Impacts of the 2014-16 drop in oil prices on child poverty in Chad and options for a policy response: Analysis using a recursive dynamic CGE model with fully integrated microsimulations

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ABSTRACT

In 2003, Chad became a producer and exporter of crude oil. Its annual real GDP growth, negative in 1999 and 2000, became positive again with the beginning of oil related activities and reached a peak of 33.63% in 2004.

However, the drastic drop in oil prices of around 80% between June 2014 and January 2016, have heavily impeded growth and poverty alleviation efforts in Chad. This is while, child poverty headcount ratio is already very high and above the national average.

This study therefore aims to assess the impacts of this crisis on child monetary poverty, and to explore some policy responses that would specifically reduce poverty amongst children. To this end, a recursive dynamic Computable General Equilibrium model is used, with fully integrated microsimulations.

It results from the study that, in the event the crisis had not occurred, the poverty headcount ratio for children would have dropped considerably. With the crisis, for the whole population, additional number of poor reached 1,146,025 individuals in 2018 and increased to 1,506,177 people in 2025: an increase of 23.1% and 28.8%, respectively. The share of children in this additional number is between 55 and 59% throughout the considered period: i.e. 628,427 more poor children in 2018 and 884,528 in 2025.

Five response options are simulated: first, the pilot social safety nets implemented in 2018. It consists in allocating cash transfers to some poor households in three regions of the country. The other four options are exploratory policies, including cancellation of tariffs or VAT on food, and two options to broaden the scope of social safety nets to all households housing poor children.

It arises from simulations that the latter two options are most effective and efficient for alleviating poverty. The study therefore suggests some modalities to implement such a program.

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1. INTRODUCTION

Since 2003 and especially with the entry into service of the Doba-Kribi pipeline in mid-2004, Chad is now one of the crude oil producing and exporting countries. From then until 2014, despite the various oil price swings and, even, notwithstanding the global financial and economic crisis of 2008/2009, the country has witnessed a period of oil boom. The positive impact of this glorious decade has been reflected through most economic and socio-economic indicators.

Thus, yearly real GDP growth rate, negative in 1999 (-0.68%) and in 2000 (-0.88%), became positive again in 2001 (+ 11.66%) thanks to installation works, drilling and construction of the above-mentioned Doba-Kribi pipeline, before reaching the peak of 33.63% in 2004 when Chad exported oil for the first time through this pipeline channel (The World Bank, 2018a). Although still low compared to the average for low-income countries, the Human Development Index (HDI) also followed an upward curve from 0.299 in 2000 to 0.403 in 2014 and even 0.407 in 2015 (UNDP, 2018). One could also notice the poverty alleviation, with a poverty headcount ratio of 46.67% in 2011, which became relatively low compared to 54.80% in 2002; to some extent, this was consistent with the 67% increase in per capita GDP during the same period.

However, since mid-2014, crude oil prices started a drastic fall that resulted in a decline of around 80% from June 2014 to January 2016. This oil shock severely undermined the country's growth and poverty reduction efforts recorded during the 2003-2014 oil boom era.

Indeed, because of the collapse in crude oil prices, the Chadian economy entered a recession, portrayed among other things by: a decline in the GDP per capita from 2015, a negative real GDP growth rate in 2016 (-6.26%) and 2017 (-2.95%) and a stagnation or a somehow downward trend in the HDI beyond 2015[1].

The negative effects of such a crisis are likely to jeopardize the welfare of people broadly speaking, and of the most vulnerable populations such as children particularly, as several authors have shown (Lundberg and Wuermli, 2012). Most of these effects are passed on to households first and then passed on to children.[2]

The present study therefore aims to analyze the potential child poverty effects of the apathy in oil prices experienced from June 2014 and of various options for policy response in Chad. Essentially, the study focuses on monetary poverty aspects.

The rest of this study is divided into five sections. A brief presentation of the two oil shocks suffered by Chad since the start of its oil exploitation till 2018 is made in section 2. The methodology approach is summarized in Section 3. Subsequently, simulation results of the crisis-free and crisis scenarios are presented in Section 4; while Section 5 exhibits the effects of possible policy responses. The findings and recommendations of the study are recorded in Section 6.

[1] Chad's HDI value stands at 0.407 in 2015, 0.405 in 2016 and 0.404 in 2017 (UNDP, 2018).

[2] As an African proverb says, "when food shortage comes, elephants lose weight, but gazelles and antelopes die."

2. TWO MAJOR OIL SHOCKS SUFFERED BY CHAD, FROM THE START OF ITS OIL EXPLOITATION TO 2018

From the start of oil development in Chad in 2003 to 2018, the world economy had experienced two major oil shocks, in July 2008 and June 2014.[3]

As Shown in Chart 1, in the first case, the average price of a barrel of crude oil dropped drastically from US$133 in July 2008 to US$41 in December of the same year, due to the 2008 global economic crisis; a decline of 69% in five months, which implies an average growth rate of −21% per month.

The next major shock came after almost four years of a relative stability in oil prices (around US$100 per barrel), from January 2011 to almost September 2014. This was the longest euphoric period of crude oil in the history at such a high average price.

However, starting from US$108 in June 2014, the price of a barrel began a slide that proved irresistible and dizzying thereafter. It first decreased by about 57%, to US$41 in January 2015. After a brief partial recovery to nearly 63 USD in May 2015, it again suffered a downward glide with a more than 50% drop, falling to less than US$30 in January 2016, its lowest level since December 2003.

Thus, from the beginning of the oil shock in June 2014 to January 2016, the price of a crude oil barrel fell by about 73%.

Admittedly, each of these shocks has sensitively affected the growth trend of several countries, especially those whose economy is highly dependent on the oil industry. However, unlike the situation in 2008/2009 financial and economic crisis, the period of sluggish oil prices is longer and the recovery of an upward slope of prices is slower.

For instance, in the case of the oil shock arose during the 2008-2009 financial and economic crisis, the average price of US$75 per barrel was recovered in eleven months from the floor of US$41 reached in December 2008. However, in the case of the 2014-2016 oil shock, it took 44 months from the first floor price of US $ 47 recorded in January 2015 and 32 months after reaching the second floor price of US $ 30 in January 2016, before oil prices have returned to a level of US $ 75; this is four and three times longer, respectively, than the sluggish period experienced after the fall in oil prices that began in July 2008.

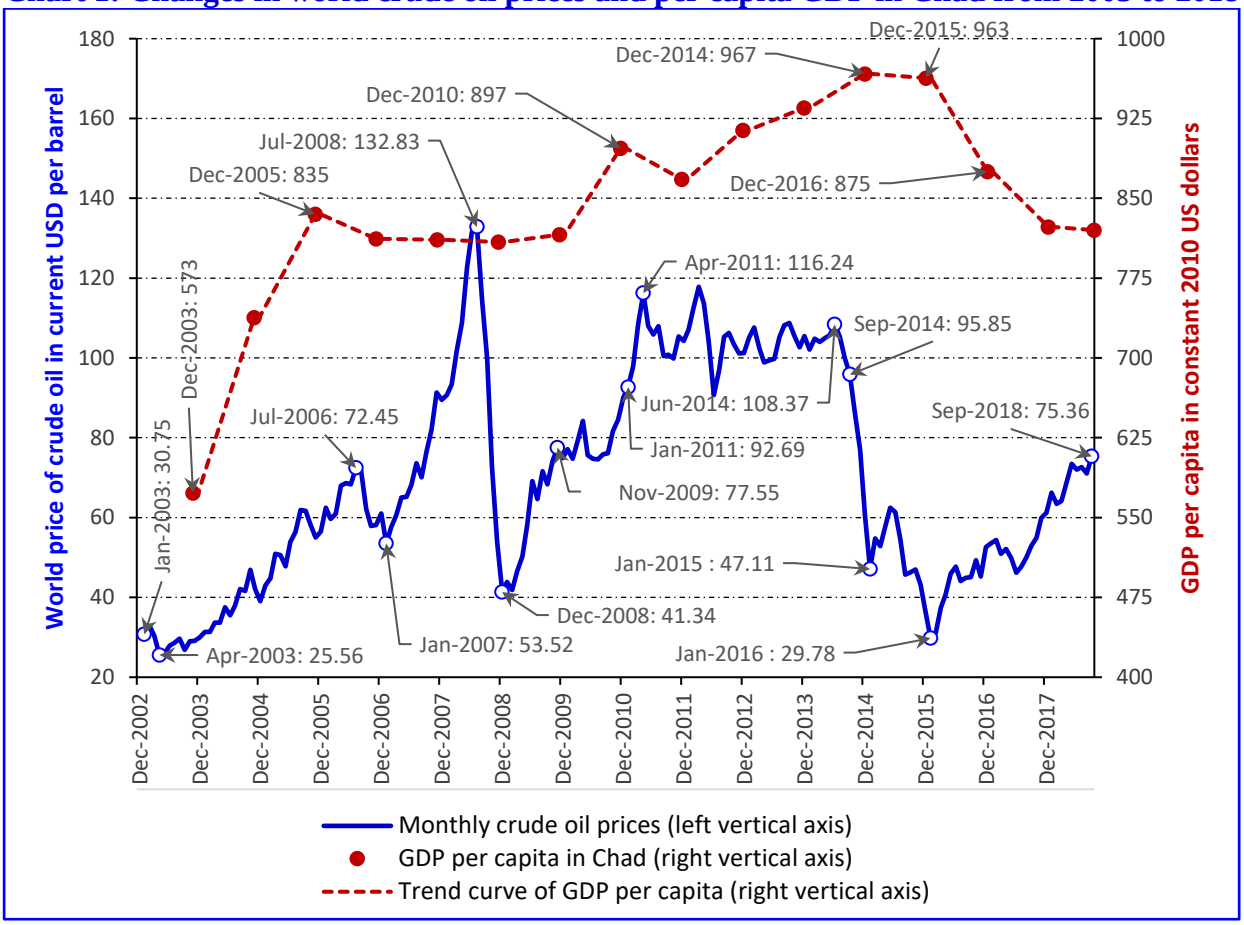
Therefore, one can guess that the adverse effects of ten 2014-16 oil shock was likely to weigh even more heavily on the economies of crude oil producing countries.

This is particularly the case for Chad. As shown in Chart 1, GDP per capita was more negatively affected by the oil shock that began in mid-2014. It remained almost unchanged from 2014 to 2015 around US$ 965 (in constant US$ of 2010), but fell by 9% between 2015 and 2016, and then by 6% in 2017 when it amounted to US$ 823. In 2018, one could estimate an overall decrease of 15% from the peak reached in mid-2014. This represents a significant setback of more than a decade. Indeed, the amount of GDP per capita estimated for 2018 is similar to that recorded

[3] For a review of the potential causes and consequences of these oil shocks, as well as the two previous ones in 1985/86 and 1990/91, see: Baffes *et al.*, 2015 ; Baffes, Kose, and Ohnsorge, 2015.

in 2005 and which remained almost stable until 2009, before starting an upward trend until 2014 and then plummeting.

Chart 1: Changes in world crude oil prices and per capita GDP in Chad from 2003 to 2018

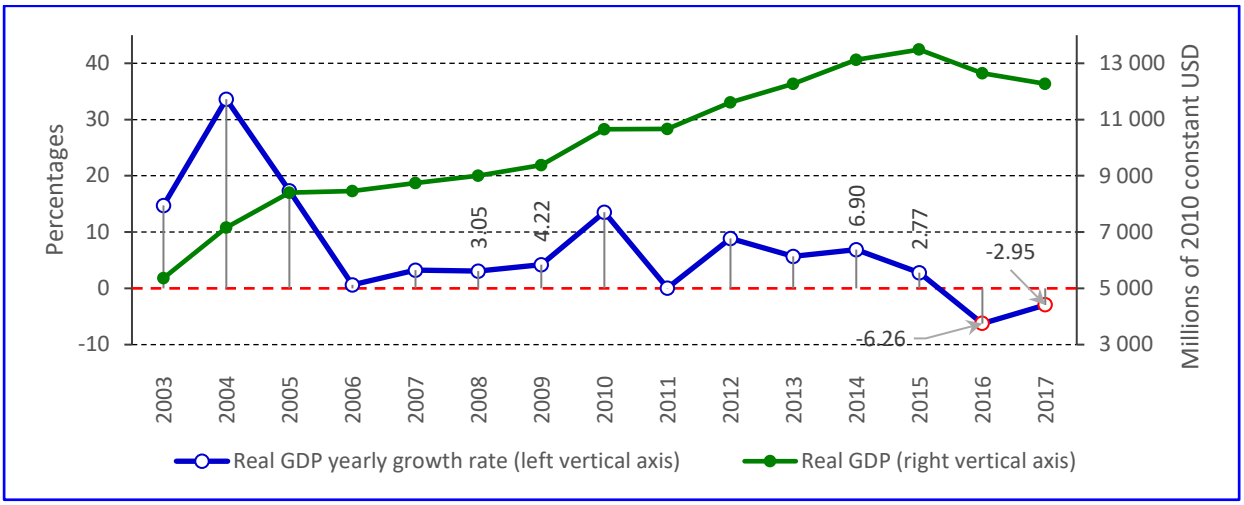


Source : Author's design using data from: (1) For crude oil prices: The World Bank (2018a), simple average of three spot prices for crude oil: dated Brent, West Texas Intermediate and Fateh Dubai , in current USD per barrel; (2) For GDP per capita: The World Bank (2018b), in constant 2010 USD.

This trend in GDP per capita from 2014 is an indication of the drastic implications for the whole social body and the economic fabric in Chad. It reflects the trend in real GDP, which also reveals the country's greater vulnerability to a longer period of sluggish oil prices.

Chart 2 shows that the country initially withstood the oil shock in 2014 and 2015, as in 2008/2009, continuing to register positive real GDP growth rates during these two years. However, the slow recovery of oil prices, combined with the pervasiveness of shortfalls already accumulated in 2014 and 2015, contributed to bringing the real GDP growth rate below zero in the next two years: -6.26% in 2016 and -2.92% in 2017. This explains the sharp decline in per capita GDP in those two years.

Chart 2: Trends in Real GDP from 2003 to 2017



Source: Author's design from World Bank data (The World Bank, 2018b).

3. METHODOLOGY

This section provides guidance on: (a) the specification of the concept of child, (b) the dimension and measurement of child poverty considered in the study, (c) the model, (d) the related data, and (e) the scenarios simulated.

3.1. Definition of a "child"

Unless otherwise stated, the study has adopted the definition of the child contained in the Article 1 of the International Convention on the Rights of the Child (ICRC), which states that "a child means every human being below the age of 18 years unless, under the law applicable to the child, majority is attained earlier" (United Nations (UN), 1989).

Although the definition of child and childhood is much more complex and may vary depending on genealogical, filial relationship, emotional, physiological or social meanings, the definition stated by ICRC has the merit of providing a common reference to international organizations, NGOs and governments in the context of studies and programs on children.

In addition to considering all children under the age of 18, some analyses in this study are done by age groups: 0 to 5 years, 6 to 10 years, 11 to 14 years, 15 to 17 years, as well as 0 to 14 years.[4]

3.2. Dimension and measurement of child poverty considered in this study

3.2.1. Monetary dimension of child poverty

It is widely recognized that child poverty differs from adult poverty, not simply because it is confined to the population of children *per se,* but even more as it has different causes and effects, and because the impact of poverty in childhood has permanent consequences on children and on

[4] The latter age group is also used in several studies to outline the population of children.

the future of society. (UNDP - International Poverty Centre, 2004, p. 3; Childhood Poverty Research and Policy Centre (CHIP), 2004, p. 3 and 4).[5]

Child poverty, like poverty in general, has many faces and has many dimensions. The State of the World's Children report 2005 proposes the following working definition of children in poverty: *"Children living in poverty experience deprivation of the material, spiritual and emotional resources needed to survive, develop and thrive, leaving them unable to enjoy their rights, achieve their full potential or participate as full and equal members of society."* (UNICEF, 2005, p. 18). This is a holistic definition, which has the merit of encompassing both the "deprivation of basic needs" aspects and the principles of human rights.[6]

The framework of this study is only limited to the monetary dimension of child poverty. Although restrictive, this dimension participates well in the measurement of child poverty based on the argument of *"minimum rights to meet monetary needs"*, according to which there is a certain monetary income and some basic food expenditures which are considered to be minimum thresholds, under which individuals or households have the freedom to live a decent life. In other words, it is a contribution to understanding the situation and the evolution of child poverty in Chad.

3.2.2. Measuring child monetary poverty

A child here is monetarily poor if he is part of a household which is poor in monetary terms. As Balma *et al.* (2010, p. 1) points out, most of the effects induced by exogenous or endogenous shocks are first transmitted to households and then are passed on to children. Thus, the situation of children may change as a result of changes in the monetary and non-monetary welfare of the household they depend on.

Conventionally, a household is considered to be monetaryly poor if its consumption per adult equivalent, deflated by own temporal and spatial price indices, falls below the official absolute poverty line.

To measure and analyze the child monetary poverty, we use the poverty indicators of class P_α (or FGT_α) by Foster, Greer and Thorbecke (1984), applied to the population of children or to segments of that population, as the case may be, α alternately taking the values 0, 1 or 2.

The synthetic formula for this class of indicators is:

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

With:

n, the total number of individuals/households in the population;

q, the number of poor individuals/households in the population;

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[5] "Childhood poverty is a primary cause of poverty in adulthood. Impoverished children often become impoverished parents, raising their own children in poverty. To break this generational cycle, poverty reduction must begin with children"" (UNICEF, 2005, 15).

[6] To review the different definitions and measures child poverty and conceptual frameworksSee: Minujin *et al.*, 2005 ; Minujin *et al.*, 2006 ; Ortiz, Moreira Daniels and Engilbertsd-ttir, 2012; UNICEF Innocenti Research Centre, 2012.

z, the poverty line;

y_i, the amount of the monetary variable (income or expenditure) of the i individual;

α, the parameter representing aversion to poverty.

When individuals/households are clustered into groups with different weights w_i, their respective observations are weighted using by those weight parameters. The formula is then rewritten as follows:

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

For a given child population, the indicator FGT_0 therefore measures the percentage of monetarily poor children out of the total number of children included in that population, i.e. the child poverty headcount ratio; while FGT_1 and FGT_2 measure respectively the intensity (or depth) and the severity of poverty among these poor children.

3.3. The model

The main analytical tool used is a recursive dynamic computable general equilibrium (CGE) model with fully integrated microsimulations. Its base is the PEP-1-t model by Decaluwé *et al.* (2013) which is an archetype of a recursive dynamic CGE model, without microsimulations.

The PEP-1-t model was adapted to fit the study, in particular by including various specifications necessary to adjust it to the social accounting matrix (SAM) of Chad used and whose main lines are presented in paragraph 3.5.

The dynamic nature of the model was essential, as the phases of the simulated oil shock spread over time, but also to allow a sequential analysis of the impacts from year to year since 2014.

The period covered by the model starts from 2011 and spread to 2025. The 2014-2025 sub-period is that in which the effects of the crisis are effectively assessed, 2014 being the year in which the downward trend in oil prices was triggered. The analysis incorporates the year 2018 and extends to 2025, to have a prospective idea of remnant impacts beyond the oil shock, also regarding the rise in prices observed since 2016.

2011 is used as a reference year for the whole period, since it is the base year of the more recent household survey available when this study was carried out; given that, in the framework of this study, it was crucial to incorporate within the model, the most reliable information possible on poverty.

Another specific aspect of this model, compared to the seminal framework of PEP-1-t, consisted in undertaking microsimulation work, microsimulations being the royal way to address poverty issues in CGE modeling and, more generally, to deal with distributive impacts of external shocks or economic policies.

In the literature, several approaches are used to perform microsimulations within CGE modeling frameworks.[7]

The present study uses the so-called "fully integrated" 'approach. This approach consists of directly incorporating into the CGE model, a large number or all the households considered in a household survey, and not simply representative categories of households. In our case, all the 9259 households surveyed in 2011, which encompass the whole population in Chad, were individually incorporated into the CGE model.

As Cockburn, Savard and Tiberti (2015, p. 4) point out, this approach, made possible thanks to the improvement of the capabilities of computer processing tools, allows to capture, *inter alia*, the intra-group distributive effects, each household considered in the survey being impacted depending on the specific structure of its incomes and that of its expenses.

According to several CGE modeling authors and practitioners, when the ultimate goal is to get a fully coherent macro-micro framework or, in other words, if the objective is to assess the impact of shocks on poverty while starting from the strongest possible basis of micro-observations, then, a fully integrated model of microsimulations should be preferred (Bourguignon, Bussolo and Pereira da Silva, 2008b, p. 18-20). In this sense, they consider that this is the most theoretically sound approach for carrying out microsimulations in an CGE framework.

The said approach, which was first proposed by Decaluwé, Dumont and Savard (1999), is more and more applied by numerous authors.[8]

3.4. Key data for the model

Two main sets of data were required for modeling and subsequent analyses: data essential for building the Social Accounting Matrix (SAM) underlying the CGE model and databases resulted from household survey. These databases, combined with the SAM, are particularly necessary to award the model the status of a microsimulation tool.

The SAM is built using the 2011 Supply and Use Table (SUT) and the 2010 Integrated Economic Accounts Table (IEAT) by the National Institute of Statistics and Economic and Demographic Studies of Chad (INSEED) (INSEED, 2018a; INSEED, 2018b). As for the survey databases mentioned above, they come from the results of the Third Survey on Consumption and Informal Sector in Chad (ECOSIT3) carried out in 2011 (INSEED, 2013).

The year 2011, during which ECOSIT3 was carried out, was chosen as the base year for the SAM and the start of the dynamic model, in order to be able to use the genuine 2011 poverty rates as benchmarks in the analysis.

The production industries and product accounts of the SAM have been structured in such a way as to conform with the nomenclature of products used in the household survey, i.e. to establish the most suitable match between the branches/products of the Supply and Use Tables and the products of ECOSIT3 survey. Moreover, the calculation of deflated expenditure vectors by

[7] For a review and classification of different microsimulation approaches using EGC model, see: Cockburn, Savard and Tiberti (2015) ; Tiberti, Cicowiez and Cockburn (2017) ; Savard (2004) ; Burgundy, Bussolo and Pereira da Silva (2008a) ; Colombo (2008).

[8] See, among others: Cockburn, Corong and Cororaton (2010) ; Boccanfuso and Savard (2008) ; Chitiga, Mabugu and Kandiero (2007).

adult equivalent, made using this full matching with SAM, allowed to reproduce the original official 2011 poverty rates at the start of the model. Thereby, after complementary disaggregation/aggregation operations which resulted in separate SAM accounts for crude oil, refined oil and public administration, the final format of the SAM consisted of 15 industries/products.[9]

3.5. Simulated scenarios

Seven scenarios were simulated: one represents the baseline scenario of economic trends in case there was no crisis, another one portrays the state of economy with crisis, the remaining five acting as crisis situations when combined with various response policies.

The choice of policy responses was guided by the desire to find measures whose beneficial effects on children would be as immediate and direct as possible; hence the priority given to policies that can, inter alia, provide a short-term safety cushion for children, by making it possible to improve their food consumption or, more generally, the purchasing power of the households they belong to.

3.5.1. Scenario 1: Baseline scenario or "crisis-free" scenario

The simulation of the baseline scenario consists in generating the trend which economy would have followed in the event of a "*business-as-usual*", i.e. in case the economy would have continued to evolve without crisis and thus without implementing any subsequent policy response.

The main assumptions needed to do this kind of dynamic calibration are related to the population growth rate on the one hand and the real GDP growth rate on the other hand.

The population growth rate used in the model is 3.6% per year, the official value, to date, of the yearly intercensal growth rate on average of the Chadian population (INSEED, 2012).

Population growth rate is generally used in dynamic modeling mechanics to annually update the values of some variables or parameters assumed, by default, to grow at that rate. The labor supply, the household's incompressible consumptions and the current expenditures of general government fall within such variables.

One of the reasons why it is interesting to postulate that *some exogenous variables grow at the same rate as the labor supply* is to allow the model to simulate a balanced growth trajectory, although the simple balanced growth trajectory is not *a priori* a realistic scenario (Decaluwé *et al.* 2013).

To make the dynamics of the baseline trend reference more realistic, in addition to integrating demographic growth as mentioned above, information from the country's *macroeconomic forecasting framework* is most often incorporated within the model; in particular, by taking into account the historical and/or estimated GDP growth rates. The transition from a baseline scenario where GDP simply evolves at population growth rate to one where more realistic

[9] (1) Food; (2) Clothing and shoes; (3) Housing, water, electricity and domestic gas; (4) Furniture, household items and routine maintenance; (5) Oil extraction; (6) Oil refining; (7) Construction; (8) Health and hygiene; (9) Education; (10) Transportation; (11) Communication and telecommunications; (12) Hotels and restaurants; (13) Trade; (14) Public administration; (15) Miscellaneous goods and services.

changes in GDP are applied, is usually done through a dynamic calibration, by adjusting the values of total productivity of production factors.

As for the real GDP growth rates, they were according to the following rationale:

1. For the sub-period preceding the onset of the oil crisis (2011-2013): real GDP growth rate really recorded during those years in Chad.
2. For 2014 and 2015, during which growth continued to be strong despite the start of the crisis: estimates of the crisis-free GDP growth rates were dynamically calibrated, using the growth rates actually achieved in those years.
3. From 2016 to the end of the period under review, in 2025: a forecasted average growth rate, using the GDP trend of the last 10 years before the crisis.

Based on all these assumptions, the real GDP growth rates used for the crisis-free scenario were established as follows in Table 1.

Table 1: Real GDP growth rate in the crisis-free scenario

Years	2012	2013	2014	2015	2016-2025
Growth rate (%)	8.88	5.70	7.75	5.58	5.50

Source. Years 2012 and 2013 (The World Bank, 2018a); years 2014 and 2015, calibration from the actual growth rates of those respective years, published by the World Bank (The World Bank, 2018a); 2016 to 2025: average growth rate projected from the trend of the last 10 years before the crisis.

3.5.2. Scenario 2: Crisis Scenario

This scenario characterizes the economic crisis endured by Chad due to the oil shock unleashed in mid-2014, through the fall in crude oil prices itself and the general economic gloom that followed.

This scenario consists in applying changes in crude oil prices, as recorded from 2014 to 2018.[10] For the 2019-2025 sub-period, we have made the conservative assumption that prices will stabilize or oscillate around their 2018 level. Table 2 provides the annualized figures for the said oil prices.

Table 2: Annualized World Crude Oil Price Data used in Crisis Scenario

ITEMS	2013	2014	2015	2016	2017	2018	Beyond 2018
A. Simple annual average of monthly crude oil prices per barrel *(in current USD)*	104	96	51	43	53	67	67
B. Annual change in the average oil price *(percentage)*	-	8	47	16	'23'	27	-
C. Crude oil world price index, Base *2013=100*	100	92	49	41	51	65	65

Source: Author's calculations based on simple averages of three crude oil spot prices: dated Brent, West Texas Intermediate, and Fateh Dubai (The World Bank, 2018b).

[10] For 2018, only data for the first five months were available at the time of the simulation of this scenario.

3.5.3. Scenario 3: Crisis scenario + Pilot social safety net programs in Chad

The pilot social safety net programs consist of allocating cash transfers to some poor households, with the support of Chad Technical and Financial Partners, as a basis for establishing a more consolidated countrywide system of social safety nets in the future.

In fact, on September 1st, 2016, following the approval of the National Social Protection Strategy (SNPS) of Chad by the Government in July 2015, the Board of Directors of the World Bank granted US$10 million to help Chad develop and set up a pilot system of social safety nets to directly benefit 15,000 poor households (The World Bank, 2016).

This pilot system has three components:

- Component 1: unconditional cash transfers and cash-for-work activities, to provide income opportunities to poor households in 3 pilot regions in Chad.
- Component 2: support for the development and use of new institutional tools and devices, in particular related to the identification and registration of beneficiaries, and to the payment terms.
- Component 3: establishing a social safety nets unit, with a strong implementation capacity.

Of the three components listed above, the first is the one evaluated in this study. In force since 2018, this component directly benefits households in terms of monetary income, the last two having mainly the role of facilitating and making effective its implementation.

This component is subdivided into two subcomponents:

- ***Sub-component 1.1: Cash-for-work pilot program.*** It consists of offering 9,000 beneficiaries from poor households in urban and periurban areas of N'Djamena, the nation's capital, a job of 5 hours per day, for a period of up to 80 days per year from 2018 to 2020, against an approximate daily wage amounting 1,200 FCFA (2 US dollars); this is an annual income of CFAF 96,000 per beneficiary household, since only one member per beneficiary household is eligible. The above job is limited to street cleaning activities, garbage collection, rehabilitation and cleaning of gutters and culverts, paving of sidewalks and restoring of the shores of the *Logone River*. This sub-component is funded by aid from the International Development Association(IDA), a World Bank institution, whose financial support generally benefits the world's poorest countries.

- ***Sub-component 1.2: Pilot program of unconditional cash transfers.*** This program provides a monthly payment of 15,000 CFA francs (almost US$25), payable every two months, from 2018 to 2020, i.e. 180,000 CFA francs per year and per beneficiary household. It benefits to 6,200 poor households, particularly poor households with children under 15 and/or with pregnant women, including:

    - 1550 of the poorest households in the Bar-El-Ghazel region, which is part of the Sahelian strip, with IDA funding.

    - 4650 of the poorest households in the Western Logone region, within the Sudanese area, with MDTF-ASP (Multi-Donor Trust Fund - Adaptive Social Protection) funding.

Additional hypothesis: The grant agreement between the World Bank and the Chadian government provides for funding to be spread over three years for Component 1, from 2018 to 2020. However, for the simulation of this scenario, we make the complementary assumption that similar funding will allow the pilot social safety net programs, as outlined above, to continue until 2025, which is the time horizon chose for the model. This assumption does not prevent the intrinsic effects of the said pilot programs from being analyzed during their effective implementation period (2018-2020), but also makes it possible to foresee their likely impacts if they were expanded beyond their initial period.

Based on the above annual amounts allocated to households benefiting from pilot social net programmes, as well as on the households structure in ECOSIT-3 household survey, and assuming an annual population growth rate of 3.6%, we found that in 2018, these programs generated, for each recipient household, an average increase in annual per capita income of 10,036 CFA francs in N'Djamena, 25,060 CFA francs in Barh-El-Gazel and 13,270 CFA francs in the Western Logone (Table 3). These amounts represent 14.8%, 13.5% and 7.9% of the gap between the poverty line and the average expenditure of recipient households in the respective related regions. It is awaited that the poverty impact of social safety nets should be all the more important as these proportions are high, but should also depend on the initial amounts of the aforesaid gap between average expenditures and the poverty line, in nominal terms.

In view of the number of poorest households incorporated into social safety net programmes for each of the three regions considered, and taking into account the expected population of these regions in 2018, it appears that the coverage rate of these programs, in relation to the total number of poor in the region, is higher for N'Djamena, where it amounts to 70.3%. In the Barh-El-Gazel and Western Logone regions, unconditional cash transfers cover 17.8% and 8.8% of the poor living in those regions, respectively.

Individuals living in beneficiary households located in N'Djamena account for 1.4% of the total number of poor people in Chad. Those who are part of the beneficiary households of Barh-El-Gazel and Logone represent respectively 0.2% and 0.8% of the poor at national level. Overall, the pilot safety net programs directly benefit 2.4% of the total number of poor peaople in Chad at the start of 2018.

Table 3: Coverage rate of the pilot social safety net programs in 2018

Libels	N'Djamena	Barh-El-Gazel	Western Logone	All three Regions
REVENUE GROWTH DATA FROM PILOT SOCIAL SAFETY NET PROGRAMS				
Increase in annual per capita income thanks to pilot social safety net programs (in CFA Franc)	10 036	25 060	16 105	13 270
COVERAGE RATE FOR SOCIAL SAFETY NET PROGRAMS				
Share of the "Poverty Gap" (gap between the poverty line and the average level of expenditure) filled by pilot transfers (%)	14.8	13.5	7.9	10.8
Percentage of individuals living in households benefiting from pilot social safety nets, compared to the total number of poor in the Region	70.3	17.8	8.8	19.3
Percentage of individuals living in households benefiting from pilot social safety nets, compared to the total number of poor in Chad	1.4	0.2	0.8	2.4

Source: Author's calculations based on the results from the ECOSIT3 household survey, and on results from simulations of the crisis scenario.

3.5.4. Scenario 4: Crisis scenario + cancellation of tariffs on food imports

The objective of this scenario is to envision the effects of lowering the prices of imported food products, through the cancellation of the related import tariffs. The loss of customs revenue as a result of this measure is fully compensated, at least on a transitional basis, by a foreign assistance to the government in form of a social budgetary support; given the scarcity of resources in the State treasury, which increased with the crisis. It is an untargeted response policy, that is, one that does not particularly target the poor in general, or poor children in particular.

It is assumed that this policy was applied from 2019. Its cost, in terms of ***customs revenue to be compensated***, is around 9 billion CFA francs in 2019, given the base data, and vary each year depending on changes in the imported quantities of food. This represents approximately 0.50% of the total state budget and 0.15% of GDP.

3.5.5. Scenario 5: Crisis scenario + cancellation of VAT levied on food products

As in the case of the previous scenario, this is another untargeted policy response. But here, the policy aims at lowering the prices of all food goods, whether imported or locally produced, through the cancellation of VAT applied on the said goods.

In order not to worsen the situation of public finances, it is assumed that the tax shortfalls caused by this measure are, on a transitional basis, entirely compensated by external public aid granted to the government. It is also assumed that this implicit subsidy will effectively be passed on to the referred retail prices.

In 2019, in case this policy was not applied, the amount of VAT on food products would amount to 6.5 billion CFA francs, i.e. 0.36% of the public budget and 0.11% of GDP. Presumably, with general equilibrium effects, the overall implicit cost of the policy would be slightly higher after the cancellation of VAT, given the resulting likely increase in demand for food.

3.5.6. Scenario 6: Crisis scenario + Extension of the scope of cash transfers to all households housing poor children, with an overall budget equivalent to 1% of 2018 GDP for transfers allocated in 2019

In this scenario, it is assumed that an overall amount equal to 1% of nominal GDP estimated for 2018 (year preceding the implementation of this policy) is allocated as cash transfers by the State to poor households. As in the other scenarios, it is assumed that this policy is funded over the study period, by external public aid granted to the government.

The coverage of these transfer programs extends to all households whose children were predicted to be poor in 2018. The amount allocated for each child is fixed. As a result, the amount a household receives varies proportionately to the number of children in it.

According to estimates resulted from the model, based on national account data (INSEED, 2018a) and real GDP growth rates (The World Bank, 2018c), the overall envelope dedicated to cash transfers for 2019, which corresponds at 1% of nominal GDP then estimated for 2018, would amount to CFAF 79.5 billion. Since the amount allocated for each child is fixed, this overall envelope varies annually to growth rate children's population, equated here by assumption with the growth rate for the total population. In 2019, the budget dedicated to transfers would then have represented around 12.30% of the average difference between the poverty line and the average level of spending of the poor in 2019, in the scenario with crisis and without response policy.

Based on all these assumptions and considering the estimated number of poor children in the crisis scenario, the appraised amount allocated for each poor child would be 20,780 FCFA per year, i.e. 1,730 FCFA monthly. But as it is supposed that the total amount received by a household, even if it depends on the number of children in the household, nevertheless benefits all members of the household, the increase in annual income per capita thanks to these transfers, considering all the poor, is estimated at 12,660 FCFA on average, i.e. 1,060 FCFA per month.

3.5.7. Scenario 7: Crisis Scenario + Extension of the scope of cash transfers to all households with poor children, with an overall budget equivalent to about 3%of 2018 GDP for transfers allocated in 2019

This is a variant of scenario 6 above. The fundamental difference here lies in the fact that, instead of a proportion of 1% of nominal GDP in 2018, the overall envelope dedicated to cash transfers in 2019 represents rather around 3% of said GDP. In fact, the interest of this scenario is to find an optimal amount which would have fully mitigate the negative effects of the crisis on child poverty by 2025; at least by getting out of poverty, by 2025, the same number of children who have become poor due to the crisis.

In this sense, the overall estimated amount that should have been distributed in 2019 amounts to CFAF 233.2 billion. It would then represent 36.07% of the average difference between the poverty line and the average expenditure of poor children in the crisis scenario without policy response. The increase in annual income per capita thanks to this scenario, considering the entire population of the poor, was estimated at 37,130 FCFA on average, i.e. 3,090 FCFA per month.

4. POVERTY IMPACTS OF THE CRISIS

4.1. Impacts of the crisis on the poverty trends for the entire Chadian population

Before presenting the specific impacts on child poverty, it would worth having an idea on the poverty trends, as well as concerning the effects of the crisis on that trend, for the whole of Chadian population. Chart 3 shows that if the economic crisis due to the 2014 oil shock had not occurred, the proportion of poor people in Chad would have steadily declined between 2011 and 2025. On this benchmark trend, it would have dropped from 46.67% in 2011 to 38.74% in 2018, up to 31.87% in 2025. But because of the crisis, the poverty prevalence is much.

Admittedly, the poverty headcount continues to decrease until 2015, thanks to GDP growth which remains positive, but already deviates by 0.56 percentage point in 2014 and 1.45 percentage point in 2015, above the benchmark trend. Thus, in 2014 and 2015, people experiencing poverty due to the crisis represented respectively 1.30% and 3.42% out of the whole poor population.

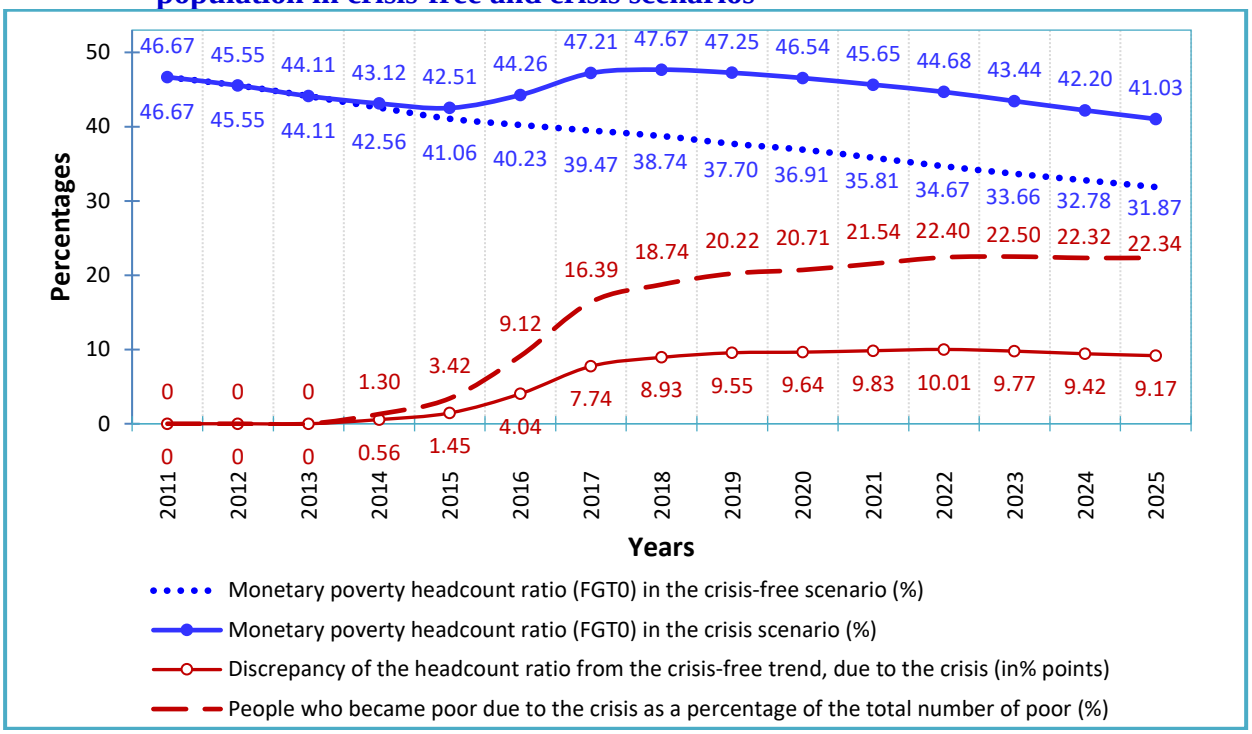
This proportion increased considerably after 2015, the poverty headcount having deviated more substantially from its benchmark trajectory. In fact, from 2016, the year Chad experienced a drastic negative growth in its real GDP, the poverty headcount ratio began to rise until 2018, when it would stand at 47.67%. If the assumption of moderate positive real GDP growth for 2019 through 2025 were effective, the poverty headcount would have decreased only slightly to 46.54% in 2020 and almost returned to its 2011 level. This implies a lost decade due to crisis, because this would represent more than 9 percentage points above its value on the baseline trend.

Subsequently, of the people living in poverty in 2018, 18.74% were due to the oil shock and the ensuing economic crisis. Despite the assumptions of positive growth from 2018 and especially 2019, this share rises to more than 20% in 2019 and exceeds 22% from 2022, the growth

not being strong enough to offset the real income losses suffered since 2014, compared to the crisis-free trajectory.

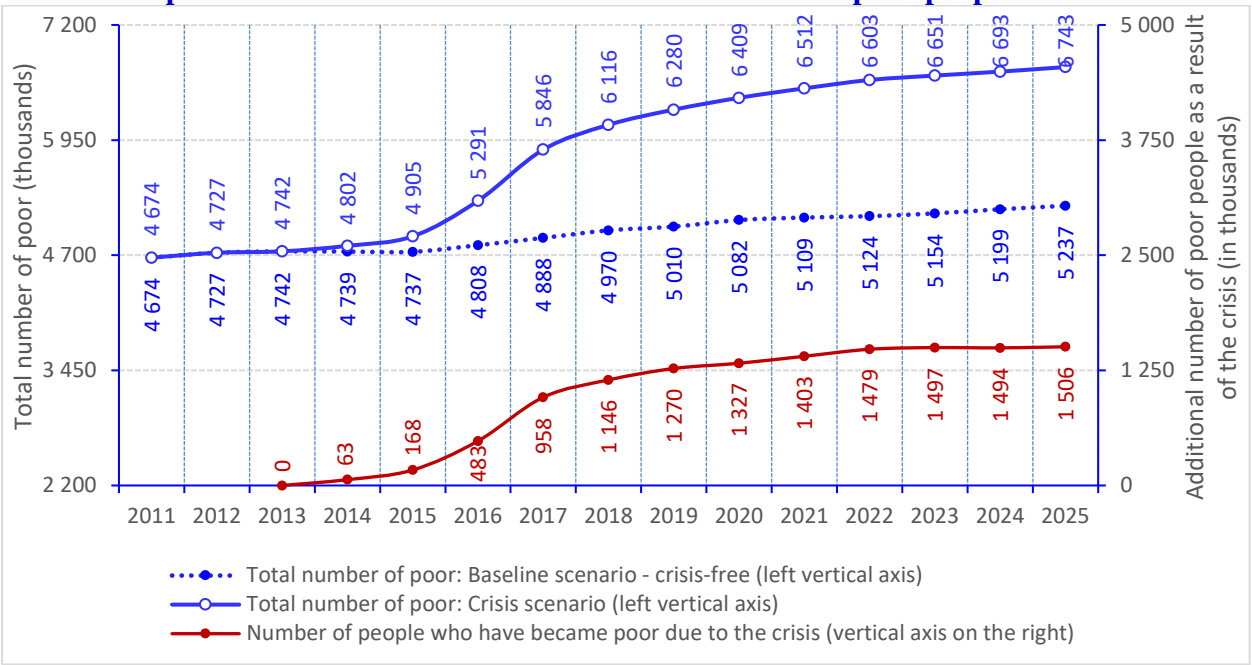
As shown in Chart 4, among the 6.28 million poor people estimated for 2019, 1.27 million would have been due to the oil shock in concern. This number of poor people caused by the crisis would rise to 1.5 million in 2025.

Chart 3: Trends in the monetary poverty headcount ratio (FGT_0) for the whole Chadian population in crisis-free and crisis scenarios



Source: Designed by the author using simulation results.

Chart 4: Impacts of the crisis on the trends in total number of poor people in Chad



Source: Designed by the author using simulation results.

4.2. Impacts of the crisis on the general trends in child monetary poverty

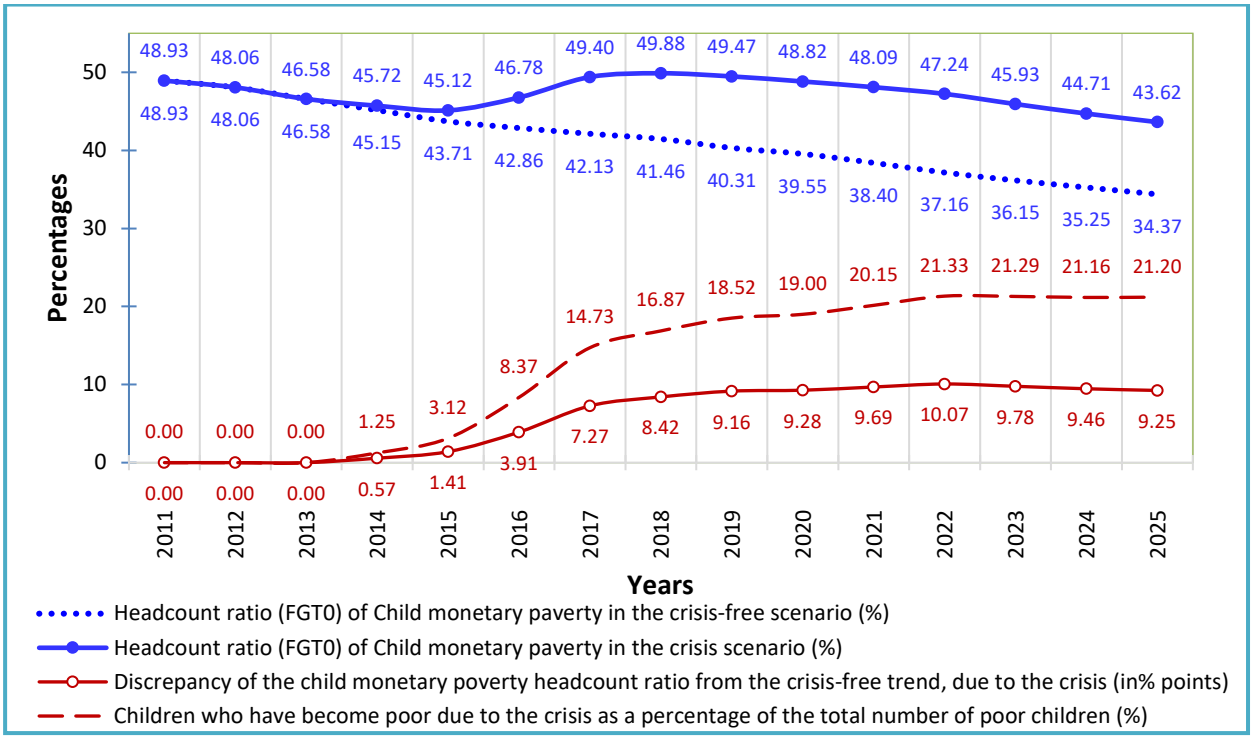
The impact analysis for child monetary poverty is, with a few differences, similar to that carried out on the scale of the whole population. It can be seen from Chart 5 that, in the crisis-free scenario, the share of poor children out of the total population of children decreases from year to year. If the economy had followed this benchmark trajectory, the monetary poverty headcount ratio among children would have dropped continuously from 48.93% in 2011 to 41.46% in 2018 and 34.37% in 2025. That is, in total, a drop of 14.56 percentage points between 2011 and 2025, which is slightly lower than the figure for the whole population (14.80).

One observation that can therefore be made at this juncture is that, structurally, not only is child monetary poverty higher than the national average, but also, even with positive economic growth, it tends to decrease less quickly than the nationwide poverty rates do, in case of no or insufficient poverty alleviation measures which specifically target children.

As is the case for the countrywide poverty, the headcount ratio for child monetary poverty in the crisis scenario first continued to decrease until 2015 before rebounding from year 2016 ahead to reach 49.88% in 2018. It was estimated that it would drop from there to 48.82% in 2020, thus returning to the level of poverty recorded a decade earlier, before continuing to decline to 43.62 % in 2025.

In light of Chart 5, it also appears that the discrepancy, of the child poverty headcount ratio from its benchmark values, goes gradually from 0.57 to 10.07 percentage points from 2014 to 2022, before starting a slightly downward slope up to 9.25 percentage points in 2025. Likewise, among poor children, the share of those having this status due to the crisis gradually increases starting from a value of 1.25% in 2014 to a bit more than 21% from 2022.

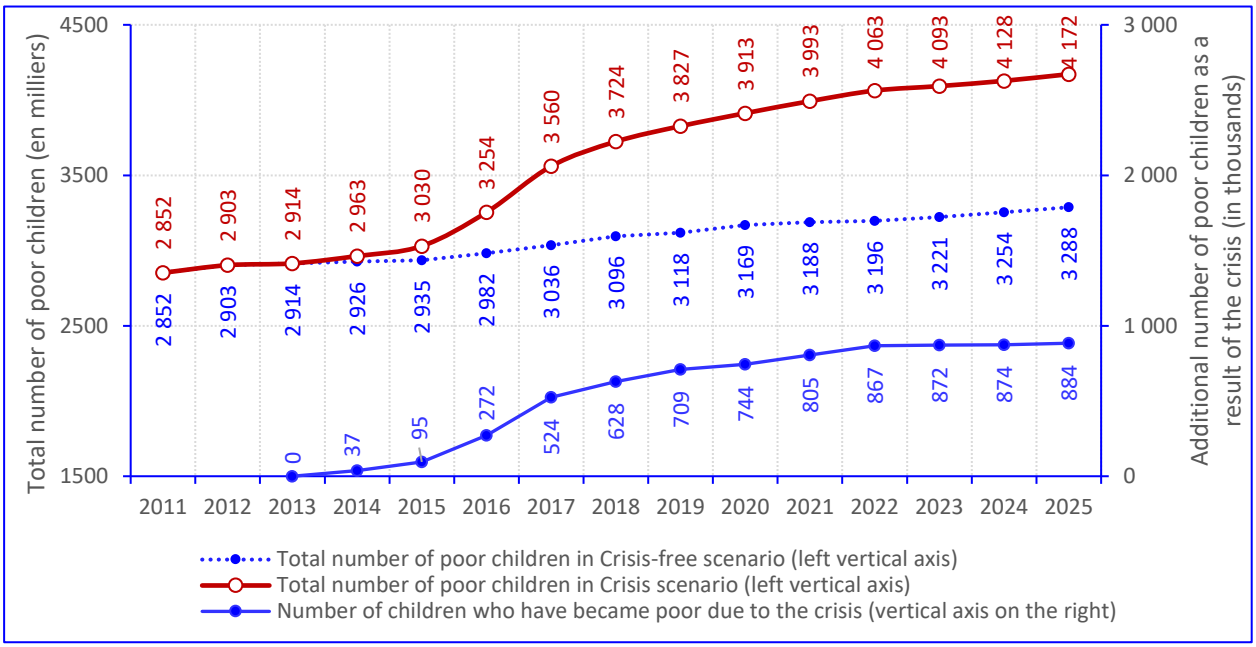
Chart 5: Trends in the headcount ratio of child monetary poverty (FGT_0) in crisis-free and crisis scenarios



Source: Designed by the author using simulation results.

These figures are slightly lower than for the whole population, simply because the decrease in child poverty in the baseline scenario is less strong than for adults. However, they remain higher in absolute terms compared to adults, given the larger proportion of children in the total population. Thus, as it arises from Chart 5 and Chart 6, the number of children having the status of poor because of the crisis increases from 37 thousand in 2014 to 709 thousand in 2019, then up to 884 thousand in 2025 , while the adults considered as poor due to the crisis increase from 26 thousand in 2014 to 561 thousand in 2019, and then up to 622 thousand in 2025.

Chart 6: Impact of the crisis on the number of poor children

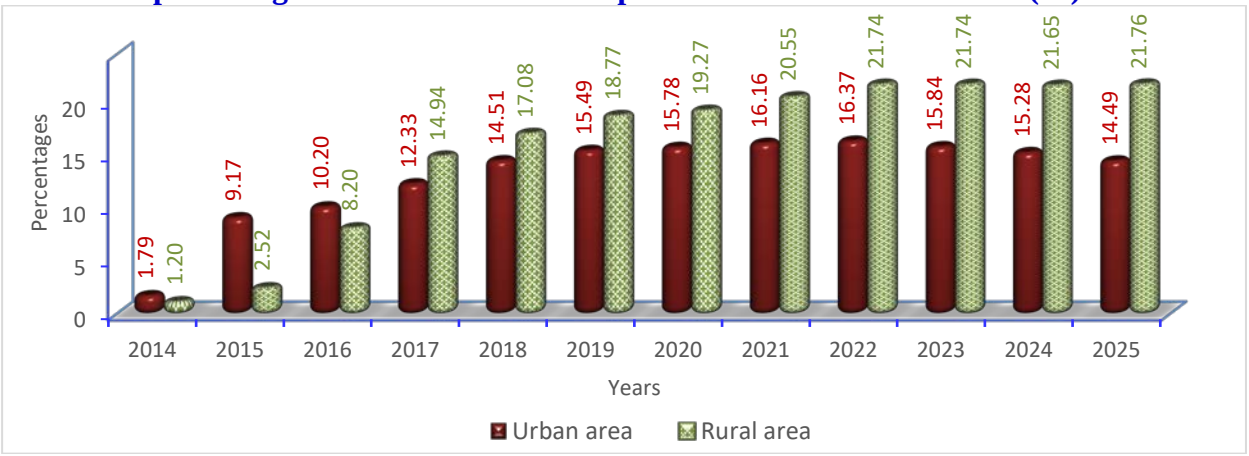


Source: Designed by the author using simulation results.

4.3. Poverty impacts of the crisis on children in urban vs. in rural area

The crisis increased poverty in both urban and rural areas (Chart 7). The magnitude of this surge was comparatively worse in urban areas from 2014 to 2016, i.e. during the three first years of the crisis. But from 2017 thereon, the worsening of the children situation was more dramatic in rural areas.

Chart 7: Children living in monetary poverty due to the crisis, by residence area, as a percentage of the total number of poor children in the said area (%)



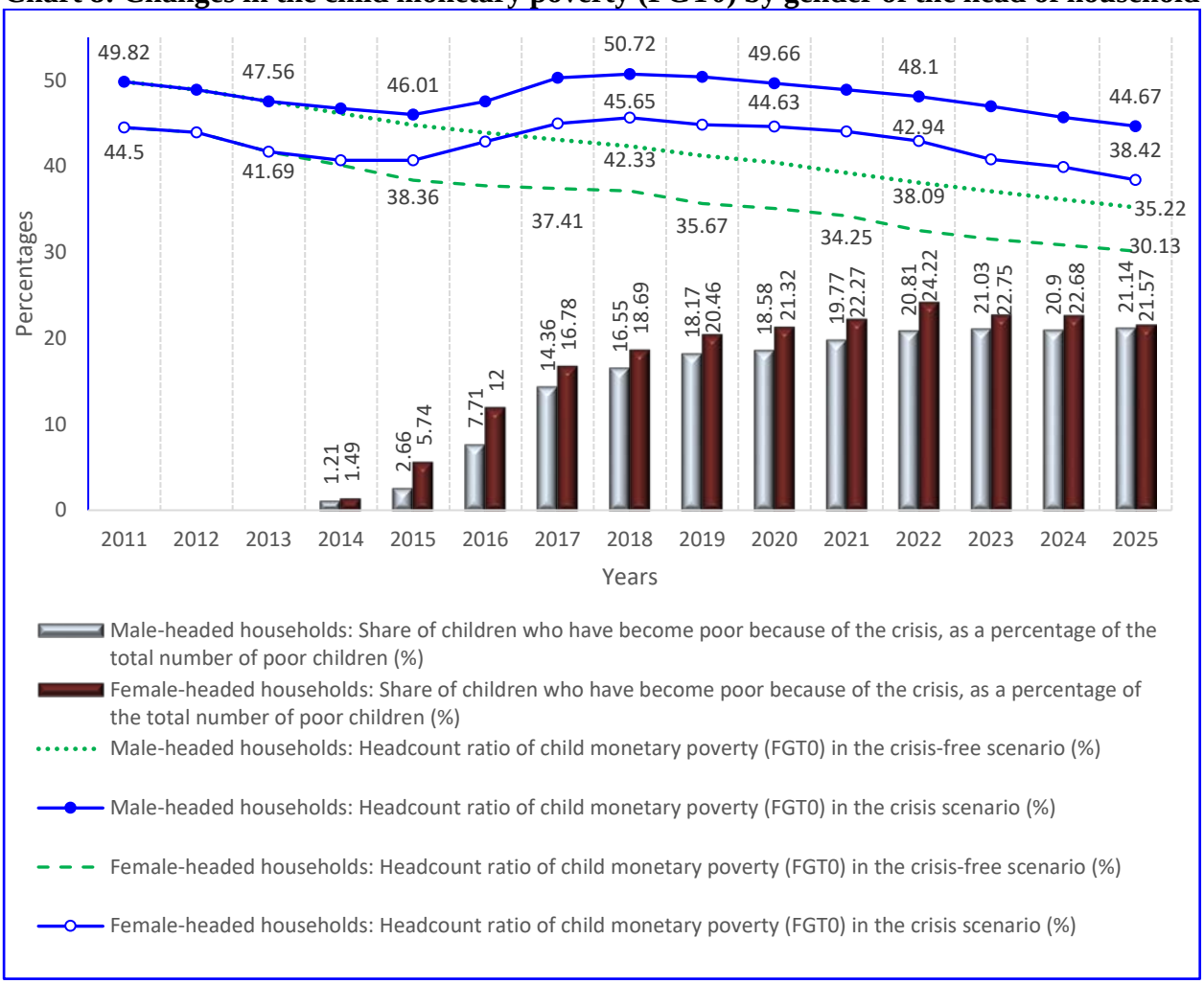
Source: Designed by the author using simulation results.

In rural areas, among poor children, the share of those living in this situation as a result of the crisis increased almost continuously, from 1.20% in 2014 to 21.76% in 2025. In urban localities, this ratio gradually goes from 1.79% in 2014 to 14.51% in 2018, reaches its peak at 16.37% in 2022 then drops slightly to 14.49% in 2025. This implies a process of a widening impoverishment of children in general, but even more dramatically in rural localities of which the contribution to child poverty was already preponderant in 2011.

4.4. Impacts of the crisis on child monetary poverty by gender of the head of household

At first glance, one might realize that the crisis had hit children regardless of the gender of the head of household. In this sense, it effectively follows from simulations that, whether in households headed by a woman or by a man, because of the crisis, the child poverty rate deviated from its downward trajectory observed in the crisis-free scenario, the magnitude of this deviation having also reached its greatest value in the same year in both cases, in 2022 (Chart 8).

Chart 8: Changes in the child monetary poverty (FGT0) by gender of the head of household



Source: Designed by the author using simulation results.

But beyond these common aspects, it appears that children in female-headed households are hit the hardest, if one considers the share of poor children who became poor due to the crisis. Conversely, in terms of absolute contribution to child poverty, male-headed households still occupy the first place, to a large extent, because a very high share of the total population of children in Chad (about 83%) live in these households. Thus, regardless of the year and irrespective of the scenario with or without a crisis, male-headed households almost constantly house around 85% of

the total number of poor children in Chad; with a very slight decrease (less than 0.4 percentage point) in the scenario with crisis compared to the crisis-free scenario.

4.5. Impacts of the crisis on child monetary poverty by level of education of the head of household

The simulation results reveal a very deep contrast between the impacts in households headed by an individual with a vocational training or higher education level on the one hand and in the rest of the households on the other hand (Table 4).

In fact, the first group of households is practically insensitive to changes in the economic environment, whether it is favorable or not, while the effects on the rest of households are more conventional. Thus, in the crisis-free scenario, which is based on a continuous positive GDP growth rates, the child poverty headcount ratio drops only by 0.1 percentage point in 15 years in households whose head has a vocational education level. This ratio remains constant from 2011 to 2014 (8.63%), from 2016 to 2020 (8.55%) and from 2021 to 2025 (8.53%). In the case of households headed by an individual with a higher education level, the value of this indicator obstinately remains fixed at 9.27% from 2011 to 2018, and decreases slightly, but again remaining constant at 8.75%, from 2019 to 2025.

Similarly, in the crisis scenario, yearly values of child poverty headcount ratios in households whose head had a vocational training or higher education level, remained almost unchanged compared to the corresponding values in the crisis-free scenario.

In the case of GDP growth, the inertia of the child poverty indicators for these households can be explained by the fact that poor children in those households live in a situation of extreme poverty or of social exclusion so severe that the growth of national GDP alone is very insufficient to get them out of it. Conversely, in the case of the crisis scenario, this inertia implies greater resilience of the non-poor among those households, or it could reflect the fact that the less wealthy of the non-poor children living in the said households enjoy a level of expenditure per capita high enough so that the adverse effects of the crisis fail to reduce it below the poverty line.

However, these children, who seem to be living in a bubble that isolates them from the favourable or unfavourable effects of the changes in economic environment, account for only 1.6% of the total number of children in Chad; which, on a nationwide scale, induces a marginal influence of this inertial phenomenon.

Concerning the other households (those headed by individuals with no education or with a level of koranic, primary or secondary education), it arises that the monetary poverty among children followed the standard trend: it decreased continuously in the crisis-free scenario and, in the crisis scenario, it first decreased until 2015, rebounded from 2016 until 2018 and decreased slightly from 2019.

Moreover, it worth noticing that the predominant contribution to child poverty remains that of households whose head has no education. Whatever the scenario (with or without crisis) and the year, between 63 and 64% of poor children live in these households. The cumulative contribution to child poverty, for households headed by uneducated individual or a person with koranic or primary education, stayed around 92% throughout the modeling period. Thus, even in terms of additional number of poor children because of the crisis, the share of these household groups was dominant; particularly that of households whose head had no education.

Table 4: Impacts on the trends in headcount ratio of child monetary poverty (FGT_0) by education level of the head of household

Education Level / Indicator	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
UN INSTRUCTED															
a. FGT_0: Crisis-free scenario (%)	50.29	49.52	48.28	46.67	45.15	44.57	43.81	43.24	42.14	41.66	40.48	38.67	37.57	36.68	35.56
b. FGT_0: Crisis Scenario (%)	50.29	49.52	48.28	47.19	46.99	48.21	50.83	51.32	50.84	50.22	49.65	48.70	47.51	46.29	45.14
c. Impact 1 = b - a (points of %)	0.00	0.00	0.00	0.52	1.84	3.64	7.02	8.08	8.70	8.57	9.17	10.03	9.94	9.60	9.58
d. Impact 2= (%) $\frac{c}{b}$	0.00	0.00	0.00	1.10	3.92	7.54	13.82	15.75	17.12	17.05	18.46	20.59	20.93	20.75	21.22
KORANIC SCHOOL															
a. FGT_0: Crisis-free scenario (%)	37.25	37.28	35.17	34.81	32.64	31.89	31.89	31.89	30.13	28.51	27.57	26.99	26.99	26.93	26.93
b. FGT_0: Crisis Scenario (%)	37.25	37.28	35.17	34.96	32.29	32.99	35.03	38.25	38.18	35.03	34.96	34.54	34.19	32.67	32.37
c. Impact 1 = b - a (points of %)	0.00	0.00	0.00	0.15	-0.36	1.11	3.14	6.36	8.05	6.52	7.38	7.54	7.20	5.73	5.44
d. Impact 2= (%) $\frac{c}{b}$	0.00	0.00	0.00	0.43	-1.11	3.35	8.97	16.62	21.08	18.62	21.12	21.84	21.06	17.55	16.79
PRIMARY EDUCATION															
a. FGT_0: Crisis-free scenario (%)	54.98	53.96	52.36	51.29	49.69	48.13	47.08	46.07	45.33	43.64	42.05	41.68	40.74	39.54	38.86
b. FGT_0: Crisis Scenario (%)	54.98	53.96	52.36	51.81	50.28	53.44	55.49	55.56	55.15	54.91	53.79	53.16	51.83	50.48	49.44
c. Impact 1 = b - a (points of %)	0.00	0.00	0.00	0.52	0.59	5.31	8.42	9.49	9.82	11.28	11.74	11.48	11.09	10.94	10.58
d. Impact 2= (%) $\frac{c}{b}$	0.00	0.00	0.00	1.01	1.18	9.93	15.17	17.09	17.81	20.53	21.83	21.60	21.39	21.67	21.39
SECONDARY EDUCATION															
a. FGT_0: Crisis-free scenario (%)	36.42	35.03	32.46	30.78	30.09	29.17	29.02	28.31	26.04	25.77	25.53	25.23	24.27	23.65	23.39
b. FGT_0: Crisis Scenario (%)	36.42	35.03	32.46	31.90	31.34	32.72	37.01	37.73	37.64	36.42	35.43	34.41	32.17	31.21	30.06
c. Impact 1 = b - a (points of %)	0.00	0.00	0.00	1.12	1.24	3.54	7.99	9.42	11.60	10.65	9.90	9.18	7.90	7.56	6.67
d. Impact 2= (%) $\frac{c}{b}$	0.00	0.00	0.00	3.50	3.97	10.83	21.59	24.97	30.83	29.23	27.95	26.67	24.57	24.23	22.19
VOCATIONAL TRAINING															
a. FGT_0: Crisis-free scenario (%)	8.63	8.63	8.63	8.63	8.55	8.55	8.55	8.55	8.55	8.55	8.53	8.53	8.53	8.53	8.53
b. FGT_0: Crisis Scenario (%)	8.63	8.63	8.63	8.63	8.83	8.96	9.07	9.45	9.45	9.07	8.74	8.53	8.53	8.53	8.53
c. Impact 1 = b - a (points of %)	0.00	0.00	0.00	0.00	0.28	0.41	0.52	0.90	0.90	0.52	0.21	0.00	0.00	0.00	0.00
d. Impact 2= (%) $\frac{c}{b}$	0.00	0.00	0.00	0.00	3.17	4.58	5.73	9.52	9.52	5.73	2.40	0.00	0.00	0.00	0.00
HIGHER EDUCATION															
a. FGT_0: Crisis-free scenario (%)	9.27	9.27	9.27	9.27	9.27	9.27	9.27	9.27	8.75	8.75	8.75	8.75	8.75	8.75	8.75
b. FGT_0: Crisis Scenario (%)	9.27	9.27	9.27	9.27	10.25	9.27	9.53	9.53	9.53	9.27	9.27	9.27	9.27	8.75	8.75
c. Impact 1 = b - a (points of %)	0.00	0.00	0.00	0.00	0.98	0.00	0.26	0.26	0.79	0.52	0.52	0.52	0.52	0.00	0.00
d. Impact 2= (%) $\frac{c}{b}$	0.00	0.00	0.00	0.00	9.53	0.00	2.76	2.76	8.24	5.63	5.63	5.63	5.63	0.00	0.00

Source: Designed by the author using simulation results.

5. EFFECTS OF THE POLICY RESPONSES ON POVERTY

5.1. Effects of cash transfers allocated under the pilot social safety net programs

5.1.1. Effects of the pilot social safety nets on the per capita real consumption

Pilot social safety net programs have had a significant positive impact on the consumption of beneficiary households, but only for them, the effects on other poor households being practically nil (Table 5).

In real terms, thanks to the cash-for-job program, the average per capita expenditure of beneficiary households in N'Djamena is 4.8% higher in 2018 than in the crisis scenario. This positive discrepancy rate decreases slightly from year, up to year to 3.9% in 2025, under the effect of population growth, since the amount allocated annually to recipient households remains constant across time and regardless of the change in household size.

The positive effects of the pilot social safety nets on real per capita consumption were even more substantial among beneficiaries living in the other two pilot regions. In 2018, the unconditional cash transfers led to an increase in real per capita expenditure of 39.2% for beneficiary households in Barh-El-Gazel region and 37.0% for those in Western Logone. As in the case of N'Djamena, these upturns gradually crumbled, since cash transfers did not evolve proportionally with the increase in the size of households. This decline was more pronounced in the Western Logone, where the population density per household is higher.

Table 5: Effects of the pilot social safety net programs on per capita spending of recipient and non-recipient households from 2018 to 2025

PERFORMANCE INDICATORS	2018	2019	2020	2021	2022	2023	2024	2025
RECIPIENT HOUSEHOLDS IN N'DJAMENA								
A. Change *(%)* in average expenditure in the pilot social safety net scenario, compared to the crisis scenario	**4.78**	**4.52**	**4.42**	**4.31**	**4.23**	**4.10**	**4.00**	**3.89**
B. Average expenditure per head in the crisis scenario as a percentage of the poverty line *(%)*	71.56	72.65	73.03	73.49	73.61	74.39	74.83	75.53
C. Average expenditure per head in the pilot social safety net scenario as a percentage of the poverty line *(%)*	74.98	75.94	76.25	76.66	76.72	77.44	77.83	78.47
D. = C – B *(percentage points)*	3.42	3.29	3.22	3.17	3.11	3.05	3.00	2.94
RECIPIENT HOUSEHOLDS IN THE BARH-EL-GAZEL REGION								
A. Change *(%)* in average expenditure in the pilot social safety net scenario, compared to the crisis scenario	**39.22**	**37.19**	**35.90**	**34.65**	**33.61**	**32.36**	**31.26**	**30.10**
B. Average expenditure per head in the crisis scenario as a percentage of the poverty line *(%)*	22.12	22.37	22.79	23.21	23.57	24.02	24.42	24.86
C. Average expenditure per head in the pilot social safety net scenario as a percentage of the poverty line *(%)*	30.79	30.69	30.97	31.26	31.49	31.79	32.06	32.35
D. = C – B *(percentage points)*	*8.67*	*8.32*	*8.18*	*8.05*	*7.92*	*7.77*	*7.64*	*7.49*
RECIPIENT HOUSEHOLDS IN THE WESTERN LOGONE								
A. Change *(%)* in average expenditure in the pilot social safety net scenario, compared to the crisis scenario	**36.96**	**34.89**	**31.33**	**28.32**	**25.91**	**23.69**	**21.85**	**20.17**
B. Average expenditure per head in the crisis scenario as a percentage of the poverty line *(%)*	14.84	15.09	16.54	17.99	19.38	20.79	22.15	23.51
C. Average expenditure per head in the pilot social safety net scenario as a percentage of the poverty line *(%)*	20.32	20.36	21.72	23.09	24.40	25.72	26.99	28.25
D. = C – B *(percentage points)*	*5.48*	*5.27*	*5.18*	*5.10*	*5.02*	*4.93*	*4.84*	*4.74*
NON-RECIPIENT POOR HOUSEHOLDS IN CHAD AS A WHOLE								
A. Change *(%)* in average expenditure in the pilot social safety net scenario, compared to the crisis scenario	**0.01**	**0.02**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**
B. Average expenditure per head in the crisis scenario as a percentage of the poverty line *(%)*	56.94	57.52	59.28	61.05	62.63	64.40	66.01	67.69
C. Average expenditure per head in the pilot social safety net scenario as a percentage of the poverty line *(%)*	56.95	57.54	59.30	61.07	62.65	64.42	66.03	67.71
D. = C – B *(percentage points)*	*0.01*	*0.01*	*0.02*	*0.02*	*0.02*	*0.02*	*0.02*	*0.02*

Source: Author's calculations based on simulation results.

Despite this decrease of the positive effects over time, the growth rates of real per capita expenditure remain significantly higher in the recipient households in Barh-El-Gazel and Western Logone throughout the simulation span, compared to the situation prevailing among the beneficiaries of N'Djamena. Two factors would explain this difference.

First, as it already appears above (Table 3), pilot social safety net programs imply allocating to the recipients of Barh-El-Gazel and Western Logone an additional annual income per head respectively 2.5 times and 1.6 times higher than the amount per head allocated to recipient households in N'Djamena. The second explanatory factor is related to the initial gap between the average expenditure level and the poverty line. In participating households living in N'Djamena, the average expenditure before the implementation of the social safety nets is much closer to the poverty line and represents 71.6% of the poverty line in 2018, while it represents the same year only 22.1% and 14.8% of this threshold, respectively for recipient households in Barh-El-Gazel and Western Logone.

This second factor suggests that, despite the substantial improvement in real per capita consumption among beneficiary households in Barh-El-Gazel and Western Logone, the effects on poverty reduction there would be less promising or not at all.

5.1.2. Effects of the pilot social safety nets on poverty regardless of age

On the nationwide level, the poverty impacts of the pilot social safety net programs are quite marginal (Table 22). The poverty headcount ratio remains almost constant compared to the crisis scenario. It fell by only 0.01 percentage point in 2018 and by 0.02 percentage point thereafter. Similarly, the gap between the poverty line and the average level of per capita spending narrows by only 0.3% over the period of analysis.

In terms of headcount, the number of people lifted out of poverty thanks to the pilot social safety nets, across all the country, has increased from 926 in 2018 to 2,332 in 2019. It then further increases gradually up to 3,747 by 2025. The rise of this number over time is to a large extent dependent to the assumption of sustained real GDP growth, of around 5.5% per year from 2019. Moreover, if we only consider the amounts allocated to households in all pilot programs (i.e. excluding program management costs), the average annual cost to lift an individual out of poverty is around 2.14 million CFA francs in 2018, 849,000 CFA francs in 2019 and gradually decreases to 528,000 CFA francs by 2025.

The small impacts on poverty reduction at the national level are nevertheless understandable: one explanation lays, trivially, on the fact that the immediate vocation of the pilot programs assessed here were to target only a tiny portion of households and in only three regions of Chad. As noted above, these programs have only a very low coverage rate nationally: they only affected 2.4% of poor individuals across the whole country in 2018. Furthermore, as it is presented below, it appears that, among the three pilot programs, **only the cash-for-job program could lift some of its beneficiaries out of poverty.**

In the urban and peri-urban area of N'Djamena, poverty reduction was weak, but more consistent than in other regions. The percentage of poor people within the population of N'Djamena decreased by 0.1 percentage points in 2018, 0.2 percentage points in 2019 and increased by only up to 0.3 percentage points by 2025.

All individuals lifted out of poverty in this area belong to recipient households (Table 6). These "survivors" account for 1.1% of the number of people living in households benefiting from the cash-for-job program in 2018, 2.6% in 2019 and gradually up to 3.4% in 2025. They represent a relatively larger share of the number of people who have become poor as a result of the crisis in the urban and peri-urban area of N'Djamena: 12.6% in 2018, 29.6% in 2019 and gradually up to 52.4% in 2025.

Taking into account only the total amount paid to beneficiary households in N'Djamena, the average annual cost of the program per individual out of poverty in this region is about 933,000 CFA francs in 2018, 371,000 CFA francs in 2019 and then gradually decreases to about 231,000 CFA francs by 2025.

Table 6: Effects of Social Safety net Pilot Programs on Poverty, regardless of ages, from 2018 to 2025, by recipient region and nationally

PERFORMANCE INDICATORS	2018	2019	2020	2021	2022	2023	2024	2025
THE ENTIRE CHADIAN POPULATION								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	47.67	47.25	46.54	45.65	44.68	43.44	42.20	41.03
B. Change in FGT_0 due to Pilot social safety nets (%)	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
C. Number of people out of poverty	**926**	**2332**	**2498**	**2959**	**3276**	**3436**	**3604**	**3.747**
D. Average cost per month for each person out of poverty (CFA Franc)	**178 186**	**70 755**	**66 053**	**55 762**	**50 366**	**48 021**	**45 782**	**44 035**
E. Depth of Poverty (FGT_1), Crisis Scenario (%)	20.44	20.16	19.35	18.55	17.88	17.16	16.54	15.93
F. Depth of Poverty (FGT_1), Pilot social safety nets (%)	20.39	20.11	19.29	18.50	17.82	17.10	16.49	15.87
G. *Change (%) in FGT_1 =(F – E)*100/E*	*-0.27*	*-0.28*	*-0.30*	*-0.31*	*-0.32*	*-0.32*	*-0.32*	*-0.32*
N'DJAMENA								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	11.72	11.49	10.95	10.76	10.24	10.01	9.92	9.88
B. Poverty Headcount Ratio (FGT_0), Pilot social safety nets (%)	11.63	11.27	10.73	10.51	9.97	9.73	9.64	9.60
C. *Change in FGT_0 = B – A (in percentage points)*	*-0.09*	*-0.22*	*-0.22*	*-0.25*	*-0.27*	*-0.28*	*-0.28*	*-0.28*
D. Number of people out of poverty	**926**	**2332**	**2498**	**2959**	**3276**	**3436**	**3604**	**3.747**
E. *Percentage of people out of poverty in region's recipient households*	*1.07*	*2.61*	*2.70*	*3.09*	*3.30*	*3.34*	*3.38*	*3.40*
F. *% of people out of poverty compared to the number of people who have become poor as a result of the crisis*	*12.57*	*29.55*	*31.64*	*39.35*	*43.67*	*45.98*	*49.82*	*52.43*
G. Depth of Poverty (FGT_1) in Recipient Households - Crisis Scenario (%)	28.44	27.35	26.97	26.51	26.39	25.61	25.17	24.47
H. Depth of Poverty (FGT_1) in Recipient Households - Pilot safety nets (%)	25.02	24.06	23.75	23.34	23.28	22.56	22.18	21.53
I. *Change (%) in FGT_1 in region's recipient households= (H - G)*100/G*	*-12.02*	*-12.00*	*-11.95*	*-11.94*	*-11.79*	*-11.91*	*-11.90*	*-12.00*
BARH EL-GAZEL								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	44.72	44.65	43.32	41.30	40.72	39.47	39.48	39.13
B. Poverty Headcount Ratio (FGT_0), Pilot social safety nets (%)	0	0	0	0	0	0	0	0
C. Number of people out of poverty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
D. Depth of Poverty (FGT_1) in Recipient Households - Crisis Scenario (%)	77.88	77.63	77.21	76.79	76.43	75.98	75.58	75.14
E. Depth of Poverty (FGT_1) in Recipient Households - Pilot safety nets (%)	69.21	69.31	69.03	68.74	68.51	68.21	67.94	67.65
F. *Change (%) in FGT_1 in region's recipient households = (E – D)*100/D*	*-11.14*	*-10.72*	*-10.60*	*-10.48*	*-10.37*	*-10.23*	*-10.10*	*-9.96*
WESTERN LOGONE								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	67.35	67.33	66.19	66.09	65.87	64.64	63.87	62.19
B. Poverty Headcount Ratio (FGT_0), Pilot social safety nets (%)	0	0	0	0	0	0	0	0
C. Number of people out of poverty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
D. Depth of Poverty (FGT_1) in Recipient Households - Crisis Scenario (%)	85.16	84.91	83.46	82.01	80.62	79.21	77.85	76.49
E. Depth of Poverty (FGT_1) in Recipient Households - Pilot safety nets (%)	79.68	79.64	78.28	76.91	75.60	74.28	73.02	71.75
F. *Change (%) in FGT_1 in region's recipient households = (E – D)*100/D*	*-6.44*	*-6.20*	*-6.21*	*-6.21*	*-6.23*	*-6.22*	*-6.21*	*-6.20*

Source: Author's calculations based on simulation results.

The relative success of pilot social safety nets in N'Djamena might be explained at least by two factors, despite the fact that, as noted above (Table 1), the additional expenditure per capita due to the program is 2.5 times and 1.6 time lower in this region than the supplementary amounts enjoyed respectively within recipient households in Barh-El-Gazel and Western Logone regions.

The first reason relates to the level of expenditure per capita prior to the implementation of social safety nets, which is relatively high in these households (Table 21), i.e., as a corollary, it is related to the relatively low depth of poverty within those households (Table 22). The second explanatory factor is the fairly broad coverage of the program applied in N'Djamena: the 9,000 households benefiting from this program shelter 70.3% of the poor people living in that region.

However, the rationale of the pilot programs being to making the poorest benefit first, it implies that poor people which are closest to the poverty line (and therefore likely to get out of poverty more quickly) only benefit from the program only if its coverage is wider, as is the case for N'Djamena. The combination of these two factors lead to a greater probability that the program benefits a poor household that does not ask for more to reach or to pass over the poverty line, even with a relatively low supplement of average per capita income.

Regarding the other regions: from the above, it appears that the proportion of poor people has not changed in any other region, following the implementation of the pilot programs, apart from N'Djamena. As a result, no one has escaped poverty in other regions.

However, within recipient households of Barh-El-Gazel and Western Logone regions, the gap between the average expenditure per capita and the poverty line has narrowed considerably, compared to the crisis situation. The reduction in the depth of poverty is around 8 percentage points for beneficiary households in Barh-El-Gazel and 5 percentage points within those living in Western Logone (while it is only around 3 percentage points for those of N'Djamena).

But this decline is not sufficient enough to reduce the share of the poor in these households, because of the very huge initial gap between the average per capita income of these households and the poverty line. Furthermore, the very low coverage of these programs compared to the total number of poor in each of these two regions, does not promote alleviation of monetary poverty as stressed above, considering the priority given to the poorest households of the poor in benefiting cash transfers. Admittedly, such prioritization, which echoes a certain principle of social justice, makes it possible to reduce inequalities in society and especially among poor households. But it only allowed here to boost consumption per capita of the said households (paragraph 6.1.1) without satisfying the conditions for truly reducing poverty in these households.

5.1.3. Effects of the pilot social safety nets on child poverty

The effects of social safety nets on children are broadly like those estimated nationwide regardless of age (paragraph 6.1.2).

Thus, as for all populations, it is only in the N'Djamena region that the pilot social safety nets led to an alleviation in child poverty, although this reduction is small and far to really mitigate the crisis effects (Table 7).

The drop in the percentage of the poor among the children of N'Djamena is barely noticeable: 0.1 percentage point in 2018, 0.2 percentage point in 2019 and gradually reaching about 0.3 percentage point in 2025. This means that the *cash-for-job* program brings 525 children out of poverty in 2018, 1,144 children in 2019 and gradually up to 1,796 children by 2025.

Children out of poverty in N'Djamena account for only 1.0% of the total number of children living in households benefiting from social safety nets in this region in 2018. This ratio is equal to 2.1% in 2019 and rises slightly to 2.7% in 2025.

They represent a relatively substantial proportion of the total number of children who became poor due to crisis in N'Djamena, implying a noticeable mitigating effect of the pilot programs there: 11% in 2018, 23.9% in 2019 and gradually up to 54.1% in 2025.

The explanatory factors of the magnitude and regional disparity of these effects are the same as those mentioned in paragraph 6.1.2 which deals with the impact on all citizens. In short, the probability that cash transfers reduce poverty is positively correlated, not only with the amount

distributed, but also with the coverage rate of the poor, including some of the less poor. As a corollary, this probability is inversely proportional to the initial gap existing between the level of expenditure per capita of the recipients and the poverty line.

Table 7: Effects of Pilot Social Safety Programs on Child Poverty, 2018 to 2025, by recipient region and nationally

PERFORMANCE INDICATORS	2018	2019	2020	2021	2022	2023	2024	2025
THE ENTIRE POPULATION OF CHILDREN IN CHAD								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	49.88	49.47	48.82	48.09	47.24	45.93	44.71	43.62
B. Change in FGT_0 due to Pilot social safety nets (%)	*-0.01*	*-0.01*	*-0.02*	*-0.02*	*-0.02*	*-0.02*	*-0.02*	*-0.02*
C. Number of children out of poverty	**525**	**1144**	**1262**	**1462**	**1567**	**1629**	**1714**	**1796**
N'DJAMENA								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	12.87	12.61	12.08	11.86	11.17	10.83	10.76	10.68
B. Poverty Headcount Ratio (FGT_0), Pilot safety nets (%)	12.77	12.41	11.87	11.62	10.92	10.58	10.50	10.43
C. *Change in FGT_0 = B – A (in percentage points)*	*-0.10*	*-0.20*	*-0.22*	*-0.24*	*-0.25*	*-0.25*	*-0.26*	*-0.26*
D. Number of children out of poverty	**525**	**1144**	**1262**	**1462**	**1567**	**1629**	**1714**	**1796**
E. *Percentage of children out of poverty compared to the total number of children in households benefiting from Pilot safety nets in N'Djamena*	*1.01*	*2.12*	*2.25*	*2.52*	*2.61*	*2.62*	*2.66*	*2.69*
F. *Percentage of children out of poverty compared to the total number of children who became poor as a result of the crisis in N'Djamena*	*10.95*	*23.85*	*26.25*	*35.63*	*44.10*	*47.64*	*51.14*	*54.13*
BARH EL-GAZEL								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	44.60	44.55	43.23	40.75	40.13	38.90	38.89	38.53
B. *Change in FGT_0 due to Pilot social safety nets (%)*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
C. Number of children out of poverty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
WESTERN LOGONE								
A. Poverty Headcount Ratio (FGT_0), Crisis Scenario (%)	70.01	69.99	69.19	69.14	69.17	67.58	66.84	64.97
B. *Change in FGT_0 due to Pilot social safety nets (%)*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
C. Number of children out of poverty	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source: Author's calculations based on simulation results.

In addition, the distribution of cash transfers to households involved in the pilot programs under review does not take into account neither the size of the household nor the number of children in the household. This is another factor that further disadvantages households with larger size in general and, in particular, those housing numerous children. However, as shown in paragraph 4.3.1, the larger the size of a household, the higher the prevalence of poverty in general and of child poverty in these households.

One of the ways of improving the pilot system of social nets would then be, not only to expand its coverage sufficiently, but also to find a mechanism of proportionality related to the number of children, when allocating transfers to poor households.

5.2. Effects of a total removal of import tariffs levied on food products

5.2.1. Impacts on the per capita real consumption

The impact on the household per capita real consumption for the whole country is very marginal, although positive (Table 8): the change in this indicator compared to its level in the crisis scenario is decrescendo from 0.19% in 2019 to 0.16% in 2025.

Despite its small magnitude, it should be noted that this pseudo-increase is even smaller in poor households (between 0.06% and 0.08%) compared to non-poor households (between 0.19% and 0,22%). The additional per capita amount spent in non-poor households as a result of this policy, in real terms, is about 9.5 times that of poor households.

This is mainly due to the fact that, industries of food products, whose labor force is mainly made up of poor individuals, records a slight underperformance in their production (about -0.2%), because the relatively better competitiveness of imported foods, the quantities of which increased by 0.3% thanks to their exemption from customs duties.

Table 8 Effects on per capita consumption, of the removal of customs duties levied on food imports from 2019 to 2025

PERFORMANCE INDICATORS		2019	2020	2021	2022	2023	2024	2025
Change in per capita consumption relative to its level in the crisis scenario	Population as a whole (%)	0.19	0.18	0.18	0.17	0.17	0.16	0,16
	Population of poor households (%)	0.08	0.08	0.08	0.07	0.07	0.07	0,06
	Population of non-poor households (%)	0.22	0.21	0.20	0.20	0.19	0.19	0,19
Ratio of the additional per capita expenditure of the non-poor to that of the poor		9,45	9.37	9.35	9.38	9.45	9.56	9.72

Source: Author's calculations based on simulation results.

5.2.2. Effects of removing tariffs on imported food, in mitigating the impacts of crisis on the overall poverty in Chad

The annihilation of import tariffs on food has a very insignificant impact in mitigating the overall poverty effects of the crisis in Chad. In fact, the small increase in per capita consumption of households in general and of poor households in particular is reflected in a barely perceptible decline in the headcount ratio and the depth of poverty (Table 28). Thanks to this policy, 14,249 people gets out of poverty in 2019. This number drops gradually over the years, to 10,047 in 2025.

This represents only 1.24% in 2019 to 0.88% in 2025 of the number of people who have become poor as a result of the crisis, or 0.23% in 2019 to 0.16% in 2025 of the total number of poor in Chad in the crisis scenario. That policy then shows a rather low and evanescent efficiency over time.

In terms of cost-benefit analysis (Table 9), it is initially less costly than the pilot social safety nets, until 2020, since the average cost of lifting an individual out of poverty in 2019 is 0.763 times the average cost under the pilot social safety nets assessed in subsection 6.1. This figure stands at 0.919 times in 2020. But beyond 2020, removing import tariffs on food becomes more expensive than implementing the pilot social safety nets. For instance, its unit cost is 1.256 times that of the pilot safety nets in 2021 and gradually increases up to almost twice in 2025.

Table 9 Effects on poverty for all citizens of the cancellation of tariffs on food imports from 2019 to 2025

INDICATORS		2019	2020	2021	2022	2023	2024	2025
Poverty headcount (FGT_0)	Value (%)	47.15	46.45	45.57	44.60	43.37	42.13	40.97
	Change from crisis scenario (%)	-0.11	-0.09	-0.08	-0.07	-0.07	-0.06	-0.06
Depth of Poverty (FGT_1)	Value (%)	20.14	19.33	18.53	17.86	17.14	16.53	15.91
	Change from crisis scenario (%)	-0.02	-0.02	-0.02	-0.02	-0.02	0.02	-0.02
Number of people lifted out of poverty		**14 249**	**12 914**	**11 399**	**10 883**	**10 431**	**10 149**	**10 047**
Percentage of people lifted out of poverty	As a percentage of the total number of poor in the crisis scenario	0.23	0.21	0.19	0.18	0.17	0.17	0.16
	Compared to the number of people who have become poor as a result of the crisis	1.24	1.13	0.99	0.95	0.91	0.89	0.88
Total amount of customs subsidy (bn of CFA francs)		**9.23**	**9.40**	**9.58**	**9.71**	**9.92**	**10.10**	**10.33**
Average cost per month and per individual out of poverty	Amount (CFA francs)	53 985	60 679	70 032	74 349	79 280	82 952	85 646
	As percentage of the similar cost prevailing in the pilot safety nets scenario	76.30	91.86	125.59	147.62	165.09	181.19	194.49

Source: Author's calculations based on simulation results.

5.2.3. Effects of removing tariffs on imported food, in mitigating the impacts of crisis on child poverty

As in the case of poverty regardless of age, the timid positive effects of removing customs duties on food imports are very insignificant in mitigating the worsening of child poverty caused by the crisis (Table 10). The number of children escaping poverty through this policy response stands at 8,732 in 2019 and fades over time, to 5,925 in 2025. This represents only a very small part of poor children in general (0.23% in 2019 to 0.14% in 2025), as well as a tiny proportion of children who have become poor due to the crisis (1.23% in 2019 to 0.67% in 2025).

Although the policy of importing food duty-free is more effective in terms of number or percentage of children lifted out of poverty, compared to the social safety nets pilot programs, it is however more costly for each child thus freed from poverty, as already pointed out in the previous paragraph (5.2.2) which deals with the effects for all populations.

Table 10 Effects of removing tariffs levied on food imports, in mitigating Child Poverty from 2019 to 2025

INDICATORS		2019	2020	2021	2022	2023	2024	2025
Headcount ratio of child poverty (FGT_0)	Value (%)	49.36	48.72	48.01	47.16	45.86	44.65	43.56
	Change from crisis scenario (%)	-0.11	-0.10	-0.08	-0.07	-0.07	-0.07	-0.06
Depth of Child Poverty (FGT_1)	Value (%)	21.38	20.58	19.79	19.11	18.38	17.75	17.12
	Change from crisis scenario (%)	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01
Number of children lifted out from poverty		**8 732**	**7 833**	**6 859**	**6 424**	**6 111**	**6 018**	**5 925**
Percentage of children lifted out of poverty	As a percentage of the total number of poor children in the crisis scenario	0.23	0.20	0.17	0.16	0.15	0.15	0.14
	Compared to the number of children who have become poor as a result of the crisis	1.23	1.05	0.85	0.74	0.70	0.69	0.67

Source: Author's calculations based on simulation results.

5.3. Effects of cancelling VAT levied on foods

5.3.1. Effects on the per capita real consumption

This policy leads to a slight increase in real consumption per capita, almost in the same order of magnitude (0.2%) as in the scenario of duty-free food imports (Table 11). But, unlike the latter, **the exemption from VAT is more favorable to poor households**: these households record a growth rate in their real consumption per capita, not only relatively higher, but also slightly increasing over time, from 0.30% in 2019 to 0.37% in 2025. This is more than twice the annual growth rate of real consumption per capita among non-poor households.

Table 11 Effects on real per capita consumption of VAT cancellation on food products from 2019 to 2025

PERFORMANCE INDICATORS		2019	2020	2021	2022	2023	2024	2025
Change in per capita real consumption relative to its level in the crisis scenario	Population as a whole (%)	0.17	0.19	0.20	0.20	0.20	0.20	0,20
	Population of poor households (%)	0.30	0.33	0.35	0.36	0.37	0.37	0,37
	Population of non-poor households (%)	0.13	0.15	0.16	0.16	0.15	0.15	0,15
Ratio of the additional per capita expenditure of the non-poor over that of the poor		1,66	1.64	1.57	1.49	1.44	1.41	1.39

Source: Author's calculations based on simulation results.

Admittedly, the additional amount of real expenditure per capita of non-poor households is still higher than that of poor households: it is 1.66 times higher in 2019 and gradually down to 1.39 times in 2025. However, this ratio remains relatively low compared to the duty-free scenario where the gain of the non-poor is 9.5 times that of the poor.

The relatively pro-poor nature of exempting food from VAT stems from the fact that it does not discriminate against neither imported foodstuffs nor those produced locally. On the contrary, the cancellation of customs duties strengthens the competitiveness of imports and therefore introduces a distortion to the disadvantage of sectors producing local substitutes of imported foods, while those sectors mostly hire unskilled workers from poor households.

Moreover, in the VAT cancellation scenario, the growth rate of unit earnings of unskilled labor is almost double that of a skilled labor. In addition, the change in the capital unit earnings is positive in all production branches, including those where most poor households are active in.

5.3.2. Effects of exempting foods from VAT, in offsetting the poverty impacts of crisis on the overall population

As a consequence of the above-mentioned effects on household consumption (paragraph 5.3.1), an increasing number of people exit poverty from year to year thanks to food exemption from VAT. This number ranges from 15,742 in 2019 to 27,270 in 2025 (Table 12). It certainly represents a still small, but growing proportion of the total number of poor people on the one hand (from 0.26% in 2019 to 0.45% in 2025), and of the number of individuals who became poor because of the economic crisis on the other hand (from 1.37% to 2.38%).

Therefore, this VAT-based policy response is not consistent enough to substantially mitigate the worsening of poverty caused by the crisis. However, it proves to be relatively more effective and efficient in reducing poverty than the duty-free policy on foods, as well as compared to the social safety net pilot programs. In fact, with a cumulative implicit cost, for the period 2019-2025, equal to only 73% of that incurred in the scenario of elimination of customs duties on foods,

the VAT policy option applied here allows to exit 2.7 times more people from poverty by the end of 2025.

Furthermore, in 2019, the average cost of lifting an individual out of poverty in the VAT-based scenario represents only 48.5% of the similar cost in the case of pilot safety net programs. Even if this ratio fluctuates over time, it remains below 55% each year throughout the simulation period.

Table 12: Effects on the poverty of all citizens of the cancellation of VAT levied on food products, from 2019 to 2025

PERFORMANCE INDICATORS		2019	2020	2021	2022	2023	2024	2025
Poverty headcount (FGT_0)	Value (%)	47.13	46.42	45.51	44.53	43.28	42.03	40.87
	Change from crisis scenario (%)	-0.12	-0.12	-0.13	-0.15	-0.15	-0.16	-0.17
Depth of Poverty (FGT_1)	Value (%)	20.08	19.26	18.46	17.78	17.06	16.45	15.83
	Change from crisis scenario (%)	-0.08	-0.09	-0.09	-0.10	-0.10	-0.10	-0.10
Number of people lifted out of poverty			**16 652**	**19 187**	**21 725**	**23 422**	**25 657**	**27 270**
Percentage of people lifted out of poverty	As a percentage of the total number of poor in the crisis scenario	0.26	0.27	0.31	0.36	0.38	0.42	0.45
	Compared to the number of people who have become poor as a result of the crisis	1.37	1.45	1.67	1.90	2.04	2.24	2.38
Total Value Added Tax "subsidy" (bn of CFA francs)		**6,48**	**6.68**	**6.89**	**7.07**	**7.31**	**7.53**	**7.78**
Average cost per month and per individual out of poverty	Amount (CFA francs)	34 322	33 431	29 904	27 113	25 997	24 457	23 786
	As percentage of the similar cost prevailing in the pilot safety nets	48.51	50.61	53.63	53.83	54.14	53.42	54.02

Source: Author's calculations based on simulation results.

5.3.3. Effects of exempting foods from VAT, in offsetting the worsening of child poverty generated by the crisis

The number of children freed from poverty thanks to the VAT-based policy response increases over the years (Table 13). It goes from 9,818 in 2019 to 16,258 in 2025. It denotes an increasing proportion of the total number of poor children in general, as well as a growing percentage of the number of children who became poor due to the crisis.

But, as in the case when considering all populations regardless of age, this alleviation of child poverty remains weak. Thus, although the results of this scenario are better than those of the previous two, it appears that the mere cancellation of the VAT levied on food is far from wiping out the additional child poverty engendered by the crisis.

Therefore, further to this measure, a really accurate policy response is needed. From this perspective, two scenarios the results of which are analyzed in subsection 5.4 have been designed. They consist in extending the scope of cash transfers programs to all poor households.

Table 13 Effects on child poverty of the cancellation of VAT levied on food products from 2019 to 2025

PERFORMANCE INDICATORS		2019	2020	2021	2022	2023	2024	2025
Headcount ratio of child poverty (FGT_0)	Value (%)	49.34	48.69	47.96	47.10	45.79	44.55	43.45
	Change from crisis scenario (%)	-0.13	-0.13	-0.13	-0.14	-0.14	-0.16	-0.17
Depth of Child Poverty (FGT_1)	Value (%)	21.33	20.51	19.71	19.03	18.30	17.67	17.04
	Change from crisis scenario (%)	-0.08	-0.09	-0.10	-0.10	-0.10	-0.10	-0.10
Number of children lifted out from poverty			**10 347**	**11 002**	**11 801**	**12 672**	**14 495**	**16 258**
Percentage of children lifted out of poverty	As a percentage of the total number of poor children in the crisis scenario	0.26	0.26	0.28	0.29	0.31	0.35	0.39
	Compared to the number of children who have become poor as a result of the crisis	1.39	1.39	1.37	1.36	1.45	1.66	1.84

Source: Author's calculations based on simulation results.

5.4. Impacts of allocating cash transfers to all households sheltering poor children: simulation results in cases of a total budget dedicated to transfers equal to 1% versus 3% of GDP

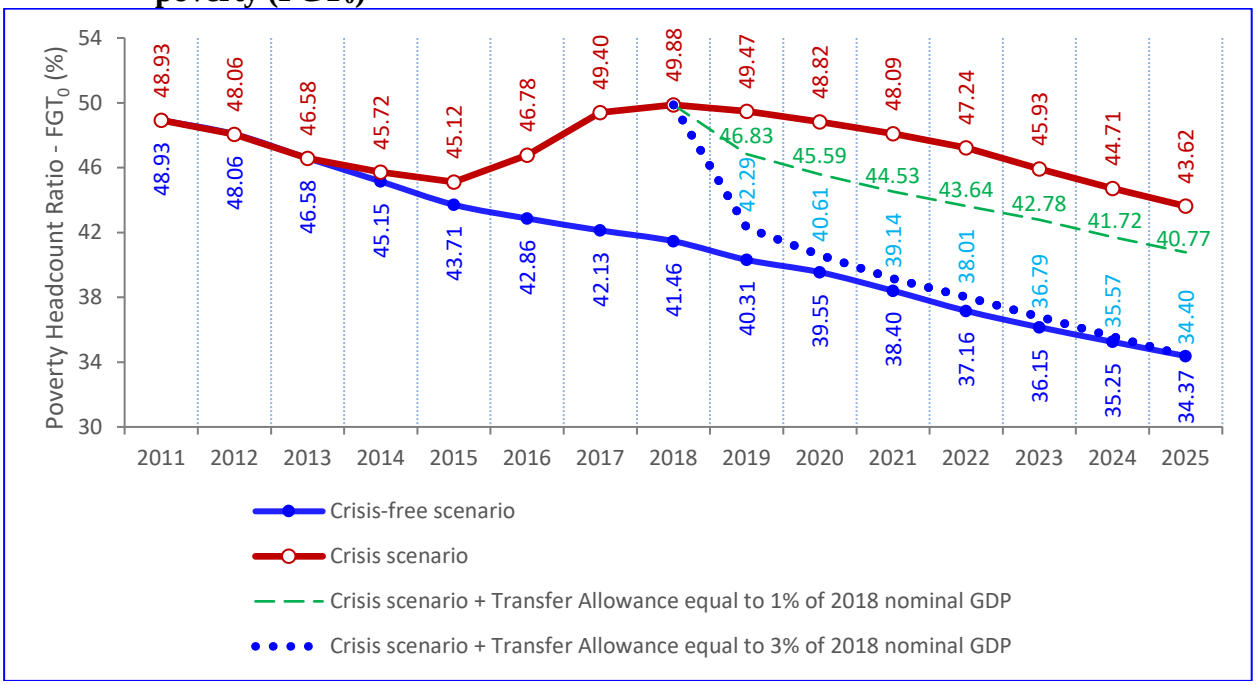
5.4.1. Effects on overall child monetary poverty, of broadening the scope of cash transfers

Simulations results show that a cash transfer program that encompass all households housing poor children would effectively reduce the prevalence of child poverty across the country Chart 9, Chart 10). The impacts are logically more beneficial if the program has a larger budget envelope. This is the case if the total starting amount would be equal to 3% of nominal GDP recorded in 2018, compared to the scenario where this amount would represent only 1% of the said GDP.

Indeed, in the case of a budgetary allocation equal to 1% of GDP, the headcount ratio for child poverty decreases from year to year, from 2019 to 2025, by around 3 percentage points each year, compared to the values of this indicator in the crisis scenario.

But if the total cash transfers budget is equal to 3% of GDP, the headcount ratio of child poverty drops more substantially from 2019. By 2025, after implementing the program for seven years, the low level that this ratio would have attained if crisis had not occurred, is recovered. So, in case of total transfers amounting 3% of GDP, the decline in the headcount ratio of child poverty ranges from 7.18 percentage points in 2019 to more than 9 percentage points as from 2022, compared to the crisis scenario.

Chart 9: Effects of broadened cash transfer options on the overall headcount ratio of child poverty (FGT_0)



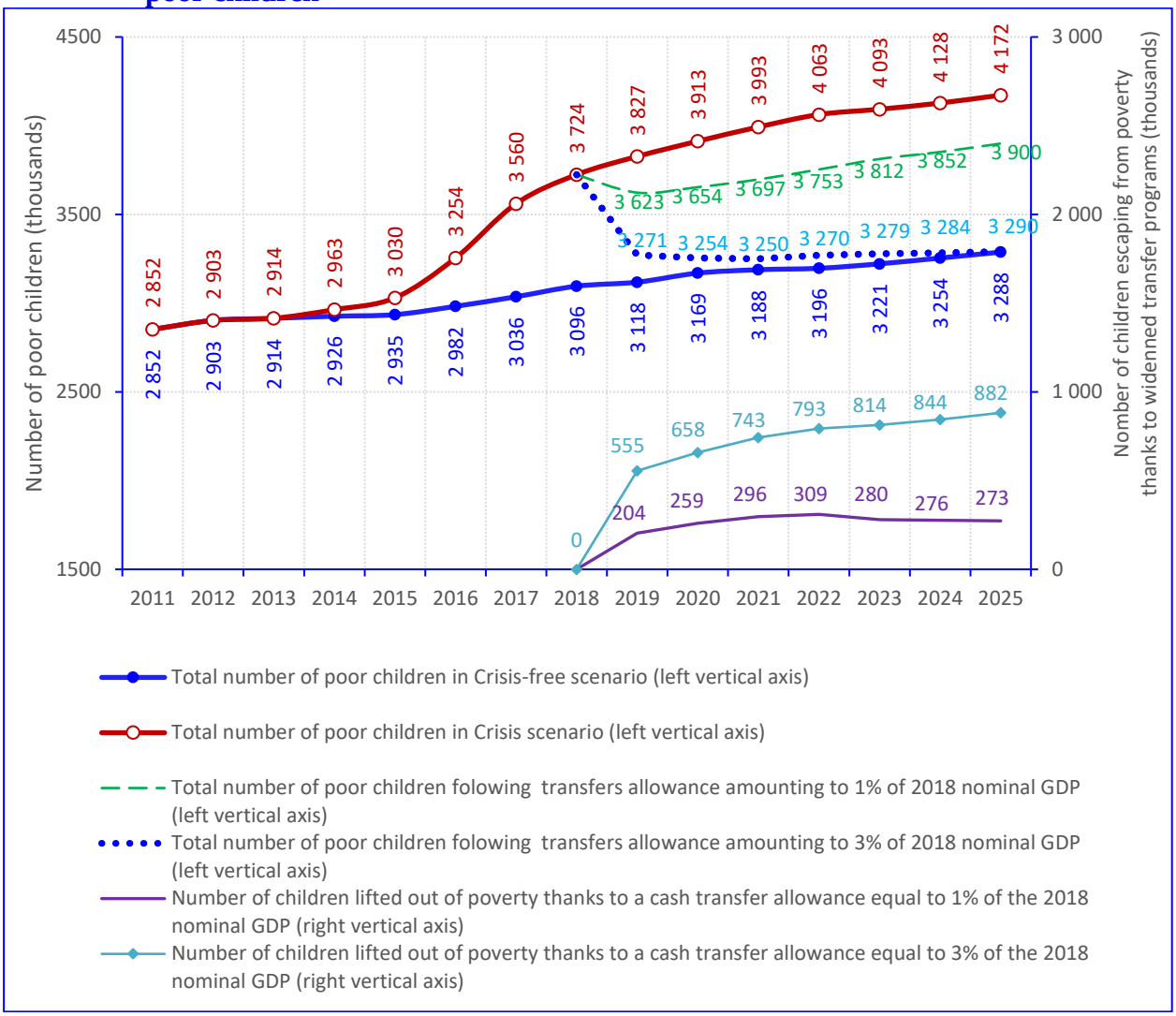
Source: Designed by the author using simulation results.

Chart 10 shows over time the total number of poor children and the number of children lifted out of poverty thanks to cash transfers. With transfers amounting to 1% of GDP, the number of poor children decreases from 3.7 million in 2018 to 3.3 million in 2019, then gradually rises to 3.9 million in 2025. This is an enhancement over the crisis scenario where the number of poor children rather rises to 3.8 million in 2019 and increases further up to 4.2 million in 2025. Thus, transfers of 1% of GDP would have made it possible to get out of poverty 204 thousand children in 2019. This number would have increased to 338 thousand in 2022, then would have diminished to 273 thousand in 2025.

On the other hand, transfers of 3% of GDP would induce a more massive and cumulative exit of children from poverty: 555 thousand in 2019 and gradually up to 882 thousand in 2025. This would result in a total number of poor children relatively lower and constant over time: 3.3 million poor children each year, from 2019 to 2025. It appears once more that such a program would make up in 7 years, the delay caused by the crisis, in the fight against child poverty.

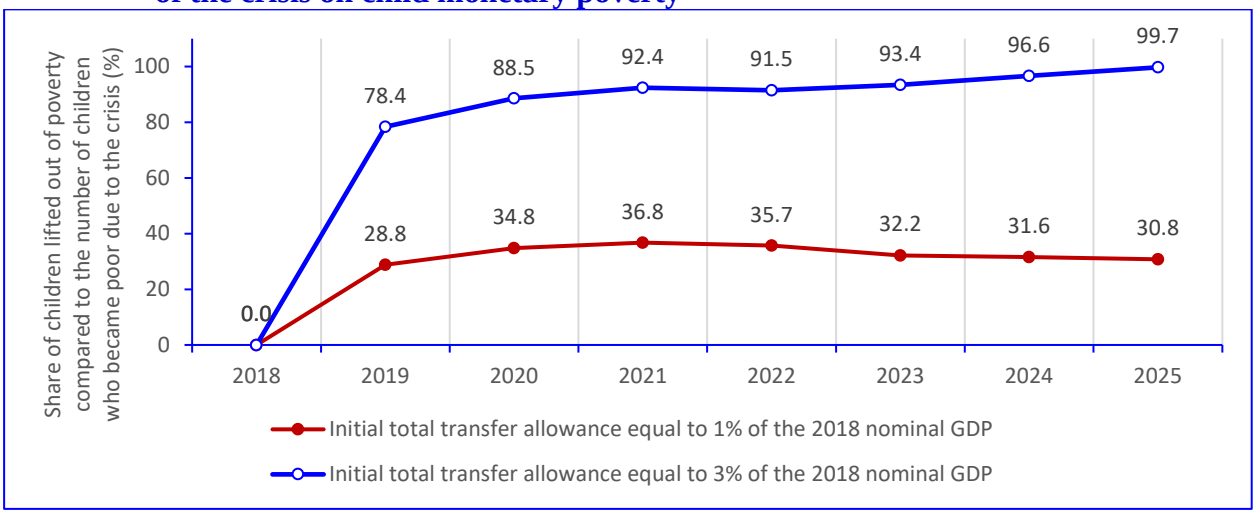
This point is otherwise illustrate through Chart 11 from which it appears that, by 2025, the transfer program of 3% of GDP actually leads to a total mitigation of the crisis-related negative effects on child poverty, with a mitigation rate starting from 78% in 2019 and increasing to 99.7% in 2025. On the contrary, in case of total transfers amounting to1% of GDP, this attenuation rate reaches only 37% in 2021 and gradually fades to 31% in 2025.

Chart 10: Effects of widening the scope of cash transfers on the trends in total number of poor children



Source: Designed by the author using simulation results.

Chart 11: Effects of widening the scope of cash transfers in mitigating the negative impact of the crisis on child monetary poverty



Source: Designed by the author using simulation results.

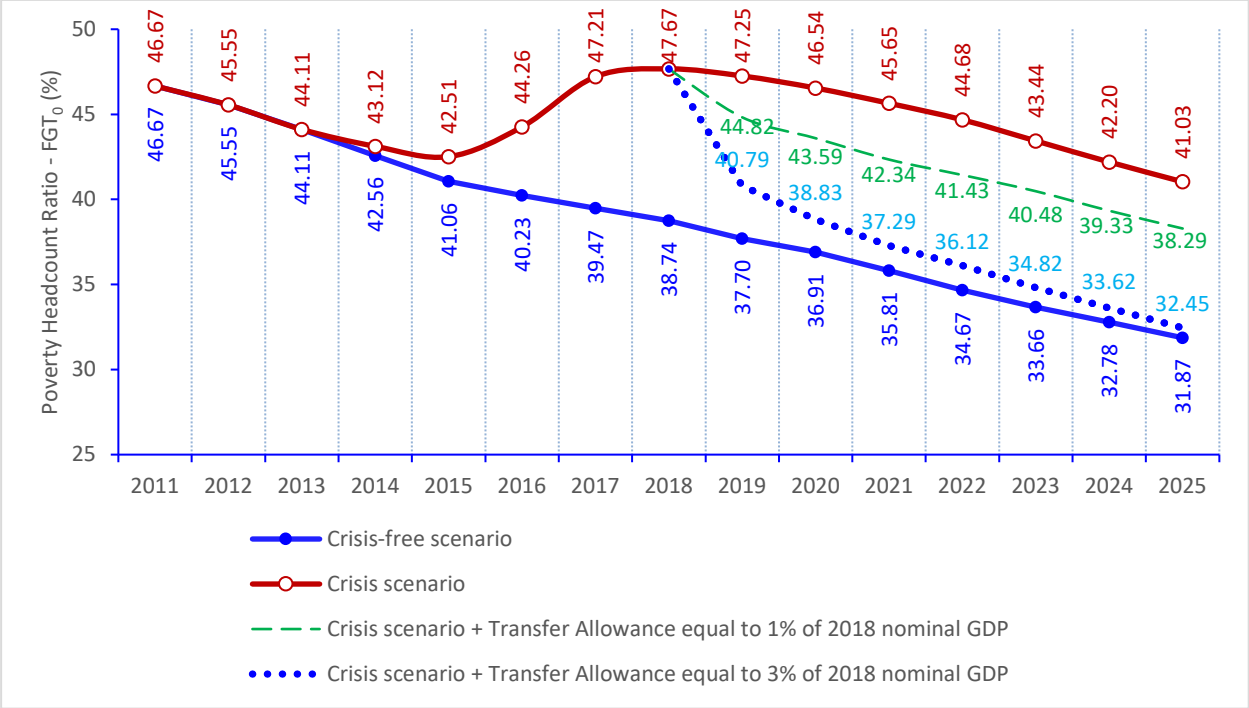
5.4.2. Poverty effects of widening the scope of cash transfers in Chad, regardless of age

The improvement generated by cash transfers benefits to the Chadian population as a whole (Chart 12, Chart 13 and Chart 14). Thus, in the case of initial total transfers equal to 1% of GDP, the poverty headcount ratio drops by 2.43 percentage points in 2019, 3.56 percentage points in 2022 and, from there, down to 2.75 points in 2025. This represents between 5.14% and 7.91% of poor people lifted out of poverty each year, compared to the total number of poor people in the crisis scenario. With this program, the poverty headcount ratio for the whole nation would therefore start from an estimated rate of 47.67% in 2018 to 44.82% in 2019, and would further go down to 38.29% in 2025 instead of 41.03% predicted on that date in the crisis scenario.

Thanks to the 1% GDP-transfer program, the nationwide number of poor people decreases significantly, from an estimated 6.12 million poor in 2018 to 5.96 million in 2019 and rises slightly thereafter to 6.29 million in 2025, instead of 6.74 million expected that year in the crisis scenario. In total, this program helps lift 323,000 to 526,000 people out of poverty each year, i.e. around 30% of citizens who have become poor due to the crisis, and about 7% of total number of poor individuals.

Looking at a transfer program amounting to 3% of GDP, it appears that the poverty headcount ratio for the entire Chadian population drops in 2019 to 40.79% and decreases steadily until 32.45% in 2025: a reduction of more than 8.5 percentage points each year from 2022, compared to the values of that ratio in the crisis scenario. This reflects the fact that, from 2022, at least 20% of total number of people deemed to be poor in the crisis scenario emerge from poverty.

Chart 12: Effects of cash transfer policies on changes in the monetary poverty headcount ratio (FGT0) for the Chadian population as a whole

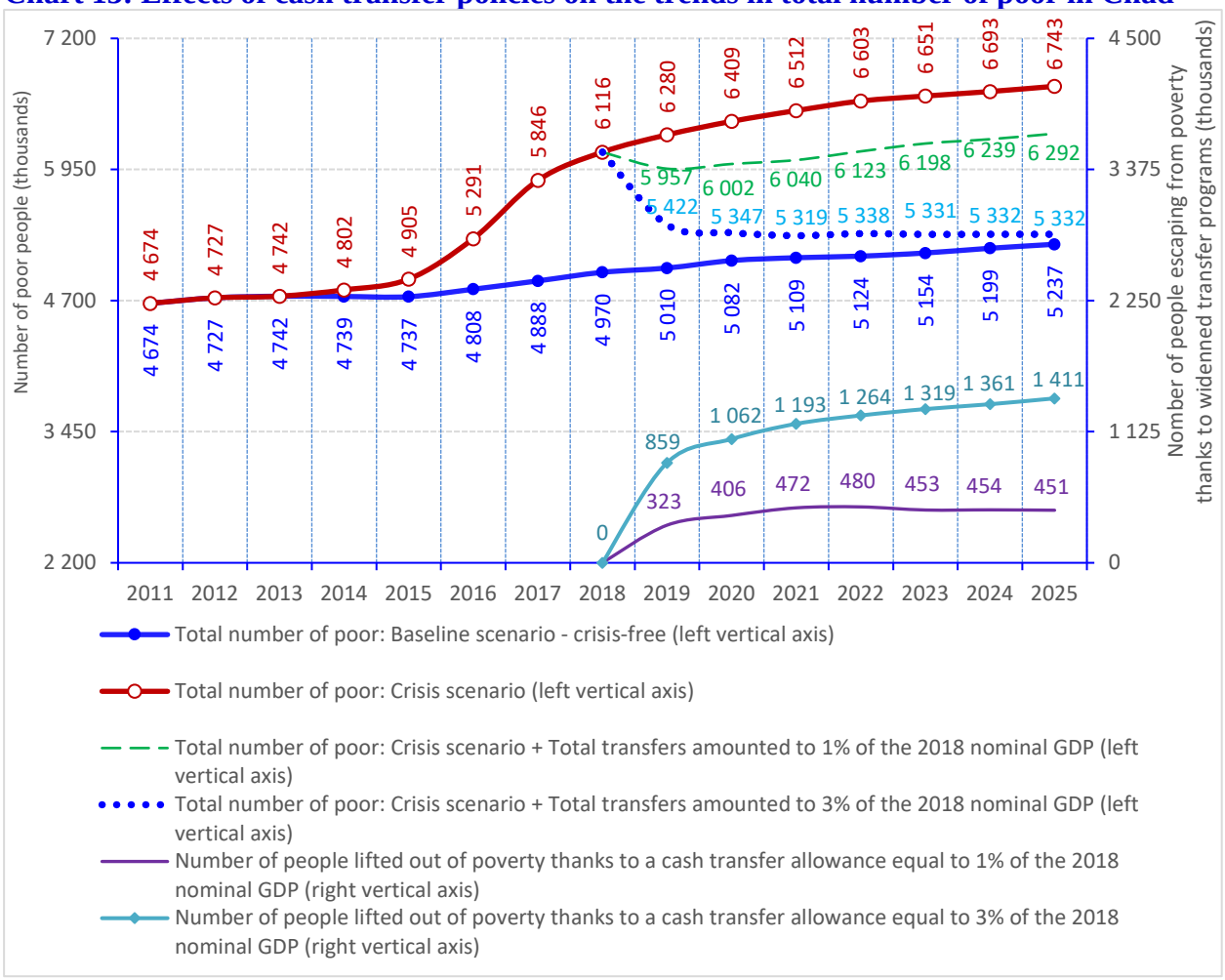


Source: Designed by the author using simulation results.

In this case, the number of people who emerge from poverty increases continuously over the years, from 859 thousand in 2019 to 1.4 million in 2025. The total number of those who remain poor stabilizes at 5.3 million each year between 2021 and 2025.

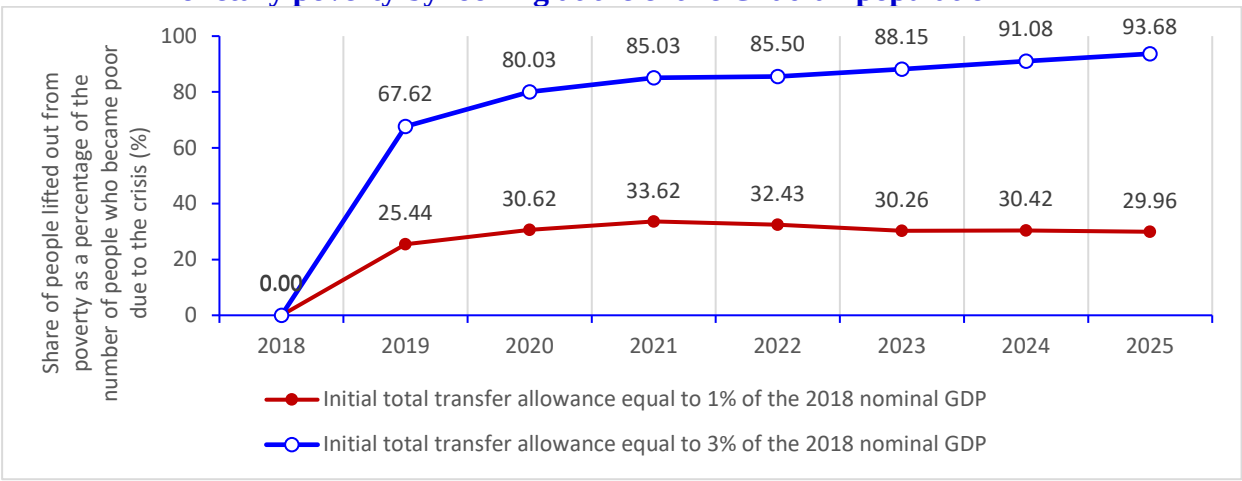
In 2025, the program would lift out of poverty, 94% of citizens who have become poor because of the crisis. This mitigation rate is high, although slightly lower compared to the case of child poverty considered alone. Which is normal, since, within the overall inhabitants, households which do not house poor children do not benefit directly from transfers.

Chart 13: Effects of cash transfer policies on the trends in total number of poor in Chad



Source: Designed by the author using simulation results.

Chart 14 Effects of cash transfer policies in mitigating the negative impact of the crisis on monetary poverty by looking at the entire Chadian population



Source: Designed by the author using simulation results.

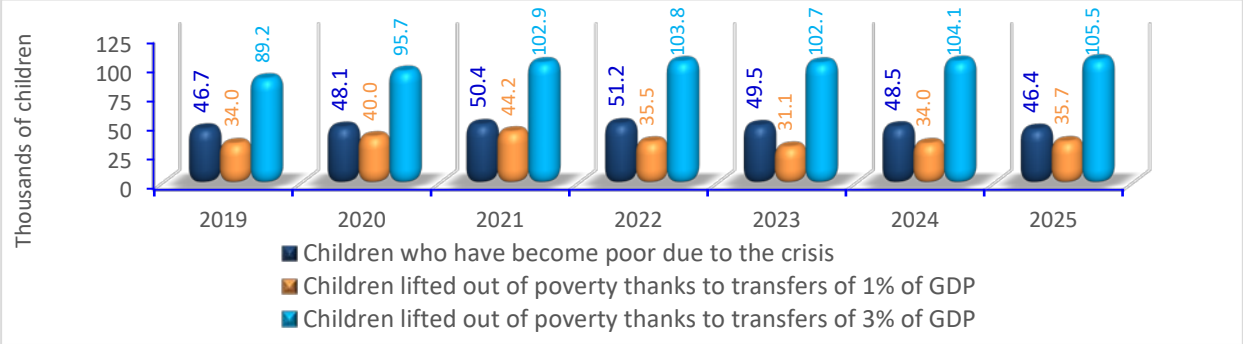
5.4.3. Effects of broadening the scope of cash transfers on child monetary poverty depending on the urban/rural area of residence

In urban areas, where on average 17.3% of the total number of children live (poor and non-poor), the favorable effects of cash transfers are very significant (Chart 23). Even when the initial total amount of transfers represents only 1% of GDP, the rate of mitigation of the negative impacts of the crisis on child poverty is high: it fluctuates between 62% and 85% over the years, whereas it hardly exceeds 38% when considering the overall number of children in rural and urban areas altogether.

The transfers are even more effective in alleviating child poverty in urban areas when the initial budget amounts 3% of GDP. In this case, the rate of mitigating the worsening of child poverty due to crisis is greater than or equal to 200% over the entire period considered, apart from 2019 when it is 194%. This implies that, if the crisis has plunged one child into poverty, then such a transfer program brings out two. As a result, 89,000 children are lifted out of poverty in 2019, 96,000 in 2020 and more than 100,000 each year from 2021 to 2025. These figures are very significant, since it means that a third of overall number of poor children in urban areas escape from poverty.

The outcome is a remarkably low headcount ratio of child poverty in urban areas by 2025: 12.98%, against 16.55% in the crisis-free scenario and 19.36% in the crisis scenario. Similarly, the relative contribution of the urban area to child poverty in Chad, already structurally low (7.89% in 2011) compared to that of the rural area, would be further reduced thanks to such a transfer program: 6.52% of poor children in Chad would reside in urban areas in 2025, instead of 7.67% in the crisis scenario.

Chart 15: Effects of broadening cash transfer programs on the number of poor children living in urban areas, from 2019 to 2025 (thousands of individuals)



Source: Designed by the author using simulation results.

In rural areas, the prevalence of child poverty is usually very high in Chad: 92% of poor children live in rural areas in 2018. The implementation of a transfer program amounting to 1 % of GDP would considerably reduce the number of rural poor children, but logically to a limited extent compared to the 3% of GDP-scenario (Chart 24).

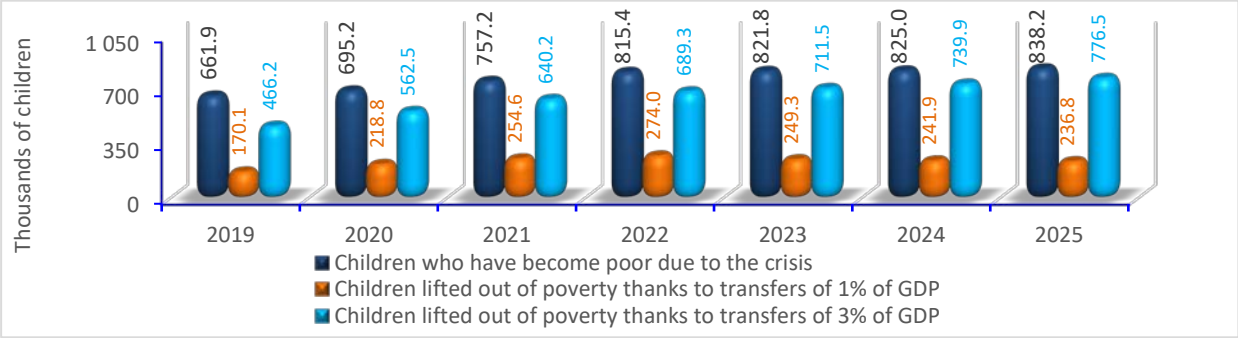
Indeed, if the transfer budget is 1% of GDP, the number of rural children escaping from poverty each year increases from 170,000 in 2019 to 300,000 in 2022, then decreases to 237,000 in 2025. Admittedly, these numbers are significant, but in the best of cases they represent barely 8% of overall number of poor children in rural areas (in 2022), and around a third of the number of rural children plunged into poverty because of the crisis. In this response policy, the headcount ratio of rural child poverty progressively goes from 55.50% in 2018 to 45.70% in 2025, while it

decreases from 55.50% to 48.69% in the crisis scenario and from 46.02% to 38.10% in the crisis-free scenario.

In case of an overall amount of transfers equal to 3% of GDP, the mitigation of the effects of the crisis is high, although much lower than in urban areas. Relative to the number of urban children who became poor as a result of the crisis, the proportion of children lifted out of poverty in urban area increases continuously over time, from 71% in 2019 to 93% in 2025. Similarly, compared in total urban poor children, those leaving the state of poverty regularly increase from 13.23% in 2019 to 20.16% in 2025: i.e. 466,000 individuals in 2019 to 776,000 in 2025. It also arises that such a program would regulate the total number of poor children in rural areas by capping it at a threshold number of about 3.1 million individuals, contrary to the crisis scenario or to that of 1% GDP transfers program, where the number of rural poor children is not only greater, but increasing over time.

Finally, although the contribution of the rural area to child poverty remains higher in case transfer budget amounts to 3% of GDP (93.5% in 2025), compared to the crisis scenario (92.3%), the poverty headcount ratio related to rural children is relatively lower (38.88% in 2025) and comes closest to the values of the scenario without crisis.

Chart 16: Effects of broadening cash transfer programs on the number of poor children living in rural areas, from 2019 to 2025 (thousands of individuals)



Source: Designed by the author using simulation results.

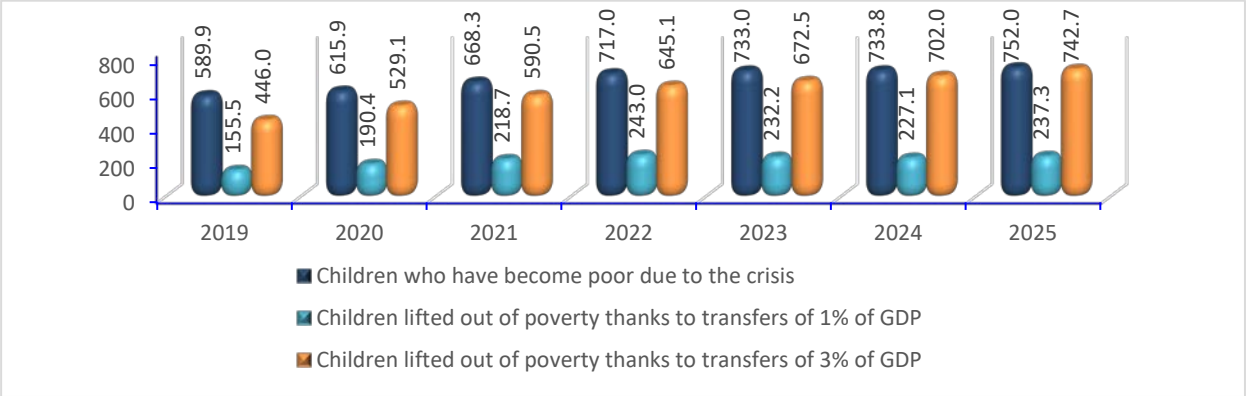
5.4.4. Effects of broadening the scope of cash transfers on child monetary poverty, by gender of the head of household

In male-headed households (Chart 17)**.** The largest number of children who would come out of poverty thanks to broadened programs of transfers live in male-headed households. Indeed, children escaping from poverty who belong to these households represent between 74% and 87%, depending on the year, of the total number of children freed from poverty in case the total amount of transfers is equal to 1% of GDP, and between 80% and 84% if this amount is equivalent to 3% of GDP. In the first case, the number of children moved out of poverty is between 155 thousand and 267 thousand and, in the second case, it follows an upward curve starting from 446 thousand in 2019 to 743 thousand in 2025.

However, it should be noted that this is basically because it is these households that also shelter a large majority of children in general (83.28%) and particularly poor children (84.69% in 2018). Thus, the effectiveness of the broadened transfer programs in mitigating child poverty effects of the crisis is rather below, although close to the average: depending on the years within the analysis period, between 26% and 36% of children who have become poor due to the crisis in male-headed households get out from poverty if the transfer budget is 1% of GDP. If that budget is 3% of GDP, this mitigation rate gradually increases from 75.61% in 2019 to 98.76% in 2025.

The child poverty headcount ratio, within households headed by men, drops from 50.72% in 2018 to 41.69% in 2025 in the 1% of GDP-transfer scenario, which indicates an improvement compared to the crisis scenario where this ratio only drops to 44.67% in 2025. In the case of a transfer allowance equivalent to 3% of GDP, the child poverty headcount ratio in those households drops to 35.34% and, thus, almost catches up with the value in crisis-free scenario (35.22%).

Chart 17: Effects of large-coverage transfer policies on reducing the number of poor children in male-headed households, from 2019 to 2025 (thousands of individuals)



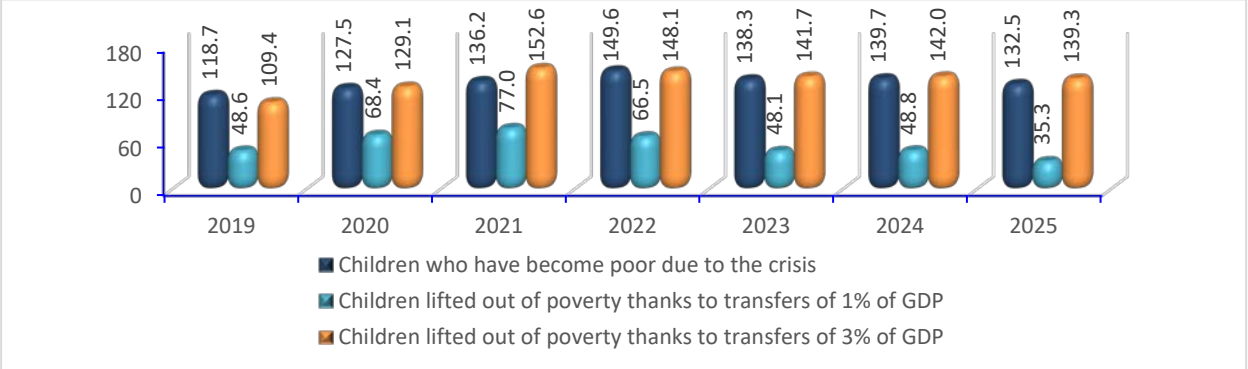
Source: Designed by the author using simulation results.

At the level of female-headed households, transfer programs with wider coverage are even more effective than in households headed by a male. In fact, an absolutely greater proportion of children who became poor as a result of the crisis are lifted out of poverty in female-headed households. This proportion (or mitigation rate) is largely above the average and, therefore, above that observed in households headed by a man, whether the overall allocation of transfers is equal to 1% of GDP (mitigation rate between 27% and 54%) or 3% (between 92% and 112%).

When the total amount of transfers is equal to 1% of GDP, the poverty headcount ratio among children living in female-headed households declines from 45.65% in 2018 to 36.21% in 2025, less than 38.42% which prevails in 2025 in the crisis scenario. Under the assumption of a total transfer allowance of 3% of GDP, this proportion drops to 29.71% in 2025, i.e. a level below 30.13% which is the reference value in 2025 in the crisis-free scenario.

Thus, the transfer program which is valued at 3% of GDP, brings a greater number of children out of poverty than the number of children that the crisis has plunged into poverty. It eliminates almost all the crisis-related poverty effects in these households from the first year of implementation of the program and, from the second year, reduces child poverty beyond the intrinsic effects to the crisis (Chart 18).

Chart 18: Effects of widening coverage of transfer programs on reducing the number of poor children in female-headed households, from 2019 to 2025 (thousands of individuals)



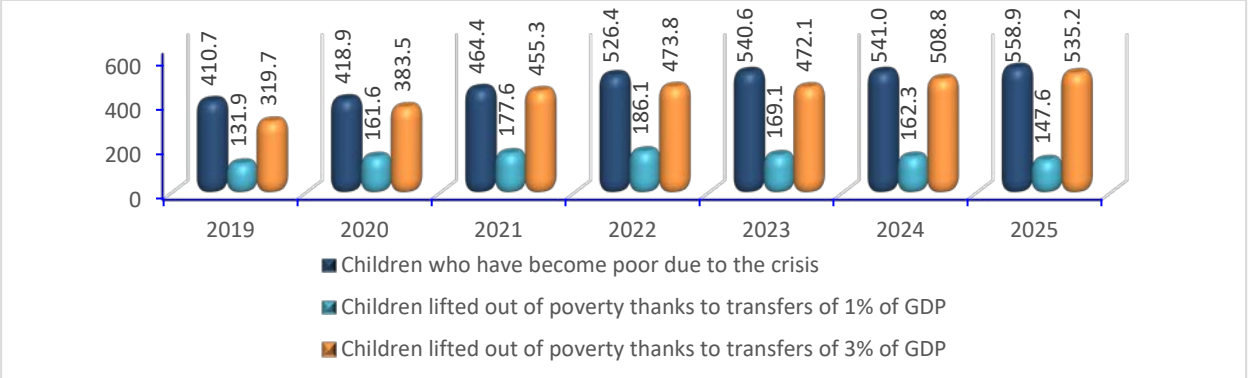
Source: Designed by the author using simulation results.

5.4.5. Effects of large coverage transfer policies on child monetary poverty, depending on the education level of the head of household

For households whose head is uneducated (which shelter 61.02% of the total number of children and 62.79% of poor children in 2018), the effectiveness of transfers in reducing child poverty is above the average of all households, during the first three years of implementation. But, from the fourth year, this efficacity is below the average: in the case where the total transfers amount to 1% of the GDP, the proportion of poor children who get out of poverty, compared to the total number of those who have become poor because of the crisis, goes from 32.11% in 2019 to 38.59% in 2020, then steadily decreases to 26.41% in 2025. In terms of headcount, the number of children lifted out of poverty goes from 131,879 in 2029 to 186,100 in 2022 and then regresses down to 147,619 in 2025 (Chart 19).

In the scenario where transfers amount to 3% of GDP, the percentage of children emerging from poverty, compared to the number of children the crisis has plunged into poverty, fluctuates between 77.84% in 2019 and 98.04% in 2025; this implies 319,697 to 535,185 children freed from poverty, from 2019 to 2025 (Chart 19).

Chart 19: Effects of large-coverage transfer policies on reducing the number of poor children in households whose the head is uneducated, from 2019 to 2025 (thousands of individuals)



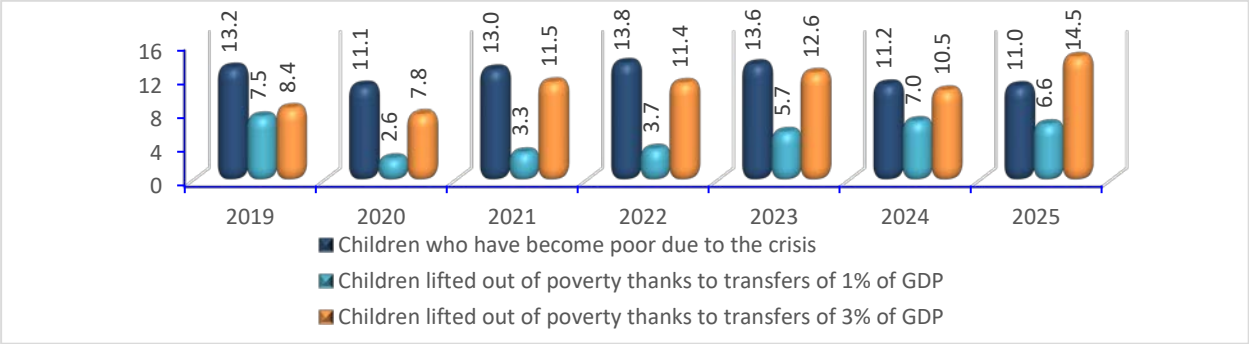
Source: Designed by the author using simulation results.

In households headed by a person who only has Koranic education (which house 2.12% of the total number of children and 1.63% of poor children in 2018), the effects of transfers are very fluctuating over the years. In the event of transfers amounting to 1% of GDP, the reduction

in the extra-poverty generated by crisis is much higher than the average in 2019 and from 2023 to 2025, while it is relatively low from 2020 to 2022. Thus 7,538 children emerge from poverty in 2019, but this number drops to 2.6 thousand in 2020 before rising, up to 7 thousand in 2024 and 2025.

When assuming a total transfer allowance valued at 3% of GDP, efficacity of the program in these households is below average throughout the considered period, except in 2025 when it becomes relatively higher. It arises a fluctuating trend made up of small peaks and valleys in the number of children released from poverty, throughout the analysis period, between 7.8 thousand and 14.5 thousand (Chart 20).

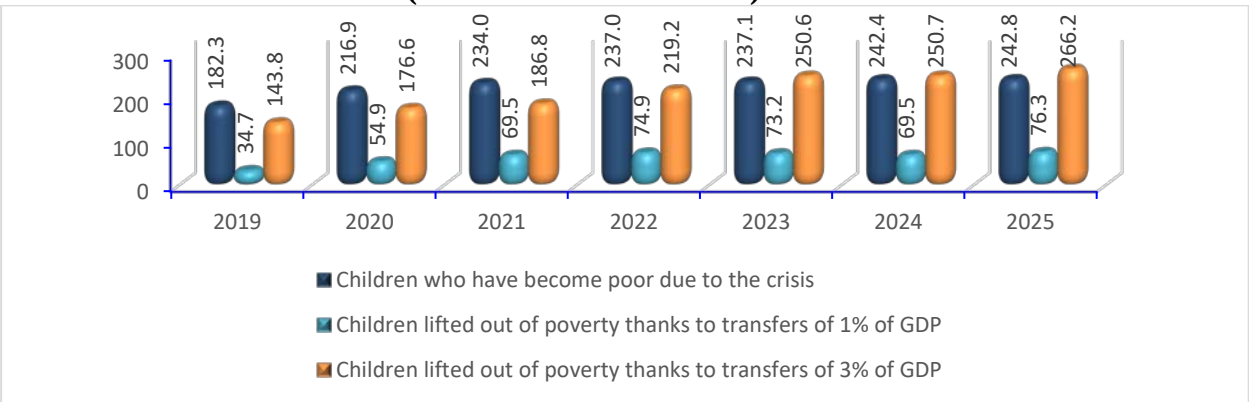
Chart 20: Effects of large-coverage transfer policies on reducing the number of poor children in households headed by a person who only has Koranic education, from 2019 to 2025 (thousands of individuals)



Source: Designed by the author using simulation results.

Concerning households headed by an individual who has a level of primary education (24.00% of the total number of children and 26.74% of poor children in 2018 live in these households), the rate of mitigating the additional number of poor children caused by the crisis is below average over the entire period, when the total amount of transfers is 1% of GDP. In this case, the number of children freed from poverty goes from 34.7 thousand in 2019 to 76.3 thousand in 2025. By contrast, the mitigation rate is higher than the average if the total amount of transfers is equal to 3% of GDP. The result is a growing number of children lifted out of poverty, which is outnumbering the number of children plunged into poverty due to the crisis: from 143.8 thousand in 2019 to 266.2 thousand in 2025 (Chart 21).

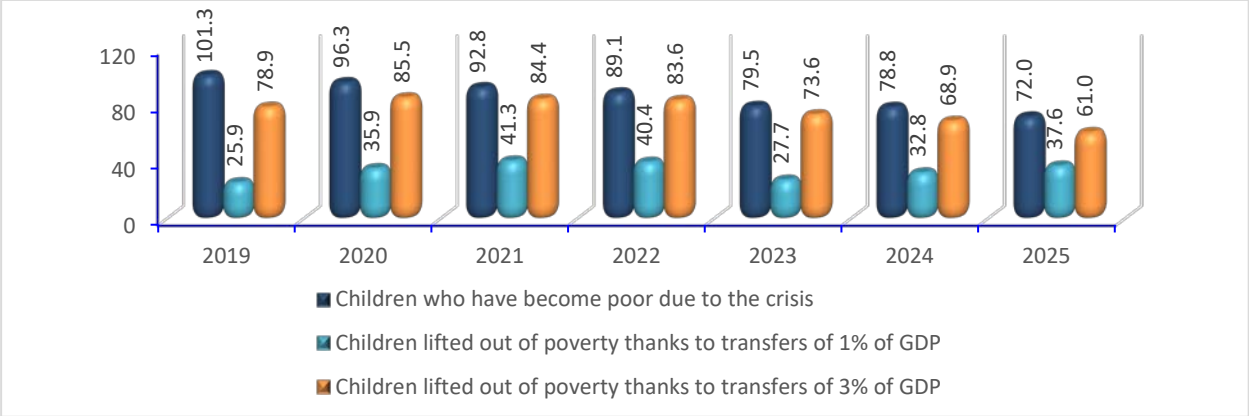
Chart 21: Effects of broadening transfer programs on reducing the number of poor children in households headed by an individual with primary education level, from 2019 to 2025 (thousands of individuals)



Source: Designed by the author using simulation results.

As for households whose head has a secondary education level (11.29% of the total number of children and 8.54% of poor children live in these households in 2018), the opposite phenomenon to the preceding case occurs: the rate of mitigating the additional poverty generated by the crisis is above average in case transfers equal to 1% of GDP, while it is below average if the total allowance of transfers amounts to 3% of GDP. From the above, it arises an irregular trend of number of children freed from poverty in the 1% of GDP-scenario (between 25,885 to 42,709) and to an overall decreasing trend in the second scenario, from 85.5 thousand in 2020 to 61.0 thousand in 2025 (Chart 22).

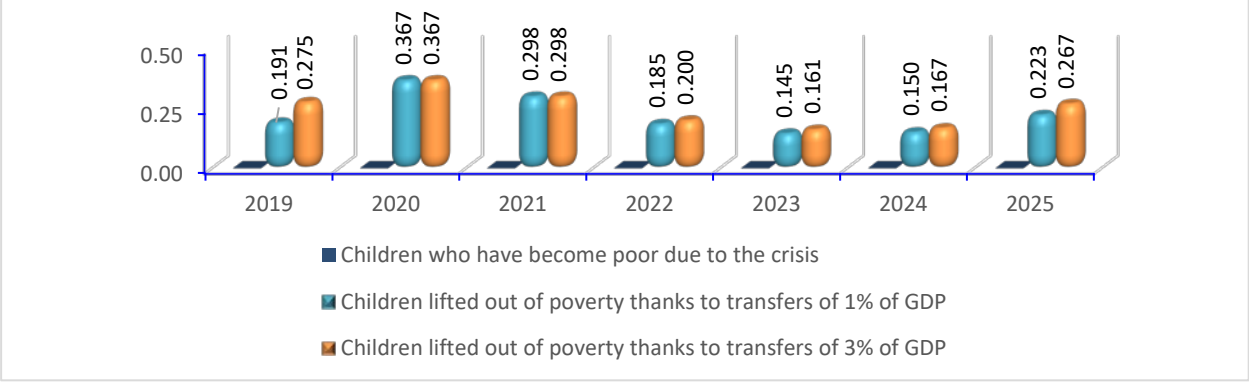
Chart 22: Effects of broadening transfer programs on reducing the number of poor children in households whose head has a secondary education level, from 2019 to 2025 (thousands of individuals)



Source: Designed by the author using simulation results.

Regarding households headed by an individual with vocational training (only 0.51% of the total number of children and 0.10% of poor children in 2018 live in this type of households), any transfer program represents a bonus, because if a transfer program amounting whether 1% or 3% of GDP is implemented in 2019, there are no longer any crisis-related poor children, under the assumption of positive growth of around 5.5 % until 2019. The magnitude of the bonus generated by transfers is, however, relatively smaller, since the extra-number of children who get out from poverty (beyond the number of children who were plunged into poverty due to the crisis) remains below 400 individuals, whatever the total amount of transfer allowance (Chart 23).

Chart 23: Effects of broadening transfer programs on reducing the number of poor children in households headed by an individual with vocational training, from 2019 to 2025 (thousands of individuals)



Source: Designed by the author using simulation results.

However, given that the prevalence of poverty within this small segment of the child population is already low, transfer programs allows the poverty headcount ratio to be further

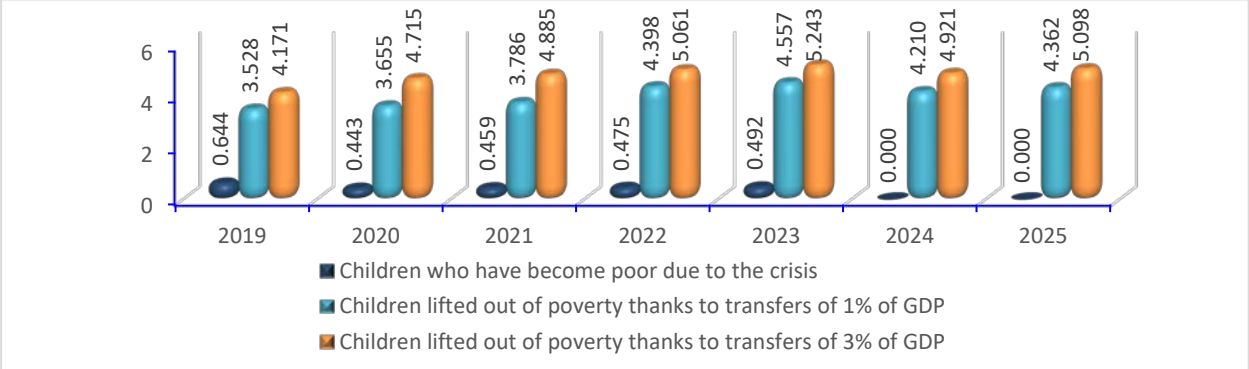
reduced in these household group. Thus, by 2025, the headcount ratio of child poverty here is equal to 8.07% in case transfers budget is 1% of GDP and of 7.98% if it is 3% of GDP: i.e. values lower than the base rate in the crisis-free scenario (8.53%).

In households whose the head has a higher education level (1.06% of the total number of children and 0.20% of poor children in 2018 live in this group of households), as in the case of households headed by individuals with professional training, any transfer program is also a bonus. Indeed, during the sub-period of implementation of transfers (2019-2025), the number of poor children due to the crisis is already either zero or marginal (Chart 24).

If the total amount of transfers is 1% of GDP, the additional number of children freed from poverty, beyond the number of those who became poor due to the crisis, gradually increases from 2,884 in 2019 to 4,362 in 2025. In the case of transfers of 3% of GDP, this number gradually increases from 3,527 in 2019 to 5,098 in 2025.

Within the fragment of the child population living in these households, the headcount ratio of child poverty, which is already very low, becomes even lower by 2025: in the event of transfers of 1% of GDP, it becomes equal at half of its value in the crisis-free scenario at that time (4.44% instead of 8.75%) and, with a transfer budget of 3% of GDP, it shrinks even more (3.72%).

Chart 24: Effects of broadening transfer programs on reducing the number of poor children in households whose the head has a higher education level, from 2019 to 2025 (thousands of individuals)



Source: Designed by the author using simulation results.

6. Conclusion

The results of this study show that the effects of the economic crisis induced by the collapse of oil prices from mid-2014, were very harmful for the Chadian economy in general and particularly in worsening child poverty, compared to the benchmark economic trend that Chad would have followed in the event of no crisis.

In 2018, the increase in the proportion of poor children was 8.93 percentage points and is between 9.16 and 10.41 percentage points each year during the 2019-2025 sub-period, i.e. a yearly rise of 20 to 28% in the number of poor children during the sub-period 2018-2025. In terms of headcount, 628,427 children were plunged into poverty in 2018 due to intrinsic effects of the crisis. This additional number of poor children is likely to have increased continuously and would reach 884,528 by 2025 if there no appropriate policy response.

For the entire Chadian population, the total additional number of poor people is estimated at 1,146,025 individuals in 2018 and would increase to 1,506,177 people in 2025. The share of

children in this increase in poverty is predominant: between 55 and 59% depending on years throughout the period 2014-2025.

Among the policy options simulated, extensive cash transfer programs to households that house poor children are found to be the most effective and efficient.

If an initial overall budget equivalent to 1% of 2018 nominal GDP were dedicated to implement such a program as early as 2019, then 29% of children who became poor due to the crisis would had been lifted out of poverty in that year. This mitigation rate steadily increases to 38% in 2022, then stands at around 31% until 2025.

With a transfer program amounting to 3% of 2018 GDP and implemented starting from 2019, by 2025, there is almost a complete elimination of the additional child poverty caused by the crisis. Indeed, in this case, 78% of children who became poor due to the crisis leave this poverty status in 2019 and, gradually, 100% of these children get out of poverty in 2025; i.e. a total number of 881,969 children who would thus have been saved from poverty in 2025. In this case, the number of poor children would stabilize around 3.3 million from one year to another, instead of following an upward slope.

Considering the whole population, in the case of an allocation of 1% of GDP for the transfer program, the number of people who would be freed from poverty would increase from 323,078 in 2019 to 526,198 individuals in 2022 and would decrease thereafter up to 451,245 in 2025. On the other hand, if the budget of the program is equivalent to 3% of GDP, this number will continuously increase from 858,749 individuals in 2019 to 1,411,042 people in 2025, i.e. a release in 2025 of 94% people who would have become poor that year as a consequence of the crisis. With such a scenario, the total number of poor in Chad would no longer have followed an upward curve; but would have remained constant around 5.3 million individuals each year since 2019.

In view of the results of the simulations, this study therefore recommends the adoption of an extensive cash transfer policy, with an overall budgetary envelope of at least 1% of nominal GDP in the year preceding the effective implementation of said policy. The transfers will have to be distributed to households proportionately to the number of children living in them and taking into account population growth over the years, so that to maintain the same amount of allowance per child from one year to another. However, an efficient targeting device should be designed, which will make implementation as easy as possible.

In addition to the targeting problem, one of the main challenges of a cash transfer program of this magnitude is that of funding and sustainability over time. In view of the budgetary problems which the Government has faced since the advent of the crisis, it would be appropriate for the various technical and financial partners of Chad to constitute a fund to finance such an initiative, on a transitional basis, as is the case with the pilot social safety net programs. But Government would also work in the meantime with these partners to define the terms for a domestic financing to put in place beyond the probationary period. In this vein, emphasis should be placed on finding actions empowering the recipients to become independent after the probationary startup period, so as to favor their exit from the program in the future with a low probability of seeing them plunge again into poverty. Options like cash-for-job would be encouraged in this sense.

Finally, it arises from the statistical analysis of poverty profiles that education is a fundamental determinant of the level of poverty: the higher the level of education of the head of the household or of a spouse, the better the standard of living of the household members. It is therefore appropriate to encourage government and partners efforts to promote national education up to higher level, to encourage citizens to reach at least secondary education level, to promote

and diversify vocational and technical training, whether for men or women. Since the prevalence of poverty drops particularly from the group of households whose the head and/or a spouse has completed at least the secondary education level.

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