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ANALYSIS OF ECONOMIC DEVELOPMENT AND POVERTY

IMPACT OF CASH TRANSFER POLICIES ON POVERTY AND INEQUALITY

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Abstract

This report presents a quantitative evaluation of different cash transfer scenarios aimed at reducing poverty and inequality in Senegal. The analysis is based on data from the Harmonized Survey on Household Living Conditions (EHCVM) conducted in 2018, adjusted to reflect economic and demographic conditions projected for 2023 using a data aging method. Eight scenarios have been simulated, according to different beneficiary targeting criteria: universal transfers, geographic targeting (rural areas), or demographic targeting (children, elderly, disability). Each eligible household receives a fixed annual allowance of 100,000 FCFA. The impact is measured through FGT poverty indicators, the Gini coefficient, and a budget efficiency indicator. The results reveal that scenarios targeting children under two years old in rural areas are the most efficient (0.25% of GDP), while universal transfers, although more costly, offer a broader impact. The territorial analysis shows persistent poverty in rural areas, requiring reinforced geographic targeting. It is recommended to prioritize targeted transfers with high impact, integrated into a broader social strategy, to ensure sustainable poverty reduction and better territorial equity.

Résumé

Ce rapport présente une évaluation quantitative de différents scénarios de transferts monétaires visant à réduire la pauvreté et les inégalités au Sénégal. L'analyse repose sur les données de l'Enquête Harmonisée sur les Conditions de Vie des Ménages (EHCVM) réalisée en 2018, ajustées pour refléter les conditions économiques et démographiques projetées à l'horizon 2023 à l'aide d'une méthode de vieillissement des données. Huit scénarios ont été simulés, selon différents critères de ciblage des bénéficiaires : transferts universels, ciblage géographique (zone rurale), ou démographique (enfants, personnes âgées, handicap). Chaque ménage éligible reçoit une allocation annuelle fixe de 100 000 FCFA. L'impact est mesuré à travers les indicateurs FGT de pauvreté, le coefficient de Gini, et un indicateur d'efficacité budgétaire. Les résultats révèlent que les scénarios ciblant les enfants de moins de deux ans en zone rurale sont les plus efficients (0,25 % du PIB), tandis que les transferts universels, bien que plus coûteux, offrent un impact plus large. L'analyse territoriale montre une pauvreté persistante en milieu rural, nécessitant un ciblage géographique renforcé. Il est recommandé de prioriser les transferts ciblés à fort impact, intégrés à une stratégie sociale plus large, pour assurer une réduction durable de la pauvreté et une meilleure équité territoriale.

Introduction

Poverty and inequality remain major challenges for developing countries, particularly in sub-Saharan Africa. In Senegal, despite relatively stable economic growth, the benefits of this growth are not equally distributed, leaving a significant part of the population in a situation of economic vulnerability.

In this context, social protection policies, especially cash transfer programs, appear as strategic tools to improve the living conditions of disadvantaged populations. Whether universal or targeted, these transfers can help reduce poverty levels, decrease socio-economic inequalities, and support human capital development.

The objective of this project is to evaluate the impact of different cash transfer scenarios on poverty and inequality in Senegal, using data from the Harmonized Survey on Household Living Conditions (EHCVM 2018). Through a simulation of the effects of these policies in an economic context projected for 2023, this analysis aims to identify the most effective and efficient options to achieve social development goals.

This study also serves as a decision-making tool for public authorities, providing evidence-based information on expected gains, associated costs, and distributional implications of the different transfer policies analyzed.

1. Description of Analyzed Scenarios

1.1. Explanation of Scenarios

The analysis is based on eight monetary transfer scenarios. Each policy proposes a fixed annual allocation of 100,000 FCFA per eligible household. These scenarios were designed to explore different levels of coverage and targeting, ranging from universality to demographic and geographic selectivity. The table below presents a summary of the examined policies, their target groups, and allocation mechanisms.

Scenario	Targeting Description
Universal transfer	All households receive an annual allocation of 100,000 FCFA without conditions.
Universal rural transfer	All households in rural areas receive the transfer, regardless of their composition.
Children under 2 years	Only households with at least one child under 2 years old.
Children under 2 years in rural areas	Rural households with at least one child under 2 years old.
Children under 5 years	All households with children under 5 years old.
Children under 18 years	All households with children under 18 years old.
Elderly people	Households with at least one member aged 65 or older.
Disabled person	Households with at least one member with a disability.

Table 1: *Monetary transfer scenarios and associated target groups*

Each scenario seeks to address a specific issue. Universal transfers aim to maximize social coverage without exclusion, while targeted scenarios focus on budget efficiency and impact on vulnerable groups. Targeting children aims to strengthen human capital in the long term, while targeting elderly or disabled people aims to reduce exclusion and economic dependency. The comparative evaluation will help determine which scenarios offer the best balance between cost, coverage, and impact on poverty and inequality.

1.2.   Costs of Transfer Scenarios

Scenario	Beneficiary households	Total cost (FCFA)	Share of GDP (%)
Universal Cash Transfer	2 060 440	206 044 018 008	1,11
Rural Universal Cash Transfer	958 998	95 899 754 613	0,52
Children under 2	789 606	78 960 640 918	0,42
Children under 2 (rural)	457 138	45 713 807 859	0,25
Children under 5	1 322 195	132 219 509 560	0,71
Children under 18	1 821 880	182 188 019 729	0,98
Households with elders	616 808	61 680 777 206	0,33
Households with disability	1 032 194	103 219 380 696	0,55

Table 2: *Number of beneficiaries, total cost and share of GDP by monetary transfer scenario.*
Source : EHCVM | Author's calculations.

The cost analysis shows that the universal transfer scenario is the most expensive, representing 1.11%
of GDP, due to its wide coverage. In contrast, targeted scenarios, particularly that of children under 2
years in rural areas, have a much lower cost (0.25% of GDP), but limited reach.

Transfers to households with children under 5 or under 18 years offer a good compromise be-
tween coverage (more than one million households) and reasonable cost (between 0.7% and 1% of
GDP). Scenarios targeting elderly or disabled people are also budget-friendly while reaching specific
vulnerable populations.

These results show the importance of targeting in controlling costs, while raising the question of
the real impact of each option on poverty reduction. This will be explored further in the following
sections.

1.2.1.   *Visualization of relative costs*

To better understand the budget differences between scenarios, the following graph presents a ranking
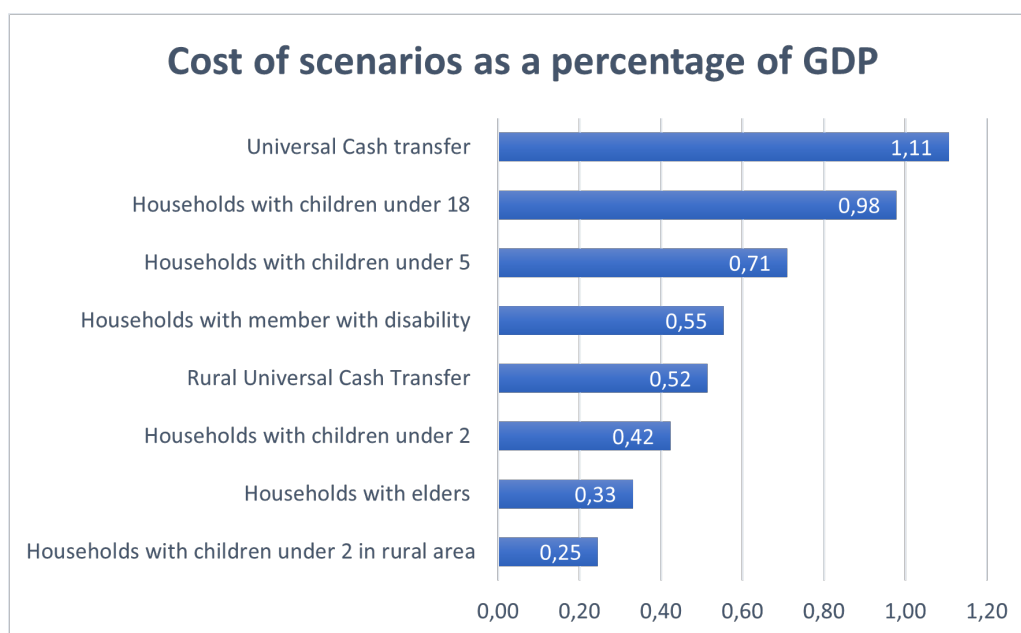of policies by estimated cost as a percentage of GDP:

Cost of scenarios as a percentage of GDP

Scenario	Value
Universal Cash transfer	1,11
Households with children under 18	0,98
Households with children under 5	0,71
Households with member with disability	0,55
Rural Universal Cash Transfer	0,52
Households with children under 2	0,42
Households with elders	0,33
Households with children under 2 in rural area	0,25

Figure 1: *Ranking of scenarios according to their cost as a percentage of GDP.*
Source : EHCVM | Author's calculations

Universal policies appear significantly more expensive. In contrast, targeted scenarios, particularly those focused on young children in rural areas, show a much lower budget burden. This contrast highlights the trade-offs to consider between coverage scope and financial sustainability.

2. Methodology

The methodological approach adopted in this study combines microeconomic analysis of households with public policy simulations, in order to evaluate the effect of different monetary transfer scenarios on poverty and inequality in Senegal.

2.1. Data Source

The analysis is based on data from the Harmonized Survey on Household Living Conditions (EHCVM), conducted in 2018 in Senegal. This survey, representative at national and regional levels, provides detailed information on household composition, their expenses, income sources, and access to social services. Its richness allows for precise measurement of welfare levels and identification of vulnerable households.

2.2. Data Aging

Although the data dates from 2018, it has been adjusted to reflect expected conditions in 2025, using a data aging method. This process allows the data to be aligned with the projected economic and

demographic context, taking into account macroeconomic growth rates observed between 2018 and 2023, provided by ANSD and BCEAO. The aging steps are as follows:

Year	Population		GDP (billion FCFA)		Price Index		GDP per capita	
	Value	Growth	Value	Growth	Value	Growth	Value	Growth
2018	15 726 037	–	12 840.10	–	106.24	–	816 487	–
2019	16 209 125	0.03	13 712.70	0.07	105.57	-0.01	845 986	0.04
2020	16 705 608	0.06	14 119.40	0.10	107.40	0.01	845 189	0.04
2021	17 215 433	0.09	15 261.10	0.19	109.74	0.03	886 478	0.09
2022	17 738 795	0.13	17 330.10	0.35	120.38	0.13	976 960	0.20
2023	18 126 390	0.15	18 619.50	0.45	127.53	0.20	1 027 204	0.26

Table 3: *Evolution of population, GDP, price index and GDP per capita between 2018 and 2023.* **Source :** ANSD and BCEAO.

1. **Updating demographic weights** (`hhweight`): Household weights have been adjusted by applying a population growth rate ($t_{\text{crois\_pop}}$).

$$\texttt{hhweight}_{2023} = \texttt{hhweight}_{2018} \times (1 + t_{\text{crois\_pop}})$$

2. **Updating the poverty line** (z_{ref}): The poverty line has been adjusted to reflect inflation between 2018 and 2023.

$$z_{\text{ref},2023} = z_{\text{ref},2018} \times (1 + t_{\text{crois\_i\_prix}})$$

3. **Updating welfare indicators** (`pcexp`): Per capita expenditures have been adjusted according to GDP per capita growth.

$$\texttt{pcexp}_{2023} = \texttt{pcexp}_{2018} \times (1 + t_{\text{crois\_pib\_t}})$$

These adjustments ensure that public policy simulations are based on updated data, reflecting the economic realities of 2023.

2.3. Simulation Method

Each public policy scenario has been simulated by allocating to certain households an annual monetary allocation of 100,000 FCFA, according to predefined criteria (for example: rural residence,

presence of children, elderly or disabled people). The household's total income is then adjusted, and new poverty and inequality indicators are recalculated after redistribution.

2.4. Poverty Indicators

The poverty measures used are those of Foster, Greer and Thorbecke (FGT), which take the following form:

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

where:

- N is the total number of households;

- q is the number of poor households ($y_i < z$);

- y_i is the expenditure (or income) of household i;

- z is the poverty line;

- α is a sensitivity parameter: 0 for poverty rate, 1 for depth, 2 for severity.

2.5. Inequality Indicator

Inequality is measured by the Gini coefficient, defined as follows:

$$G = 1 - \frac{\sum_{i=1}^{n} (y_i + y_{i-1})(F_i - F_{i-1})}{\mu}$$

where:

- y_i represents household income (or expenditure) sorted in ascending order;

- μ is the average household income;

- F_i is the cumulative share of households corresponding to y_i;

- n is the number of households.

This index ranges from 0 (perfect equality) to 1 (extreme inequality). It is calculated using the trapezoidal method to approximate the Lorenz curve.

2.6. Measuring Transfer Efficiency

To evaluate the relative performance of each scenario, an efficiency measure is calculated:

$$\text{Efficiency} = \frac{GAB_{2023} - GAB_{\text{scenarios}}}{\text{Total transfer amount}}$$

where *GAB* is the poverty depth.

2.7. Geographic Disaggregation

All results are disaggregated by place of residence (urban/rural) in order to highlight spatial disparities in the impacts of simulated policies. This step is essential to ensure a comprehensive analysis and to inform decision-makers about the differentiated impacts of policies according to geographic areas.

3. Results Analysis

The evaluation of monetary transfer policies is based on a comparative analysis of their effects on poverty and inequality. Using data projected to 2023, different scenarios have been tested to measure their impact both globally and differentiated by place of residence.

The approach adopted combines classic poverty indicators (FGT) and inequality (Gini coefficient), as well as an economic efficiency measure allowing comparison of the relative performance of implemented policies.

3.1. Evolution of FGT and Gini indicators between 2018 and 2023

Index	2018			2023		
	Overall	Urban	Rural	Overall	Urban	Rural
P_0 (rate)	0.377	0.195	0.537	0.344	0.167	0.500
P_1 (depth)	0.103	0.047	0.153	0.090	0.040	0.135
P_2 (severity)	0.039	0.017	0.059	0.033	0.014	0.051
Gini	0.351	0.351	0.273	0.351	0.351	0.273
$p90/p10$	4.366	–	–	4.366	–	–

Table 4: *Comparison of FGT and Gini indicators between 2018 and 2023.*
Source : EHCVM | Author's calculations.

Between 2018 and 2023, the main poverty indicators from the FGT (Foster-Greer-Thorbecke) class reveal a significant improvement in the socio-economic situation of Senegalese households. The

national poverty rate (P_0) drops from 37.7% to 34.4%, representing a relative decrease of 8.7%. This trend reflects improved access to basic economic resources for a significant portion of the population.

The reduction in poverty is more marked in rural areas, where the rate drops from 53.7% to 50.0%, compared to a decrease from 19.5% to 16.7% in urban areas. Although the trend is positive, the persistent gap between the two areas confirms a structural concentration of poverty in rural zones.

The poverty depth (P_1) also decreases, falling from 10.3% to 9.0%. This decline reflects an improvement in the living standards of households below the poverty line, who on average move closer to the minimum subsistence level. Similarly, severity (P_2) decreases from 3.9% to 3.3%, which indicates a narrowing of living standard gaps within the poor population itself.

3.2.   Effectiveness and efficiency of simulated scenarios

Scenario	Ref.	Universal	Rural	<2	<2R	<5	<18	Elder	Disability
P_0 (%)	34.39	32.69	33.18	33.44	33.75	33.02	32.71	33.93	33.52
P_1 (%)	9.03	8.34	8.49	8.62	8.70	8.43	8.34	8.80	8.66
P_2 (%)	3.35	3.01	3.08	3.14	3.18	3.05	3.01	3.23	3.16
Gini	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Efficiency ($\times 10^{-12}$)	–	3.36	5.68	5.15	7.21	4.56	3.78	3.79	3.61

Table 5: *Aggregated results by scenario and estimated efficiency.*
Source : EHCVM | Author's calculations.

The examination of simulated results reveals notable differences between the various monetary transfer scenarios, both in terms of their effectiveness in reducing poverty and their efficiency in terms of impact/cost ratio.

The reference scenario, without intervention, shows a poverty rate (P_0) of 34.4%. All tested scenarios allow for a reduction in this indicator, with decreases ranging from 0.5 to 1.7 percentage points. The largest decrease is observed in the universal scenario, closely followed by transfers targeting children under 18 and under 5 years old.

However, poverty reduction represents only one dimension of the evaluation. Efficiency, measured here as the reduction in poverty per franc transferred, reveals that targeted policies are significantly more cost-effective. The scenario targeting children under two years of age in rural areas demonstrates the highest efficiency (7.21×10^{-12}), followed by the nationwide targeting of children under two (5.15×10^{-12}), and transfers directed to all rural households (5.68×10^{-12}).

Conversely, broad coverage scenarios, particularly the universal transfer, while effective in terms of absolute poverty rate reduction, appear less efficient. They mobilize significant resources for relatively modest unit gains, with efficiency estimated at only $3.36 10^{-12}$.

Transfers targeting children under 5 or 18 years offer an interesting compromise. Their efficiency, while moderate, is supported by relatively broad coverage, making them balanced options from the perspective of budget sustainability and social impact.

Regarding inequality, the Gini coefficient remains constant at 0.35 in all scenarios. This suggests that the simulated monetary transfers, in their current configuration, have no significant effect on the overall structure of inequalities. Targeted action on the most disadvantaged groups, or an increase in allocated amounts, might be necessary to achieve a more pronounced redistributive effect.

In summary, the results highlight a classic tension between universality and targeting. Targeted policies, particularly those oriented toward young children in rural areas, appear to be the most efficient. Universal policies, while politically attractive, require considerable resources for comparatively smaller effects. These results provide an empirical basis to guide trade-offs between equity, efficiency, and financial sustainability in the design of social policies.

3.3.   Disaggregation by place of residence

Urban areas:

Scenario	P_0	P_1	P_2	Gini
Universal	15.64	3.67	1.26	0.349
Rural	16.68	3.98	1.40	0.351
<2	16.03	3.82	1.33	0.349
<2 Rural	16.68	3.98	1.40	0.351
<5	15.75	3.72	1.29	0.348
<18	15.64	3.67	1.26	0.348
Elder	16.42	3.89	1.36	0.350
Disability	16.16	3.82	1.32	0.349

Table 6: *Scenario results – Urban areas.*
Source : EHCVM | Author's calculations.

Rural areas:

Scenario	P_0	P_1	P_2	Gini
Universal	47.71	12.45	4.55	0.270
Rural	47.71	12.45	4.55	0.270
<2	48.78	12.86	4.74	0.270
<2 Rural	48.78	12.86	4.74	0.270
<5	48.22	12.57	4.60	0.269
<18	47.74	12.46	4.55	0.269
Elder	49.36	13.12	4.87	0.272
Disability	48.81	12.92	4.78	0.271

Table 7: *Scenario results – Rural areas.*
Source : EHCVM | Author's calculations.

The disaggregation of results by place of residence highlights marked structural disparities in the distribution of poverty and in the impact of transfer scenarios.

In urban areas, FGT indicators are generally lower, reflecting a better relative economic welfare situation. The average poverty rate (P_0) is around 16%, with insignificant differences between tested scenarios. The marginal effects of simulated policies are thus relatively homogeneous, with modest reductions in poverty indicators. Universal scenarios or those targeting children under 18 years achieve the best results, with a poverty rate reduced to 15.6%, representing an improvement of nearly one point compared to the reference.

However, differences between scenarios are more noticeable at the level of depth (P_1) and severity (P_2) indicators, where policies targeting children under 5 or under 18 years show the most notable reductions. Nevertheless, the Gini coefficient remains stable at 0.348–0.351, confirming that relative inequalities are not significantly affected by transfers in urban areas.

Conversely, in rural areas, the situation remains concerning. Poverty levels are significantly higher, with an average P_0 rate above 47% in all scenarios. Although some transfers allow for marginal reductions in indicators (for example, 48.2% with the <5 scenario), differences between scenarios remain small. The scenario targeting elderly people shows the poorest performance, with a poverty rate of 49.4%, and the highest P_1 and P_2 indicators, reflecting a concentration of poverty among beneficiaries of this targeting.

The stability of the Gini coefficient around 0.270 in all rural configurations suggests relative homogeneity in the distribution of living standards, despite widespread poverty. This low sensitivity of inequality to transfers is partly explained by the high level of mass poverty, which mechanically limits income gaps between households.

These findings underscore the importance of territorial targeting in the design of social policies. In rural areas, transfers must be conceived not only in terms of individual targeting (children, elderly, disabled), but also in a logic of broader coverage to generate structural effects. In urban areas, where gaps are smaller but social heterogeneity is more marked, targeted transfers can produce more visible redistributive effects, provided they are associated with complementary mechanisms (employment,

housing, etc.).

Taking these spatial disparities into account is therefore essential to guide public policies toward greater equity and differentiated efficiency according to territorial contexts.

4.   Policy implications and recommendations

The results of this study highlight the importance of strategic targeting in implementing cash transfer policies. While all tested scenarios contribute to poverty reduction, their effects vary considerably depending on the target population, coverage level, and associated budget cost.

4.1.   Efficiency and budget sustainability

Scenarios targeting children under two years old in rural areas stand out for their remarkable efficiency regarding mobilized resources. Their low relative cost (0.25% of GDP) combined with their strong impact on poverty indicators in rural areas makes them a highly efficient option. In contrast, universal scenarios, although effective in absolute terms, prove to be more demanding in budget terms (up to 1.11% of GDP) for an additional marginal gain.

These findings support prioritizing policies with high social returns, particularly those targeting young children, whose impact goes beyond immediate monetary support to affect long-term human development.

4.2.   Geographic targeting and territorial equity

The persistent gaps between urban and rural areas highlight the need to adapt transfer mechanisms to territorial realities. Rural areas concentrate the majority of poor households but benefit from higher budget efficiency. Introducing reinforced geographic targeting, supported by specialized poverty indicators, would allow better allocation of public resources and strengthen territorial equity.

4.3.   Complementarity with other social policies

To maximize the effect of transfers, it is recommended to combine them with other social protection measures: health coverage, education, nutrition. An integrated approach would transform transfers into structural tools for poverty reduction, beyond occasional monetary support.

4.4.   Operational recommendations

Based on these findings, the following recommendations can be made:

- Prioritize targeted transfers to rural households with young children, particularly those with children under 2 or 5 years old;

- Avoid universal policies in the launch phase, due to their high cost and moderate social return;

- Develop geographic and demographic targeting tools based on available statistical data (poverty maps, social registries);

- Integrate transfers into a broader social and human development strategy, including health, education and productive inclusion;

- Establish a robust monitoring and evaluation system to measure the real impact of transfers and readjust criteria as needed.

In summary, cash transfer policies represent a promising tool for poverty reduction in Senegal. Their success depends, however, on their design, targeting, and integration into a coherent, sustainable social policy based on evidence.

Conclusion

The analysis conducted in this study highlights the potential of cash transfers as an effective tool for poverty reduction in Senegal. By simulating several targeting scenarios using EHCVM data, the results show that significant reductions in FGT indicators are possible, even with relatively controlled financing levels. Among the tested scenarios, those targeting children under two or five years old, particularly in rural areas, appear to be the most efficient. They combine a notable impact on poverty with a controlled budget cost. In contrast, universal policies, although effective in absolute terms, present more uncertain sustainability given their high cost. The disaggregated analysis by area of residence confirms the persistent concentration of poverty in rural areas, and underlines the importance of geographic targeting to strengthen territorial equity. It also highlights the need to combine transfers with other social protection tools to generate lasting effects on human development. This study thus invites us to rethink the design of social policies, focusing on a more targeted, integrated and evidence-based approach. Social protection should not only aim to cushion shocks, but also create conditions for effective economic and social inclusion for the most vulnerable populations. In summary, well-designed, well-targeted and well-coordinated transfers can constitute a central instrument for building more equitable, more inclusive and more resilient development.