seen in Scenario 6 (Households with children under 18) with a -1.1% decrease, followed closely by Scenario 5 (Households with children under 5) at -0.9%. These results indicate that targeting families with children is an effective way to reduce income disparities in rural areas. Scenario 1 (Universal Cash Transfer) also contributes to reducing inequality (-0.7%), as broad-based cash transfers tend to redistribute income. However, universal policies also reach wealthier households, which slightly limits their effectiveness in narrowing income gaps.

The least effective policies for inequality reduction are Scenario 2 (Rural Universal Cash Transfer) and Scenario 4 (Households with children under 2 in rural areas), both showing no variation (0.0%). This suggests that these policies do not significantly change income distribution, possibly because they provide equal benefits to both poorer and wealthier rural households. Similarly, Scenario 8 (Households with a disabled member) and Scenario 7 (Households with an elderly member) show only slight improvements (-0.3% and -0.2%), indicating that these transfers help specific households but do not significantly affect overall income inequality. Below is a graph showing the variation of each indicator by scenario in urban area.
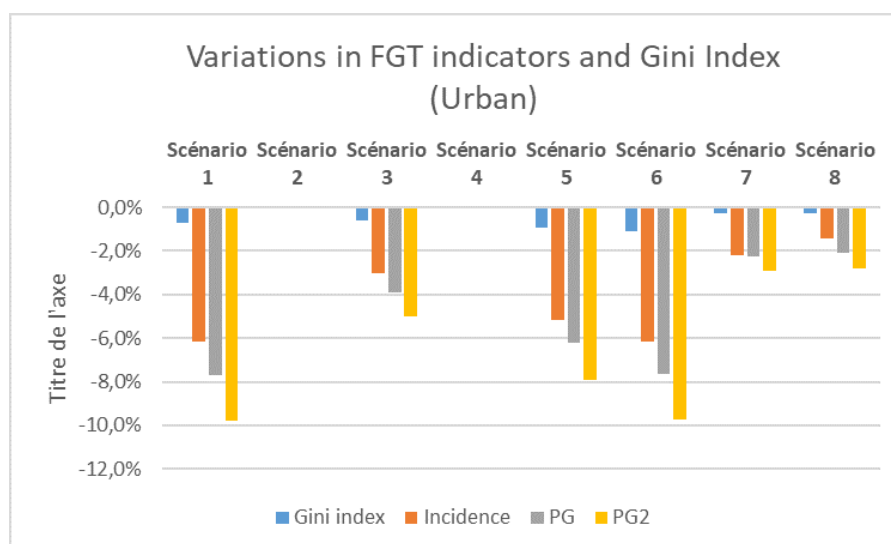

FIGURE 10 – Graph : Urban Level Comparison

Moving on to rural area, it appears that most effective policies in reducing poverty are Scenario 1 (Universal Cash Transfer) and Scenario 6 (Households with children under 18), both showing a -6.2% decrease in the poverty headcount rate. These policies cover a large proportion of the urban population, ensuring significant financial support and lifting a considerable number of people above

the poverty line. The universal nature of Scenario 1 makes it widely impactful, while Scenario 6 is highly effective because it supports families with children, who often face financial strain in urban environments.

Another effective policy is Scenario 5 (Households with children under 5), which reduces the poverty headcount rate by -5.2%. This highlights the importance of supporting early childhood development, as young children in urban areas are particularly vulnerable to economic instability.

	Rural							
	Gini Coefficient		Poverty Headcount Rate		Poverty Gap		Squared Poverty Gap	
	Value	Variation	Value	Variation	Value	Variation	Value	Variation
2023	27,3		65,1		21,1		9,0	
Scénario 1	27,0	-1,0%	63,2	-2,9%	19,9	-6,0%	8,2	-8,4%
Scénario 2	27,0	-1,0%	63,2	-2,9%	19,9	-6,0%	8,2	-8,4%
Scénario 3	27,0	-1,1%	64,2	-1,4%	20,4	-3,5%	8,5	-5,1%
Scénario 4	27,0	-1,1%	64,2	-1,4%	20,4	-3,5%	8,5	-5,1%
Scénario 5	26,9	-1,5%	63,5	-2,5%	20,0	-5,2%	8,3	-7,4%
Scénario 6	26,9	-1,3%	63,2	-2,9%	19,9	-6,0%	8,2	-8,4%
Scénario 7	27,2	-0,4%	64,5	-0,9%	20,7	-2,1%	8,7	-3,0%
Scénario 8	27,2	-0,3%	64,7	-0,7%	20,8	-1,6%	8,8	-2,3%

FIGURE 11 – Rural Level Comparison

At the other extreme, Scenario 8 (Households with a disabled member) and Scenario 4 (Households with children under 2 in rural areas) show no impact on urban poverty, with a 0.0% variation across all FGT indicators. This suggests that these policies are not designed to address urban poverty or fail to reach enough households to make a measurable difference. Similarly, Scenario 7 (Households with an elderly member) shows only a -2.2% reduction in the poverty headcount rate, confirming that targeting older individuals has a limited impact on urban poverty.

Examining the poverty gap, which measures how far poor individuals are from the poverty line, Scenarios 1 and 6 show the largest reductions (-7.7% and -7.6%), meaning that these policies not only reduce the number of poor people but also improve their financial situation. Scenario 5 follows closely (-6.2%), reinforcing that child-focused transfers are highly effective in reducing urban poverty.

The squared poverty gap, which focuses on the poorest of the poor, also shows the strongest reductions in Scenario 1 (-9.8%) and Scenario 6 (-9.7%), followed by Scenario 5 (-7.9%). These findings confirm that these policies help the most vulnerable urban residents significantly. When it comes to inequality, most cash transfer policies have only a small impact. The most effective policy is Scenario 6 (Households with children under 18), reducing inequality by -1.1%, followed closely by Scenario 5 (Households with children under 5) at -0.9%. These results suggest that child-focused transfers are effective in reducing income disparities in urban areas.

Scenario 1 (Universal Cash Transfer) also contributes to reducing inequality (-0.7%), since a universal program redistributes income across all households. However, because universal policies also reach wealthier households, their impact on inequality is more limited compared to targeted interventions. The least effective policies for reducing inequality are Scenario 8 (Households with a disabled member) and Scenario 7 (Households with an elderly member), reducing the Gini coefficient by only -0.3% and -0.4%, respectively. This suggests that while these groups receive some financial support, the overall impact on income inequality remains minimal.

Below is a graph showing the variation of each indicator by scenario in rural area.
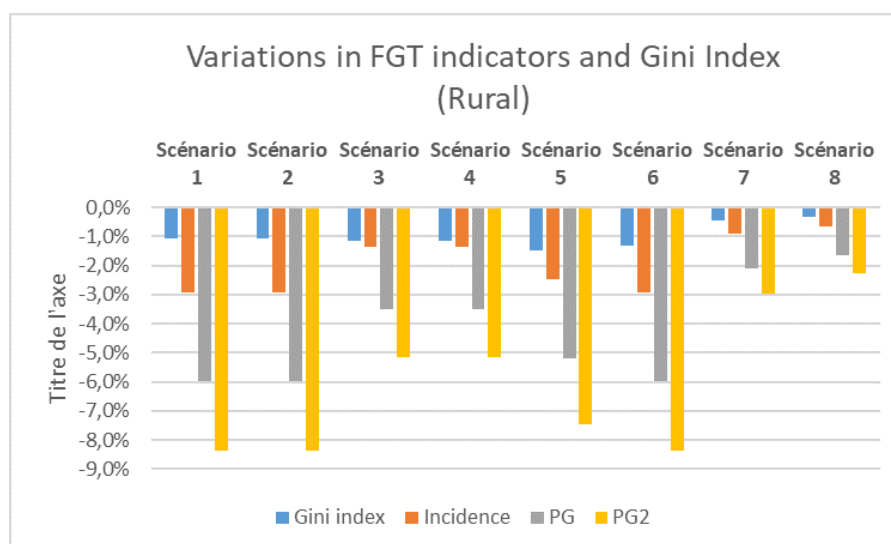
FIGURE 12 – Graph : Rural Level Comparison

5 Policy Implications and Recommendations

The analysis shows that the most effective policies in reducing poverty and inequality are Scenario 1 (Universal Cash Transfer) and Scenario 6 (Households with children under 18). These policies significantly lower the poverty gap and headcount rate, ensuring that many households receive financial support. Scenario 5 (Households with children under 5) also performs well, particularly in improving conditions for the poorest.

However, there is a trade-off between impact and cost. Scenario 1 is highly effective but the least efficient, as it requires massive financial resources while also benefiting non-poor households. On the other hand, Scenario 4 (Households with children under 2 in rural areas) and Scenario 2 (Rural Universal Cash Transfer) show the highest efficiency, meaning they achieve more poverty reduction per unit of money spent. This suggests that smaller, well-targeted programs can be more cost-effective than large-scale interventions.

To ensure sustainability, policymakers should prioritize targeted policies with high efficiency, such as Scenario 4 and Scenario 2, which focus on the most vulnerable rural households. Scenario 6 should also be prioritized, as it effectively reduces poverty while remaining more affordable than universal transfers. Scenario 1, while impactful, should only be considered if sufficient funds are available. On the other side, it appears that geographic targeting (rural and urban) is essential to address urban-rural disparities. Rural areas have higher poverty levels, making Scenario 2 and Scenario 4 particularly effective in these regions. In contrast, in urban areas, Scenario 6 and Scenario 5 should be prioritized, as they focus on households with children, a key vulnerable group in cities. A balanced approach that considers both cost and impact will ensure maximum poverty reduction with sustainable resource allocation.

6 Conclusion

The analysis confirms that cash transfer policies play a crucial role in reducing poverty and inequality, but their impact varies depending on coverage, targeting, and efficiency. Universal Cash Transfers (Scenario 1) and targeted support for households with children under 18 (Scenario 6) were the most effective in lowering poverty levels, while Scenario 5 (Households with children under 5) significantly improved conditions for the most vulnerable. However, high cost does not always mean

high efficiency, as Scenario 4 (Households with children under 2 in rural areas) and Scenario 2 (Rural Universal Cash Transfer) achieved the best results per unit of spending.

This study highlights the importance of well-designed social protection policies in fostering sustainable development. Large-scale interventions can lift millions out of poverty, but targeted approaches ensure better cost-effectiveness and long-term impact. The findings reinforce that cash transfers alone are not enough—they must be strategically allocated to maximize benefits while maintaining financial sustainability.

Ultimately, data-driven decision-making is essential for crafting effective poverty reduction strategies. By analyzing poverty trends, geographic disparities, and policy efficiency, governments can design adaptive, evidence-based programs that deliver meaningful and lasting change. Social protection is not just an economic tool : it is an investment in human well-being and national progress.