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Republic of Angola
Poverty and Social Impact Analysis

Subsidy Reform and Extension of Social Protection Program

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EXECUTIVE SUMMARY

1.   **As the second largest African oil producer, Angola had unsustainable government expenditures in effect until 2014 due to the drop in international oil prices.** The Government responded with a comprehensive reform program including the gradual elimination of most fuel subsidies and an extension of the social protection program Cartão Kikuia.

2.   **This report analyzes the impact of those reforms on poverty using micro-level simulations based on the most recent household consumption survey IBEP (2008).** First, household data is projected to 2015 incorporating changes in population numbers as reported by the Population Census 2014. Second, the impact of the subsidy reforms is estimated by applying the price changes due to the reform to household budgets. Third, the extension of the Cartão Kikuia program is simulated as a cash transfer by adjusting budgets of targeted households with the non-cash benefit from Cartão Kikuia.

Fuel Subsidy Reform

3.   **Better-off households consume the bulk of fuel products.** The top 40 percent wealthiest households are responsible for almost 90 percent of total expenditures on gasoline, diesel and LPG. Even relative to household expenditures, wealthier households spend considerably more (5 percent) on fuel products than poor households (less than 1 percent).

4.   **The benefits of the fuel subsidies disproportionally accrue to the better-off households.** The direct impact of the subsidy reform is the reduction in household consumption due to higher prices for fuel products. The indirect impact is caused by higher prices of other goods and services due to higher production and operation costs resulted from higher fuel expenditures faced by producers and traders. The simulation results indicate that the indirect impact is about twice as large as the direct impact. In total, subsidies cover almost 7.5 percent of household expenditures for the top 20 percent of households, twice as much as that for the bottom 20 percent. Hence, better-off households benefit more from subsidies in both absolute and relative terms.
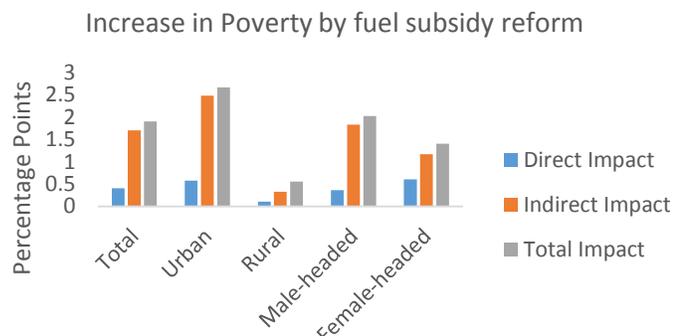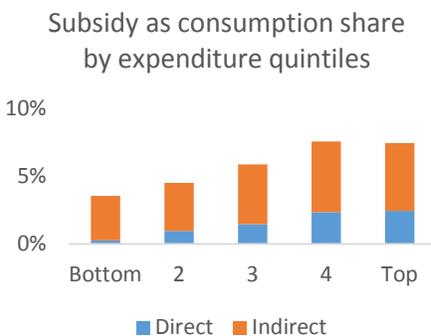
5.   **Elimination of the subsidies increases the poverty head count rate by about 2 percentage points.** The fuel subsidy reform increases poverty from 26 to 28 percent. Urban households are considerably more affected than rural households for two reasons. First, rural households consume less

fuel products. Second, rural households cover a larger share of household consumption by own production. Therefore, higher fuel market prices can have beneficial effects on household consumption as they allow selling self-produced goods at higher prices.

Social Protection Expansion

6.   **The Government decided to expand the existing social protection program Cartão Kikuia to tackle the adverse impacts of the fuel subsidy reform.** The Cartão Kikuia program aims to provide a non-cash transfer for the 'purchase' of food products, agricultural inputs and other basic goods. It is focused on vulnerable families, especially headed by women. The program is implemented with the help of a card that in theory allows each beneficiary to purchase essential goods worth 10,000 kwanzas[1] in community commercial establishments – the Kikuia Stores - in the area where the beneficiary lives. While the original design of the program intended for monthly payments of 10,000 Kwanza, the budget forecast is only consistent with an annual payment of the same amount.

7.   **Annual transfers below 60,000 Kwanza are not effective in reducing poverty.** An annual transfer of 10,000 Kwanza translates into 0.24 USD PPP 2011 per day per household. For a family of three, this amount only provides 2 percent of consumption needed to meet the 1.90 USD PPP poverty line. In contrast, an annual transfer of 60,000 Kwanza contributes one quarter of consumption to reach the poverty line. With an average poverty gap of 30 percent among the poor, this amount is not sufficient for all poor households. Accordingly, an annual transfer of 120,000 Kwa is more effective in reducing poverty but also has larger budget implications.
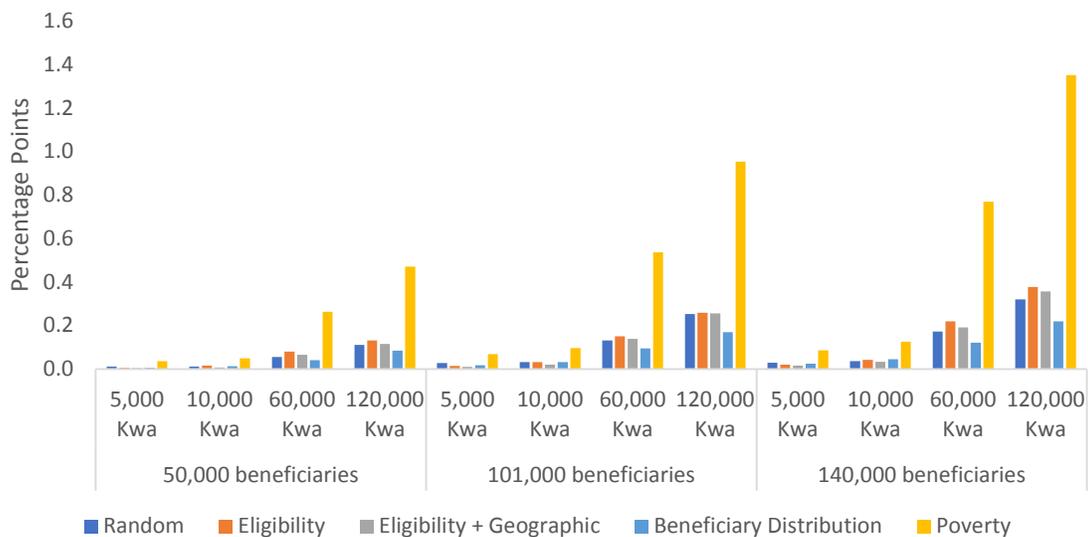
8.   **An annual transfer of 120,000 Kwanza to all 1.3 million poor households would halve poverty to 15 percent and cost about half of the estimated annual budgetary expenditures on price subsidies**

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[1] One US Dollar can be exchanged for approximately 165 kwanzas (Jun/2016).

in 2016 (or 954 million USD, an equivalence of 0.7 percent of GDP). This would also reduce the poverty gap from 8.3 percent to 3.4 percent. This model calculation assumes a perfect targeting scheme. In reality, targeting the poor is difficult and costly. The current targeting of Cartão Kikuia is based on a combination of categorical eligibility criteria (rural female-headed households or taking care of at least one disabled person) and community-based household assessment. The simulation results show that the categorical eligibility criteria do not improve targeting compared to a random selection of households. While an assessment of the community-based targeting component is difficult because of data limitations, the observed demographic characteristics of current beneficiaries do give evidence of a well-functioning targeting mechanism.

9.   **Learning from other successful programs like Brazil's Bolsa Familia can improve Cartão Kikuia towards a more robust and efficient social protection program.** Bolsa Familia has been shown to be an effective program to alleviate poverty, increase school enrollment and improve health outcomes. It has a transparent beneficiary selection, several monitoring mechanisms and speediness in the payment. In contrast, Cartão Kikuia suffers from severe design and implementation challenges partially due to a lack of resources. Most beneficiaries are not able to use the full value of 10,000 Kwanzas available on the card for a number of reasons. First, the current number of available stores is limited with most of them available only in Luanda. Secondly, supply of products in the existing stores is reported to be low. Lastly, technical problems in the stores sometimes cause failures in card recognition.

10.   **Bolsa Familia transfers are in cash, not in kind.** The Bolsa familia beneficiary can choose how to spend the money according to their preferences and availability of local goods. The conditionalities regarding education ensure an intergenerational transfer to reduce future poverty. Thus, the program has a paternalistic design feature paired with a theory of interdependent preferences. In contrast, the Cartão Kikuia program is designed based on controlling the quality and supply of provisions reducing the freedom of choice for beneficiaries. In-kind transfers require a more complex infrastructure with close involvement of the government in the implementation of the program. One advantage of cash transfers is that the government does not need to get involved in the supply side of local markets. Instead, it can focus its administrative efforts on reaching the poorest population.

11.   **A more transparent targeting and its assessment would further improve Cartão Kikuia.** Bolsa Familia is well known for its clear and transparent information management feeding into the targeting. Anyone can access the number and locations of beneficiaries and the amount spent. The selection criteria are clear and largely communicated to the whole country through social media and municipalities' transmissions efforts. This is in stark contrast with the opaque design and implementation of Cartão Kikuia, from the application of eligibility criteria to the transfer amounts and the utilization of the transfers. Without reliable data and the knowledge of the targeted population, the capacity of independent parties to evaluate the program and to recommend relevant changes remains extremely limited. The upcoming household survey will be an opportunity to start collecting data for an evaluation of Cartão Kikuia that would allow comparing beneficiaries with non-beneficiaries.

1   Introduction: The Need for Reforms

1.   **Angola, as the second largest African oil producer, was hit hard by the oil price crisis triggering fuel subsidy reforms.** After its independence in 1975, the country fell into a civil conflict that lasted 27 years and ended with a peace accord in 2002. Since then, Angola became a major oil producer with heavy fiscal reliance on oil revenues. The ongoing oil price crisis that started in 2014/5 depleted government revenues and, thus, threatened its fiscal balance. The Government responded with a comprehensive reform program including the reduction/elimination of fuel subsidies and an extension of the social protection program Cartão Kikuia. This report analyzes the impact of the fuel subsidy reforms on poverty. In addition, the extension of the social protection program as a compensatory program is assessed with a focus on its targeting. Both analyses are based on simulations to provide quantitative evidence. The appendix includes a detailed methodological description.

1.1   The Reform Context

2.   **Angola suffers from very high rural poverty.** Despite being an upper middle income country, about 30 percent of the Angolan population was below the international poverty line in 2008.[2] In rural areas, one in two people are living below the poverty line. Poverty of female-headed households is about 6 percentage points lower than for male-headed households in 2008. Poverty is projected to drop slightly in 2015 driven by a small reduction of rural poverty from 50 percent to 46 percent. The change in poverty also reduces the gap between female-headed and male-headed households to about 2 percentage points in 2015 (Figure 1). The inequality indicator suggests a decline over time from a Gini index of 52 in 2000 to an index of 43 in 2008. Between 2008 and 2015, the Gini coefficient only marginally declined to 42.[3]

3.   **Although poverty is lower than on average in Sub Saharan Africa, literacy is only marginally above average while infant mortality is worse than average.** In 2013, Angola had a youth literacy of 73 percent compared to 71 percent in Sub Saharan Africa (in 2010). Thus, the lower poverty rate in Angola does not translate into higher literacy. Even worse for health, Angola's infant mortality rate of 96 per thousand live births in 2015 is almost double the rate of 56 in Sub Saharan Africa even though poverty is significantly lower in Angola.

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[2] Using the 1.90 USD PPP 2011 poverty line.
[3] Note that this is partially an artifact from the simulation, which assumes distribution neutral growth. Only the projection of population growth based on the Population and Housing Census 2014 affects inequality.

Figure 1: Projected poverty at 1.90 USD PPP (2011).
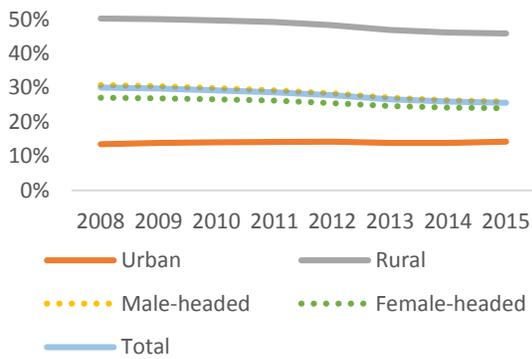
Source: Authors' calculation based on IBEP (2008).

Figure 2: Poverty, literacy and infant mortality.[4]
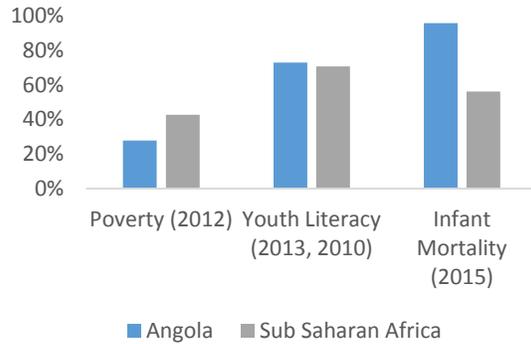
Source: Authors' calculation and World Development Indicators.

4.   **In 2014, the first Population Census since independence found a population of 25.8 million**. The population is not evenly spread over the 18 provinces, with almost one third (27 percent) living in Luanda province. Another third of the population (37 percent) lives in rural areas (Figure 3).

Figure 3: Population distribution and density by province, 2014.
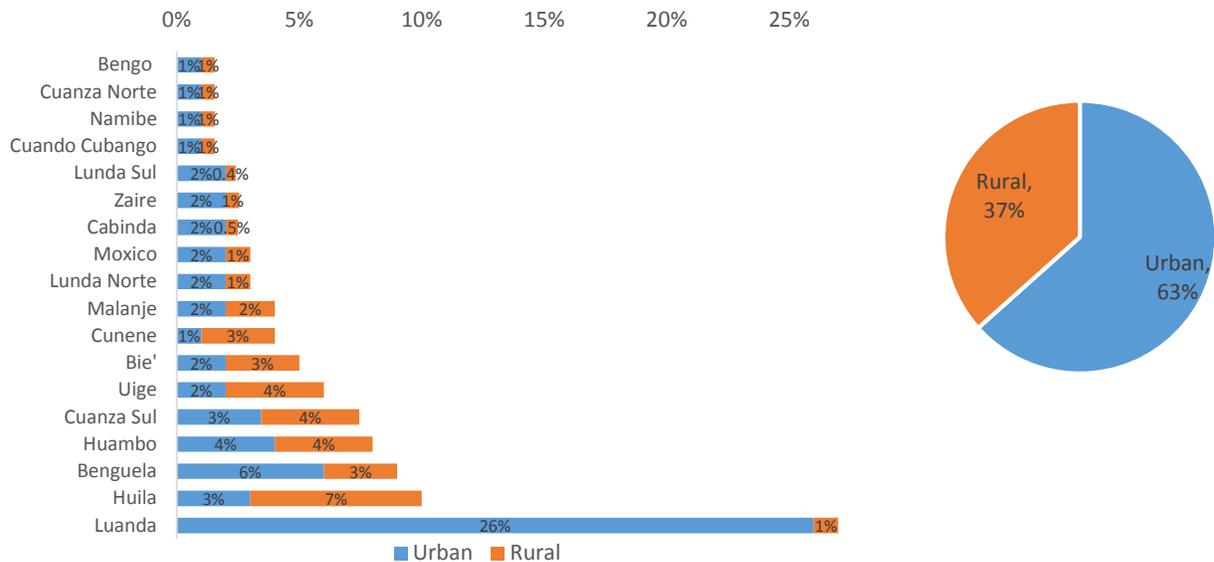
Source: Population and Housing Census 2014.

5.   **Forty-four percent of the population is engaged in agriculture or livestock.** Around 4 percent of the population work in the construction sector, 3 percent in the transport, 2 percent in education, 2 percent in industry and around 24 percent in others activities (Figure 4).

6.   **Access to electricity network is 51 percent in urban areas and only 2 percent in rural areas.** Approximately 24% of the population's main sources of energy are kerosene lamps or power generators

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[4] Infant mortality is expressed per 1,000 livebirths.

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(Figure 5). Consequently, a fuel subsidy reform affects the population well-being since they are dependent on the fuel market also for access to primary needs, such as electricity and transportation.

Figure 4: Employed population by main activity, 2014.

Education 2%
Industry 2%
Transport 3%
Construction 4%
Agriculture and Livestock 44%
Services and others 21%
Not declared 24%
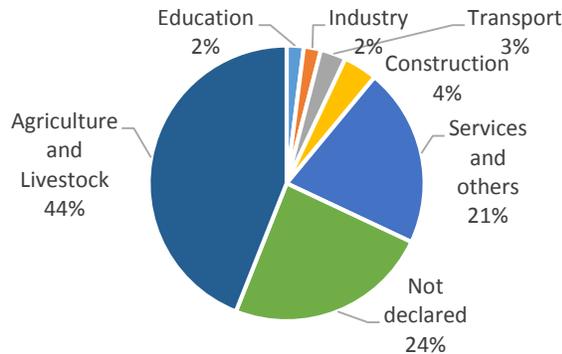
Source: Population and Housing Census 2014.

Figure 5: Households by main source of lighting.

Firewood 5%
Other 0%
Candles 8%
Public network power 32%
Power generator 9%
Kerosene Lamp 14%
Lantern 32%
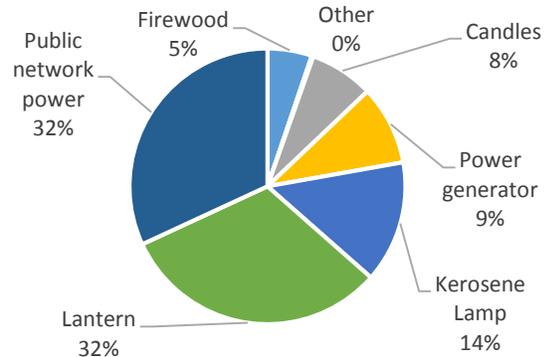
Source: Population and Housing Census 2014.

7.   **Oil exports in the last 10 years accounted on average for 95 percent of Angolan exports**, **generating $60.2 billion in revenues in 2014 (Figure 6).** The sector is highly concentrated in terms of trading partners with China importing nearly half of Angola's exports (Figure 7). Diamonds are the second largest export product in Angola. Diamond production grew swiftly until 2006, when production volume reached 9.2 million carats. Since then, production has fluctuated between 8.2 and 9.2 million carats. In 2015, it grew by 4 percent to 9 million carats. The country has still high potential to expand mining since only 40 percent of the Angolan mining resources are known. Diamond exploration is being conducted in 13 provinces and 108 new projects are available for private investors.[5]

Figure 6: Export composition, 2005 to 2014.

Gas and Refined Oil 1.5%
Diamonds 2.4%
Other exports 0.5%
Crude Oil 95.6%
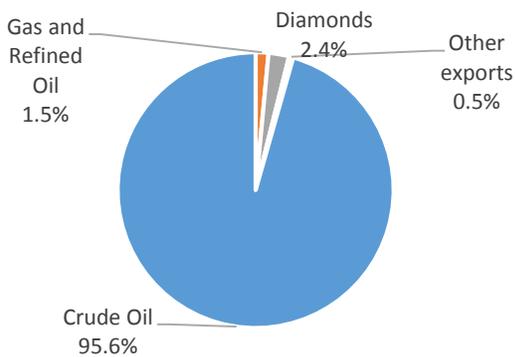
Source: Banco Nacional de Angola.

Figure 7: Export destination in 2014.

Italy 2%
South Africa 3%
Portugal 3%
France 3%
Others 7%
Brazil 2%
Netherlands 3%
USA 4%
Canada 5%
Taiwan 5%
China 49%
India 8%
Spain 6%
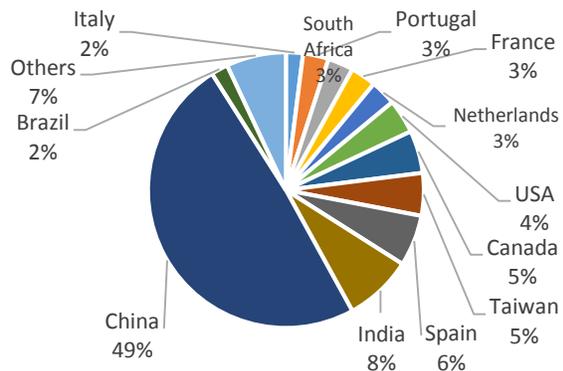
Source: Banco Nacional de Angola

8.   **Consumption goods dominate imports at 59 percent.** Intermediate consumption goods amount to 12 percent and capital goods only account for the remaining 29 percent (Figure 8).

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[5] WB 2016 XXX

Figure 8: Imports by classification, 2012 to 2014.
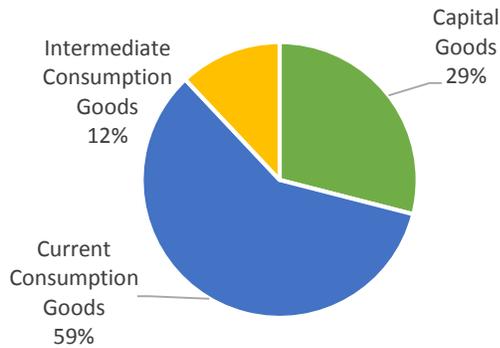
Source: Banco Nacional de Angola

1.2 The Need for Reform

9. **Recent growth in Angola was driven by the end of the conflict and high oil prices.** The Angolan economy posted an average growth rate of 17.3 percent between 2004 and 2008. This period of high growth rates was briefly interrupted by the 2008/9 crisis that brought oil prices down. From 2009 to 2011, Gross Domestic Product (GDP) grew at 3.3 percent on average. Economic growth resumed its fast pace in 2012 and 2013 with an average annual growth rate of 6 percent (Figure 10).

Figure 9: Real GDP growth.
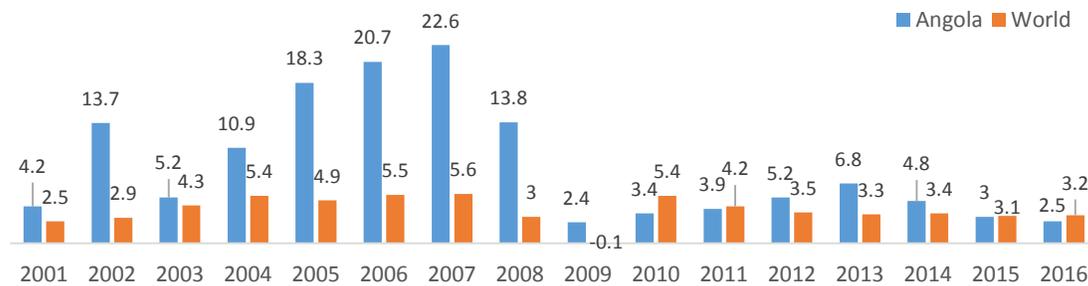
Source: IMF.

10. **Over the past years, the Angolan economy has shown signs of slowing down (4.8 percent in 2014; 3 percent in 2015; and 2.5 percent estimated for 2016), mostly as a result of the drop in oil prices.** The decline in international crude oil price has had a substantial impact on budget balances. The average price for Angolan crude was $108 in 2013, declining to $96 in 2014. Prices continued to drop in 2015, which led to a revision of the Angolan Budget Law for the 2015 fiscal year. In 2015, the average oil price was at $52, a decline of approximately 48 percent in 12 months. Prices dropped even further in early 2016, averaging $36 in the first five months of the year. Angolan oil production has fluctuated around 586 and 605 million bps/year from 2014 to 2016. The revenue in 2014 was $56,364 million, a decrease of 14 percent from 2013 (Figure 11).

Figure 10: Crude Oil: price, volume and revenue from 2001 to 2016.
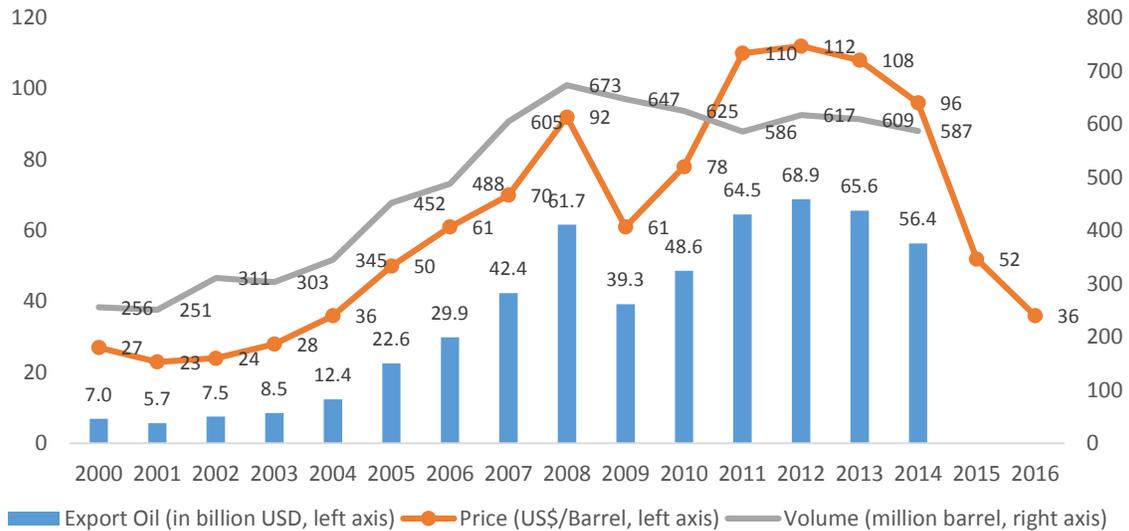
Source: Banco Nacional de Angola (2001 – 2014), World Bank (2015 – 2016).

11.   **The drop in oil prices in 2014 reduced Angola's economic growth and halved fiscal revenues.** GDP growth for 2014 and 2015 was estimated by the government at 4.8 and 4 percent respectively. As opposed to the 2008/9 episode, this time the impact has been stronger and longer lasting as the drop in oil prices appear to be due to a structural shift in the oil sector led by the increasing role of unconventional oil in the global supply mix. Oil prices are expected to remain low for a prolonged period of time.

12.   **The drop in oil prices increased prices of imports and accelerated inflation.** With a reduction of foreign exchange revenues, the exchange rate depreciated making imports more expensive. This triggered a relapse to high inflation after Angola managed to limit price increases between 2011 and 2013. As a result, considering the whole period from 2006, prices increased by 184 percent (Figure 9). From 2010 to 2014, goods and services, hotels and restaurants as well as furniture and domestic maintenance contributed most to price increases.

Figure 11: Annual inflation rates.
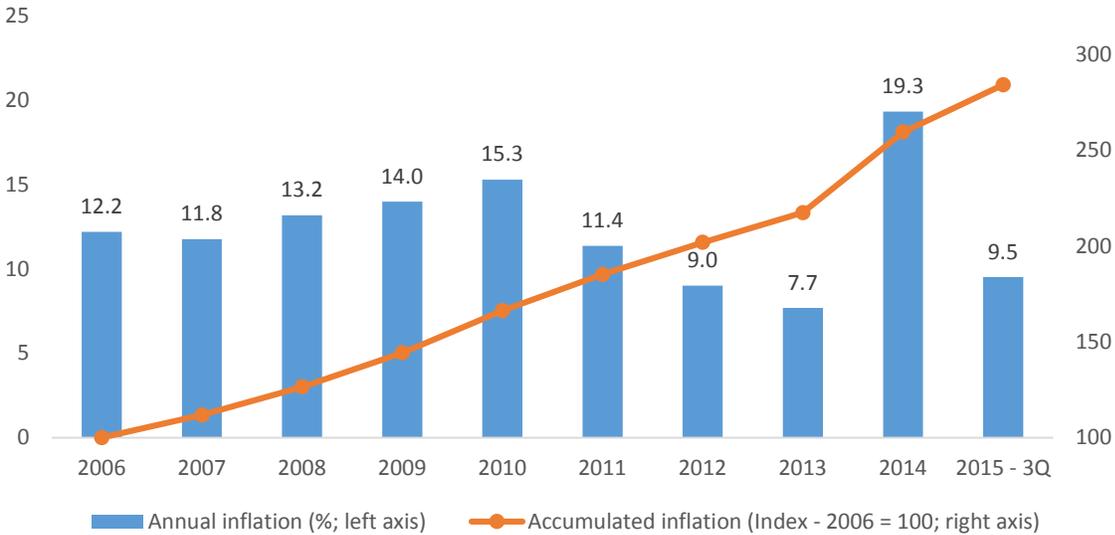
13.   **High oil revenues created an oil-dependent economy with oil revenues used for current and capital expenditures, including price subsidies for fuel and utilities.** Historically oil revenues accounted for three quarters of government revenues on average. The economy is not diversified with oil exploitation and refinery accounting for 90 percent of the industrial production while most consumer goods are imported. The period of high oil prices allowed Angola to increase current and capital expenditures while maintaining a balanced budget and low debt levels. Fuel and utility prices as well as public transportation were heavily subsidized with the Government paying the difference between the effective price and the administered market price. According to Fabrizio *et al*. (2015), transportation sector is the most fuel-intensive sector of Angola, so its costs are especially sensitive to subsidies.

14.   **Before the subsidy reform in September 2014, the level of subsidies was high.** On average, subsidies accounted for 63 percent of the real prices and varied substantially across products from 100 percent for diesel for electricity to 29 percent for Heavy Fuel (Figure 13).[6] Fuel prices in Angola were among the lowest in the world (Figure 12). The prices of gasoline and diesel were around 58 percent below the average prices for sub-Saharan Africa, respectively (Figure 12). The cost of fuel price subsidies is estimated using the price gap approach.[7]

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[6] All diesel specifically consumed for electricity production is fully subsidized by the government.

[7] Fabrizio, M. S. et al., International Monetary Fund Report Angola: Technical Assistant Report - Angola: Fuel Price Subsidy Reform the Way Forward. 2015.

Figure 12: Retail fuel prices in selected countries in Sub-Saharan Africa, 2014.

Diesel (US$ per liter)

Gasoline (US$ per liter)
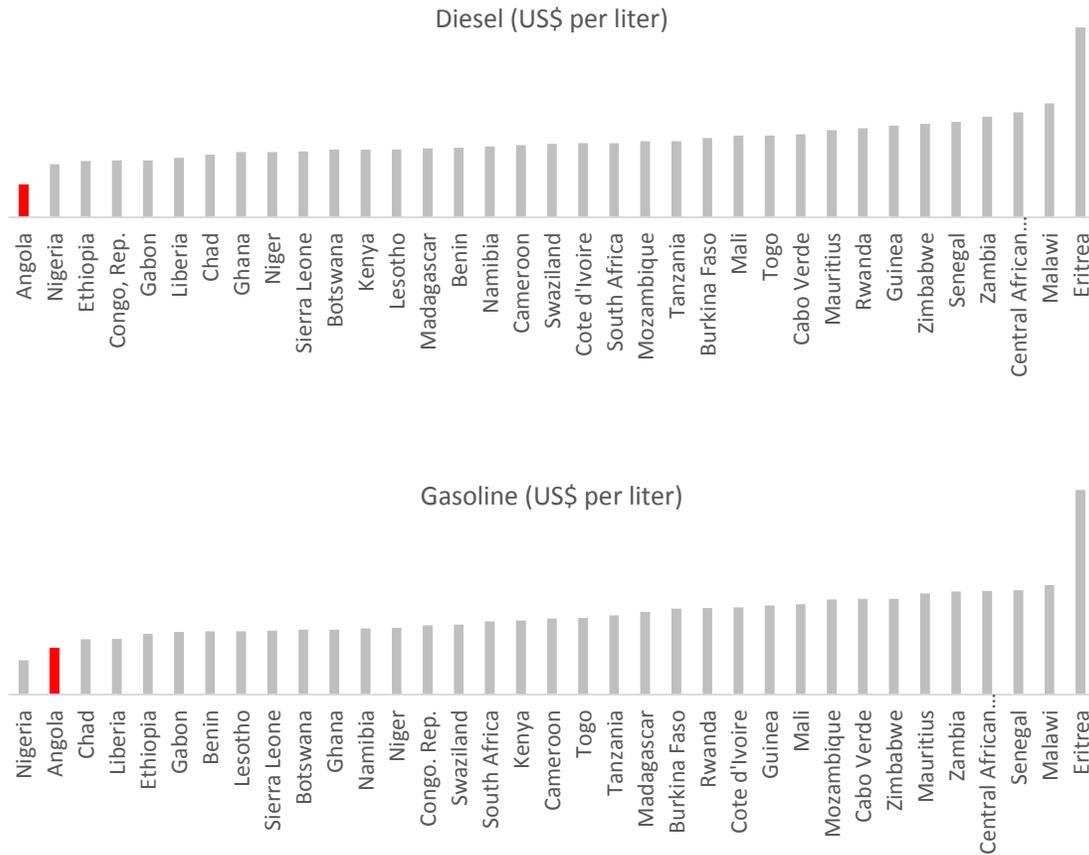
Source: World Bank.

Figure 13: Percentage of fuel subsidies by product, September 2014.

LPG	Gasoline	Kerosene	Diesel	Diesel for electricity	Light Fuel	Heavy Fuel	Asphault
79%	48%	74%	48%	100%	48%	29%	82%
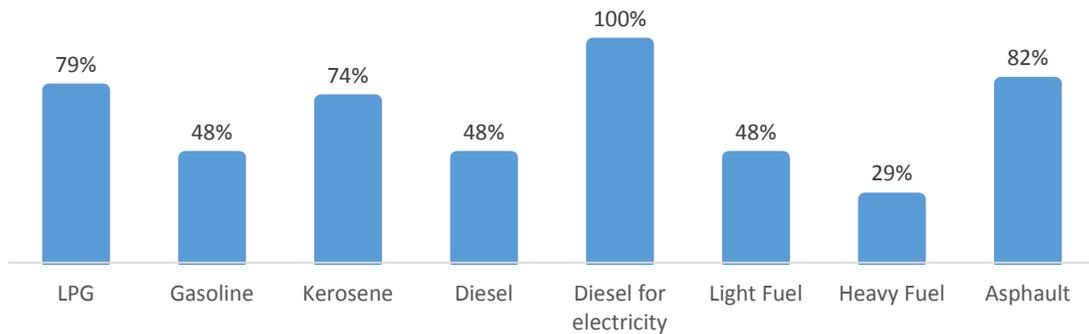
Source: Decree 289/14 and Fabrizio et al., 2015.

15.   **Besides their negative impact on fiscal balances, fuel subsidies are very costly for the economy and create adverse incentives. Firstly,** fuel subsidies crowd out growth-enhancing spending. The Government of Angola spent in fuel subsidies the same as in education and 42 percent more than in

health (Figure 14). Secondly, fuel subsidies create incentives for smuggling. Anecdotal evidence suggests that smuggling of subsidized products to neighboring countries, in particular the Republic of Congo and the Democratic Republic of Congo, amounted to 10 percent of total fuel consumption. In 2013, customs detected about 80 million liters of smuggled fuel products, which corresponds to about 2 percent of total consumption. Lastly, fuel subsidies create incentives to over-consume, with negative effects on traffic congestion and losses in productivity. Also, over-consumption can aggravate local pollution and climate change.

Figure 14: Spending on fuel subsidies, education and health in 2014 (% of GDP).
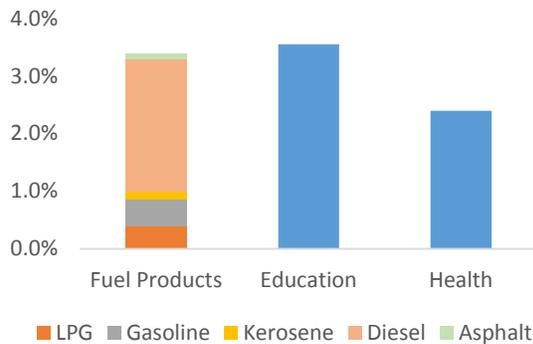
Source: Fabrizio et al., 2015.

16.   **With the elimination of fuel subsidies, the Government of Angola creates fiscal space to increase the allocation of public resources to social protection programs to alleviate poverty in the country.** The main social protection program in Angola, the Cartão Kikuia program, was launched in 2013 with approximately 60,000 beneficiaries in six provinces by the end of 2015. The second part of this report will investigate the possible impact of an extension of the Cartão Kikuia program in terms of beneficiaries and size of transfers on poverty.

2 Fuel Subsidy Reforms

17.   **The poverty impact of fuel subsidy reforms is estimated by a micro-data simulation.** This section of the report motivates and describes the reforms and their channels of impact on poverty. A simulation quantifies the impact by estimating the increase in prices of subsidized products due to the reduction in the subsidy. Thus, the simulation offers a theoretical assessment of the expected change in poverty by the subsidy reforms. The simulation does not take into account other factors influencing prices, e.g. the depreciation of the exchange rate.

2.1   Description of Reforms

18.   **Required fiscal adjustments include cuts of fuel subsidies.** With the considerable reduction of fiscal revenues due to the drop in oil prices (Figure 15), large cuts had to be made to the budget. Public investment was reduced to its lowest levels in years and purchases of goods and services were severely restricted to the point of generating some arrears. Fuel subsidies had to bear their share of the adjustment. Subsidies are calculated as the difference between the production and marketing costs and the price at the pump.

Figure 15: Fiscal Revenues (2011 to 2016).
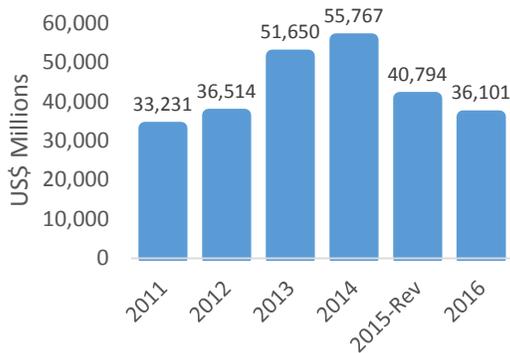
Source: Angola Budget (Ministry of Finance).

Figure 16: Budgetary Expenses on price subsidies (2011 to 2016)
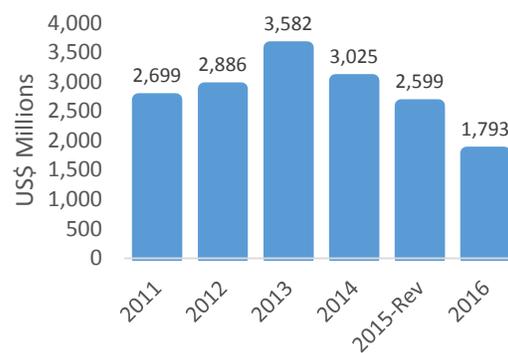
Source: Angola Budget (Ministry of Finance).

19.   **Government implemented successively reductions and elimination of fuel price subsidies.** The fuel prices increased in September 2014, December 2014, April 2015, and December 2015 following the decline in international oil prices and consequently in oil revenues (Table 1). All fuel subsidies except for LPG and lightning oil were eliminated by December 2015. Subsidies to electric and water tariffs were also reduced during the reform. In the end of 2015, the electric and water tariffs (unchanged for years) increased to reduce the price subsidies and to account for the predicted expansion in the population

coverage.[8] These reforms helped to reduce budgetary expenses on price subsidies (Figure 16). Thus, the price adjustments and the time frame outperformed the IMF recommendations from November 2014.

20.   **The Government had to create and increase other taxes to proceed towards a more balanced budget.** In 2015, the Government introduced a new tax that applies to international payments for foreign services, increased the consumer tax on fuels (that was 0 percent before) and on several other goods (e.g. bottled water and cars). Moreover, in 2016, a banking operations tax was introduced charging 0.1 percent of all banking transactions.

Table 1: Reform steps and implementation.

IMF recommendations (Nov/2014)		Angolan Government response
Stage	**Actions**	
Stage I (immediately)	Develop and implement a public information strategy	
After about 1 year	Start to reduce fuel price subsidies	**Dec/2014**: change of subsidies: Light Fuel, from 48% to 0%; Heavy Fuel, from 29% to 0%; and Asphalt. from 82% to 0% **Apr/2015**: change of subsidies: Gasoline, from 48% to 0%. **Dec/2015**: change of subsidies: Diesel, from 48% to 0%; LPG, from 79% to 38,6%; and Kerosene, from 74% to 11.4%.
	Compensate the most vulnerable in the short run by expanding and strengthening existing social programs	Expansion of Cartão Kikuia program, an in-kind transfer program. At the end of 2015, coverage of 9 provinces and about 90,000 beneficiaries.
	Start to develop a cash transfer system to be fully implemented in the medium term	
	Expand priority spending	
Stage II (after 1 – 2 years)	Let retail fuel prices mirror international fuel price increases	
	Continue to compensate vulnerable low-income households	
	Continue to develop cash transfer program	
	Continue to expand other priority spending	
Stage III (after 2 – 3 years)	Eliminate remaining price subsidies	
	Implement a cash transfer system	
	Continue with the implementation of other high-priority programs	

Source: Authors' compilation.

2.2   Poverty Impact

21.   **Comparatively better-off households consume the bulk of fuel products.** In 2015, almost 90 percent of expenditures for gasoline, diesel and LPG were made by the top 40 percent wealthiest

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[8] The operation of water and energy companies involves intensive use of generators. Thus, the reform in fuel subsidies also rose the costs of these companies.

households. The bottom 40 percent contributed less than ten percent to the overall spending on those fuel products (Figure 16).[9] Clearly, fuel subsidies are regressive, since rich households consume more fuel than the poor. Fuel products account for only a very small share (0.5 percent) of household expenditures for poor households while wealthier households spend up to almost 5 percent on fuel products (Figure 17). International experience shows that lower-income households may be protected from fuel price increases by expansion of targeted social spending programs, as was the case in Gabon, Ghana, Niger, Nigeria, and Mozambique.[10]

Figure 17: Consumption of fuel products by consumption quintile in 2015.
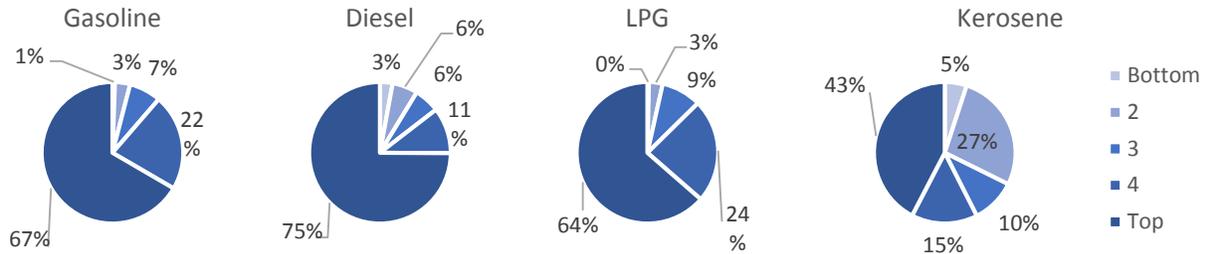
Source: Authors' calculation based on IBEP (2008).

22.   **The indirect impact of the subsidy reform is about twice as large as the direct impact.** The fuel subsidy reform has a direct impact on fuel prices affecting household budgets.[11] In addition, the increase in fuel prices affects production and transportation costs of other goods and consequently indirectly increases prices of those goods as well.[12] The direct impact of the fuel subsidy reform mainly affects wealthier households (up to 2.5 percent of household consumption) but only marginally affects the poor (below 1 percent). The indirect impact reduces household consumption by an additional 5 and 3 percentage points for wealthier and poor households, respectively (Figure 19).

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[9] The relatively large spending of the second quintile on Kerosene is likely to be an outlier due to misreporting.

[10] Fabrizio *et al*. 2015; IMF, 2014.

[11] Transportation accounts for 85 percent of indirect impacts (equivalent to a 1.9 percent decrease in household income). It heavily affects costs of public transportation and, consequently, poor households' budget. (Fabrizio et al., 2015)

[12] Note that the public transportation is price-regulated in Angola. The simulation assumes transmission of price increases to transportation costs.

Figure 18: Fuel expenditures relative to household expenditures.
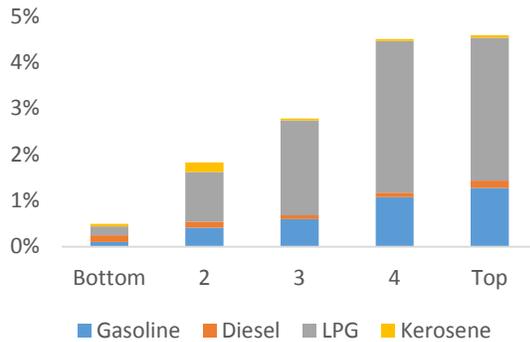
Figure 19: Welfare Impact of Fuel Subsidy Reform.
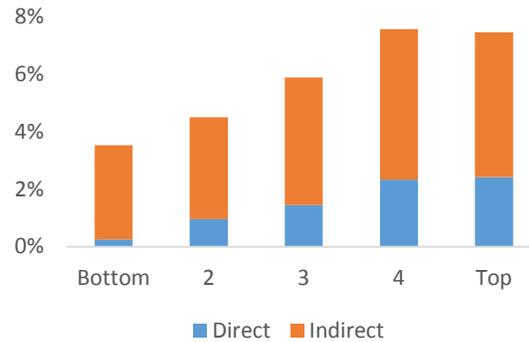
23. **The benefits of the fuel subsidies disproportionally accrue to the better-off households.** The top 20 percent of households received almost 7.5 percent of household expenditures in subsidies. In contrast, the bottom 20 percent only gained 3.5 percent of household expenditures. Given the larger consumption of wealthier households, the subsidies disadvantaged poor households in relative terms. Hence, elimination of the subsidies and replacement with an extension of a social protection program can improve targeting the poor.

24. **Rural households are less affected by the reforms.** Rural households only lose about 4.5 percent of household consumption while urban households are more dependent on markets and prices and, thus, lose on average almost 9 percent of consumption. The main categories contributing to the loss in welfare are food and non-alcoholic beverages as well as housing, water, electricity, fuels and transportation (Figure 20).

Figure 20: Welfare Impact of Fuel Subsidy Reform by product categories.
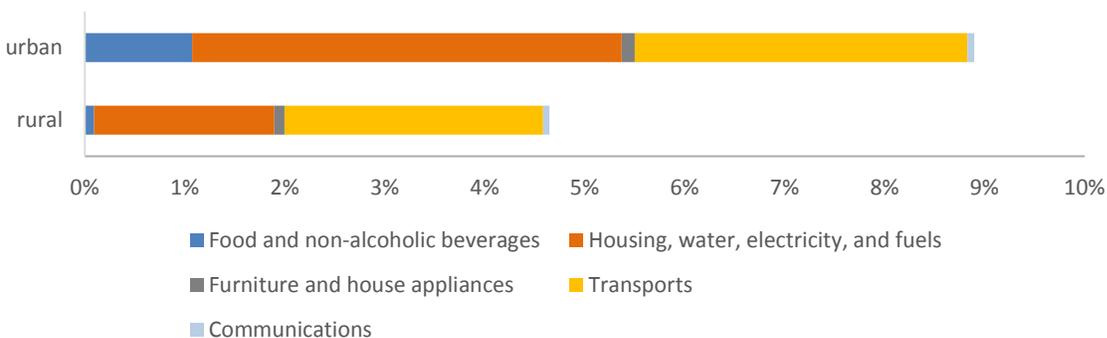
25. **Elimination of the subsidies only marginally increases the poverty head count rate by 2 percentage points from 26 to 28 percent.** The main impact is due to the indirect effect. Urban households are considerably more affected than rural households for two reasons. First, rural households consume less fuel products. Second, rural households cover a larger share of household consumption by own production. Therefore, higher market prices are beneficial as they allow selling

self-produced goods at higher prices. Female-headed households are more directly affected by the subsidy reform than male-households but the total impact is considerably higher on male-headed households (Figure 20). The poverty gap increases slightly for all type of households (Figure 22).

Figure 21: Change in poverty in percentage points.[13]

Direct Impact   Indirect Impact   Total Impact
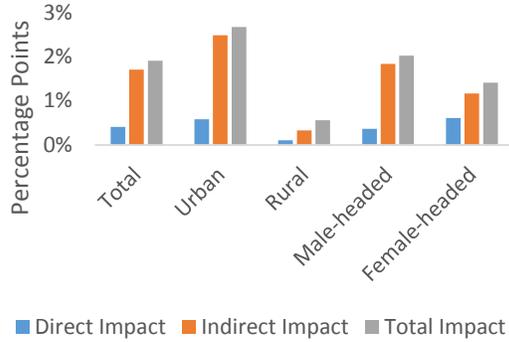
Source: Authors' calculation based on IBEP (2008).

Figure 22: Poverty Gap before and after the reform.

Before Reform   After Reform
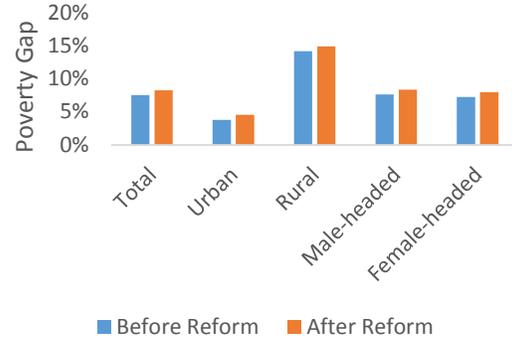
Source: Authors' calculation based on IBEP (2008).

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[13] Note that the total impact is not the sum of the direct and indirect impact due to non-linear effects in the substation model.

3   Extension of Cartão Kikuia

26.   **Social protection programs can be an effective way to mitigate impacts of fuel subsidy reforms on vulnerable households.** The Government expanded the Cartão Kikuia program with the objective to mitigate adverse effects of the fuel subsidy reform on the poor. This section provides a brief description of the program, simulates the impact of the extension on poverty, looks into more detail in targeting mechanisms with a focus on social accountability before making recommendations for improvement.

27.   **The goals of the Cartão Kikuia program are to reduce poverty, increase nutrition among the poor and also to increase the agricultural production among beneficiaries.** As part of the federal Angolan "Combate a Probreza" program, the Cartão Kikuia Program was started in 2013 and then expanded to counter the adverse effect of the subsidy reform.[14] As the Government's main social protection program, it has been gradually expanded in both the geographical coverage – from 1 to 9 provinces - and the number of beneficiaries – from 51,000 to 90,000 in 2016 (Table 2).[15] However, the program is far from reaching its initially targeted coverage of 200,000 beneficiaries.

28.   **The program intends to target the most vulnerable parts of the population**. It is mainly focused on families living under extreme poverty and vulnerability, mostly headed by women in rural areas. It prioritizes widows with orphans or handicapped family members, people with chronic diseases, and former combatants. These eligibility criteria are interpreted and implemented in collaboration with local chiefs, who determine the vulnerability of households.

29.   **The Cartão Kikuia program aims to provide a non-cash transfers for the purchases of food products, agricultural inputs and other basic goods.** The program is implemented with the help of a card that theoretically allows each beneficiary to purchase essential goods worth 10,000 Kwanzas in community commercial establishments in the area where they live. In addition to the basic food products, the card also includes purchases of school supplies and agricultural tools. The card is renewed annually. The original design of the program included a professional skills component that is currently not implemented.

30.   **The Government budget for 2016 includes annual payments of 10,000 Kwanza to 90,000 beneficiaries.** While the original design of the program intended for monthly payments of 10,000 Kwanza, the budget forecast is only consistent with an annual payment of the same amount (Table 2). In addition, the benefit amount was not adjusted for inflation since 2014 despite high inflation of 40 percent from January 2014 to April 2016. In 2016, the government reduced the amount to 5,000

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[14] The program has different initiatives such as the construction of 100 houses in the rural areas – aldeia kikuia. Selected villages are supposed to receive health centers, childcare, schools, and stores.
[15] Numbers of beneficiaries were calculated given the approximate value of annual expenditure estimated for each year and the expected value of annual transfers: 10,000 Kwanzas.

Kwanza. However, it should be noted that only about 40,000 out of about 90,000 beneficiaries received any benefits in the form of a voucher to purchase goods in pre-assigned stores.[16]

Table 2: Approximate value of annual expenditure in million Kwanza on Cartão Kikuia.

Provinces	2014	2015	2016	Required Budget for Inclusion
Cunene	-	153	153	153
Bengo	90	76.5	76.5	76.5
Bié	-	-	127.5	127.5
Cabinda	-	-	51.3	51.3
Cuanza Norte	-	-	-	100
Huíla	-	-	-	127.5
Luanda	60	51	39	39
Lunda Norte	-	-	-	102
Lunda Sul	90	76.5	76.5	76.5
Malanje	-	-	153	153
Moxico	-	-	-	127.5
Namibe	-	-	-	76.5
Uige	-	-	-	204
Zaire	120	102	102	102
Cuando Cubango	-	-	-	127.5
Huambo	-	-	-	127.5
Cuanza Sul	150	127.5	127.5	127.5
Benguela	-	-	-	102
Total	**510**	**586.5**	**906.3**	**2000.8**

Source: Authors' compilation based on Budget Forecast (Ministry of Finance).

31.   **The program as well as its expansion faces severe implementation constraints due to weak implementation capacity and a lack of resources.** Access to retrieve the benefits from the program appears difficult. Benefit access necessitates a store featuring products that can be 'purchased' with the voucher card. Kikuia Stores can be run by the Government or by private investors associated with the program.[17] Most beneficiaries are not able to use the full value of 10,000 Kwanzas available on the card for a number of reasons. First, the current number of available stores is limited with most stores available only in Luanda. Second, supply of products in the existing stores is reported to be low. Third, technical problems in the stores sometimes cause failures in card recognition including due to lack of funds.

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[16] Note that the simulation does not take into consideration those implementation constraints but estimates the impact on poverty if the defined transfer is paid in full to all defined beneficiaries.

[17] Intentionally, the government aims to incentivize that the store owner and workers are people from the communities, fomenting local jobs especially for the youth.

3.1 Poverty Impact

32. **Different targeting scenarios for the expansion of the social protection program are compared.** The expansions of the social protection program Cartão Kikuia to 50,000, to 101,000 and to 140,000 beneficiaries are modeled using different annual transfer amounts and different targeting scenarios. For the estimation of the poverty impact, the simulation simplifies by assuming cash transfers instead of the non-cash transfer of Cartão Kikuia.[18] The simulation considers annual cash transfers in the amounts of 5,000 Kwanza, 10,000 Kwanza, 60,000 Kwanza (or 5,000 Kwanza monthly) and 120,000 Kwanzas (or 10,000 Kwanza monthly). The amounts range from 0.12 USD PPP 2011 to 2.87 USD PPP 2011 per day per household. The following targeting scenarios are modeled:

- Random: This baseline scenario randomly selects new households to be integrated in the program without applying any eligibility or other targeting criteria. This scenario shows the impact of the expansion if the implemented targeting scheme fails.[19]
- Eligibility: This scenario randomly selects new households among all eligible household determined by being rural and female-headed or with at least one disabled person living in the household. This scenario helps to assess the benefits from using the defined eligibility criteria but without any additional consideration of vulnerability. This scenario covers a 'blind' application of the eligibility criteria.
- Eligibility + Geographic: This scenario is similar to the 'Eligibility' scenario but restricted to the eight provinces that currently implement the program. This scenario adds the importance of choosing specific provinces for the expansion of the program.
- Beneficiary Distribution: This scenario utilizes the demographic distribution of current beneficiaries (according to sex, age and location of household head) to select new beneficiaries according to the same distribution. This scenario aims to reflect the current implementation of the targeting as good as possible given data limitations. In reality, beneficiaries are filtered based on eligibility criteria but further selected idiosyncratically by chiefs. This additional selection step can be mimicked to a certain extent by drawing according to the observed parameter distributions.
- Poverty: In this scenario, only poor households are selected into the program. This optimal scenario provides the best-case if the program is targeted perfectly.[20]

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[18] The simplification allows the quantification of the poverty impact but it is not an exact estimate because prices in the shops supplying products can be higher or lower than market prices indirectly increasing respectively decreasing the value of the transfer.

[19] A worst-case scenario that the targeting scheme favors non-poor households is not simulated.

[20] Note that this scenario will only target the poor independent of their poverty depth. Thus, even this targeting scheme can turn out to be not effective especially if the purchasing power of the cash transfer is deteriorated so that beneficiary households are not lifted out of poverty anymore.

Figure 23: Poverty reduction of an extension of the Cartão Kikuia program.

In Kwanza (annual)	In USD PPP 2011 (daily)
5,000	0.12
10,000	0.24
60,000	1.43
120,000	2.87
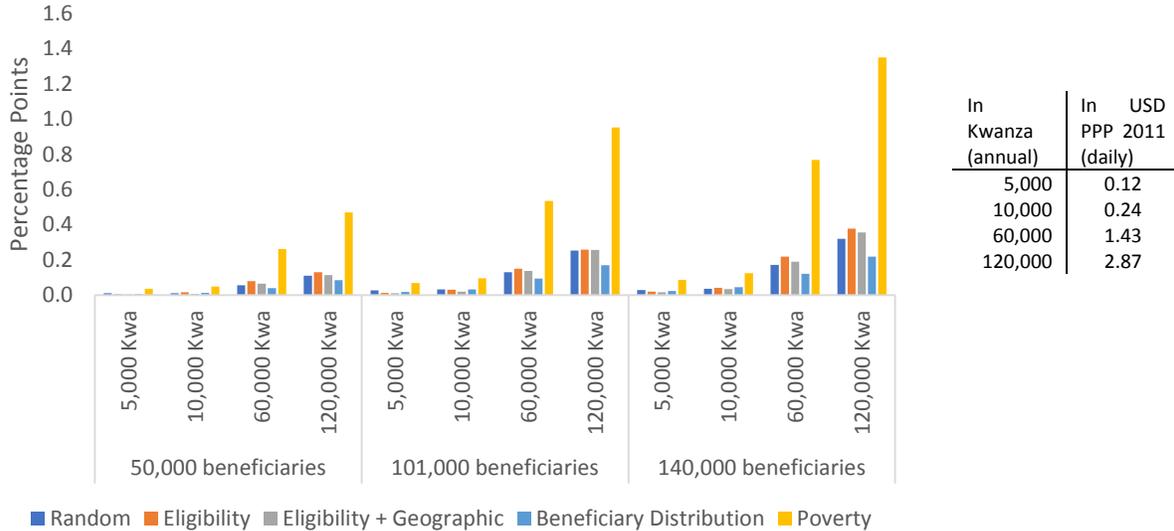
Source: Authors' calculation based on IBEP (2008).

33.   **The poverty impact of Cartão Kikuia is extremely low especially for an annual transfer of 10,000 Kwanza or less.** It is not surprising that a transfer of an annual amount of 10,000 Kwanza is not sufficient to reduce poverty. The amount translates to about 0.24 USD PPP 2011 per day per household. With an applied poverty line of 1.90 USD PPP 2011 per person, this transfer is only effective in lifting small households close to the poverty line out of poverty. For a household with three members, this amount only provides 2 percent of the poverty line (Figure 21).

34.   **Annual transfers of 60,000 or 120,000 Kwanza can be effective in reducing poverty but must be rolled out in large scale.** An annual transfer of 60,000 or 120,000 Kwanza provides one quarter or one half, respectively, of the poverty line necessary to lift a three-member household out of poverty. The average poverty gap among the poor is 30 percent of the poverty line. Hence, many households need at least a transfer of 120,000 Kwanzas to move them out of poverty.

35.   **An annual transfer of 120,000 Kwanza to all 1.3 million poor households can reduce poverty from 28 to 15 percent.** The transfer would cost 954 million USD (0.7 percent of GDP), which is about half of the estimated annual budgetary expenditures on price subsidies in 2016. This would also reduce the poverty gap from 8.3 percent to 3.4 percent. This model calculation assumes a perfect targeting scheme. In reality, targeting the poor is not easy and, thus, costly.

36.   **Random selection of beneficiaries performs as well as targeting only eligible beneficiaries (with or without geographic focus).** Random selection of beneficiaries results in an average inclusion error of about 72 percent given a poverty head count rate of 28 percent in 2015. Applying the eligibility criteria of rural female-headed households or taking care of at least one disabled person in the household does not improve targeting the poor. While rural households have a larger poverty head

count rate, female-headed households have a lower poverty head count rate than male-headed households. Therefore, the targeting scheme does not seem to perform better than a random selection.

37.   **The demographic characteristics of the current beneficiary distribution do not confirm a well-functioning targeting mechanism.** If new beneficiaries were selected according to the observed beneficiary characteristics (with respect to sex, age and location), the poor would be targeted less often than randomly selecting beneficiaries. While this implies that the current targeting, according to the observed characteristics, is sub-optimal, it is also possible that unobserved characteristics (education, health, etc.) indeed select the poor. Thus, the given evidence cannot be used to assess the implementation of the current targeting program. The next section discusses in more detail how in reality targeting mechanisms can be designed.

3.2   Targeting Mechanisms

38.   **Finding and attending to the poorest share of the population is fundamental for efficient use of public resources.** Before delving into targeting mechanisms, the objective of targeting also needs to be discussed. While targeting the poor will reduce monetary poverty most effectively, it can exclude other vulnerable groups suffering from non-monetary poverty. Thus, a first discussion about targeting must touch on the multi-dimensionality of poverty and specific vulnerable groups in the given country context. It should also be noted that targeting the poor could come at a political cost as it implies a transfer or redistribution from one group of the population to another. A good targeting scheme can be expensive to implement. For example, obtaining detailed information to identify the poor has administrative cost implications. Also, some forms of targeting can have social costs for the beneficiaries, such as stigmatization.[21]

39.   **In order to select the poor into a program, targeting mechanism should avoid two main problems: inclusion and exclusion errors.** Depending on the type of information used to find the poor, the program can suffer from under-coverage. Under-coverage or exclusion error means that poor eligible households are not included in the program. Minimizing under-coverage comes at the cost of including non-poor into the program, the so-called inclusion error. The inclusion error makes a program expensive and inefficient. For example, a sub-optimal targeting scheme with an inclusion error of 40 percent would increase the costs to eradicate poverty in Angola from 436 million USD to 610 million USD.

40.   **The upcoming household survey IDREA presents an opportunity to improve targeting of the poor for Cartão Kikuia.** The program could increase the allocated amount of resources and/or develop a more efficient targeting mechanism in order to reduce exclusion and inclusion errors (Figure 22). The simulated demographic targeting design does not perform better than a random allocation of benefits. In general, there are three main groups of targeting mechanisms: household assessments, categorical targeting and self-targeting.

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[21] See Coady et al, 2004 for a detailed description of the costs in each targeting method.

41.   **Household assessments comprise of explicit targeting mechanisms that gather information on each household to decide whether the applicant is eligible.** It covers the popular (verified and simple) means tests, the proxy mean tests and the community based targeting. Mostly, it requires an extensive administrative structure to assess and process the information that will define households' eligibility. The current implementation of Cartão Kikuia relies on household assessments.

42.   **Verified means tests compare collected information with independent sources such as property tax records.** A usual problem is that it requires the information to exist in the first place, which is not common in developing countries partly due to informality. Simple means tests have no independent verification of income. Sometimes, social workers are requested to verify qualitatively households' eligibility. The higher the quality of the information on income collected, the more successful this mechanism can be.

43.   **Proxy means tests are increasingly popular.** Based on statistical analyses, each household receives a score that is generated by taking into account the ownership of durable goods, demographic composition of the household, and the education and occupation of adult members.[22] The information can sometimes be verified by home visits. Besides the administrative structure to collect the data, this method requires specialists to process the data and perform the calculation of the scorecard. In Latin America, for example, most of the conditional cash transfer programs rely on proxy means tests – with the exception of Bolsa Familia in Brazil.

44.   **In community based targeting, people from the communities or local leaders are the ones to define who should benefit from the program.** It is based on the idea that community members can access more accurate information on the conditions of households, taking into account local specificities that influence the level of households' vulnerability. The Cartão Kikiua program has a strong community-based component with the village chiefs determining which households are eligible.

45.   **In categorical targeting, all people from determined groups (age, gender, location, level of education) are eligible.** This method is explicit and straightforward since categories are mostly easy to verify. Categories are chosen based on their correlation with poverty, as the use of the map of poverty to define eligible locations or to define geographical quotas. Often, more than one category is combined to define the targeted groups. In Cartão Kikuia, gender and location are part of the categorical targeting, which is combined with the community-based component.

46.   **Targeting can also be done implicitly through self-selection.** This mechanism allows universal eligibility but incentives are designed in a way that will self-select the poorest citizens into the program while keeping the non-poor out of it. It can be achieved by increasing the subscription costs in terms of

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[22] The mechanism to calculate the score depends on the country. Often, a simple score card is developed that allows summing up scores with a threshold indicating whether the household is eligible.

registration time or, in the case of in-kind transfer, offering low quality products that are not attractive to the non-poor.

47.   **Overall, it is useful to design a targeting mechanism that combines various methods of targeting in an effective and cost-efficient way.** For Angola, a random targeting scheme will result in a large inclusion error while a perfect targeting scheme can be three times more effective (Figure 21). In international comparison of implemented programs, a study shows that targeting increases the resources to the targeted groups on average by 25 percent compared to a random allocation of resources.[23] The actual difference between targeting and random selection depends on the poverty headcount of the country and the design as well as implementation of the targeting scheme. However, badly designed or poorly implemented targeting mechanisms may not be any more effective than a random selection or even divert transfers from the poor. Among the 81 programs evaluated in the study, 21 programs turned out to be regressive, which means random selection would have better allocated resources to the poor.[24] An effective combination of targeting mechanisms could include geographic targeting (based on current poverty maps), a household selection instrument (based on a proxy means test) and community validation or pre-selection.

48.   **Targeting can be improved by incorporating monitoring mechanisms and quotas into the design.** Bolsa Familia in Brazil is an often cited example for a successfully designed and implemented social protection program. It is based on a registry database CadÚnico. Randomly selecting families from the database – without using any of its information, not even income - would guarantee a 55 percent targeting level, while using information on income only increases this number to 57 percent. However, complementary measures, e.g. geographical quotas and the quality of local mechanisms that include and monitor the poor population in the registry database (*CadÚnico)*, can improve targeting. Those factors have been shown to be the main explanatory components for the high targeting level of the program in Brazil.[25] In the wider context, these mechanisms fall under social accountability and are discussed – given their importance – in more detail below.

3.3   Social Accountability

49.   **Targeting mechanisms should be complemented by an effective social accountability mechanism.** In developing countries, collective efforts to hold governments accountable for their social commitments are extremely important for the development of equitable societies. Social accountability relates to initiatives that engage states and citizens to ensure high quality service delivery. Likewise, it seeks that targeted populations, especially the poorest, are included among the beneficiaries of social programs.

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[23] Coady, D., M. Grosh, J. Hoddinott (2004). Targeting of transfers in developing countries: review of lessons and experience.
[24] Coady, D., M. Grosh, J. Hoddinott (2004). Targeting of transfers in developing countries: review of lessons and experience.
[25] Barros, R. P.; Carvalho, M.; Franco, S.; Mendonça, R. (2010b). A Importancia das Cotas para a Focalização do Programa Bolsa Familia. In: Bolsa Familia 2003-2010: avanços e desafios. Org: Jorge Abrahao Costa, Luciana Modesto. Volume 2. Brasilia: Ipea.

50.   **Political participation can strengthen the link among the main actors providing the services, beneficiaries and policymakers.** It requires the existence of mechanisms that allow citizens to gather information and build an evaluation of the quality of the service, as well as provide ways to give voice the poor and disadvantaged populations to reach the policy makers and/or the providers. Political participation in Angola is strong.

51.   **Throughout the cycle of cash transfer programs, control and accountability processes are required to minimize and manage risks, guaranteeing its effectiveness and sustainability.** Transparent information on the targeting mechanism, recertification and community councils are helpful ways to verify whether the poorest people are receiving most of the resources. Having a monitoring system can improve the capacity to verify the compliance with conditionalities.

52.   **Grievance and complaint mechanisms as well as transparency of information are important to increase the voice of poor people, but it is certainly not enough.** It is crucial that citizens, and even more important the beneficiaries, have direct channels to influence the service providers – along with the freedom to do so. At local levels, governments need to ensure that beneficiaries and social organizations have the means to organize themselves and communicate their monitoring results to official authorities.

53.   **In the case of a heterogeneous public, decentralized decisions can induce better results.** The goals of the program, the heterogeneity of the targeted population, and the profile of the government (pro-poor or clientelist) and of the providers are important pieces of information to design an adequate mechanism for social accountability.[26]

3.4   Recommendations for Cartão Kikuia

54.   **The Cartão Kikuia program and Brazil's Bolsa Familia share most of their goals but rely on very different methods.** Bolsa Familia has shown to be an effective program to alleviate poverty and increase school enrollment and health outcomes. It has a clear and transparent beneficiary selection, several monitoring mechanisms and speediness in the payment.[27] Bolsa Familia can be a good benchmark for the Angolan government to observe in order to improve its own mechanisms to reduce poverty.

55.   **Bolsa Familia originated from a unification of all federal cash transfer programs.** Different programs with redundant or inconsistent targeting mechanisms can consume scarce resources and capacity. Bolsa Familia started by combining all existing social protection efforts that were based on cash transfers. A first start for Angola is the unification of a registry as already planned before programs are unified.

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[26] See World Bank (2003) for a more detailed set of options according the characteristics of the service and the region.
[27] The interested reader is referred to the appendix for a detailed discussion of Bolsa Familia.

56.   **Targeting of Bolsa Familia has shown to be successful while an evaluation of Cartão Kikuia is not available.** The analysis in this report could not provide evidence on how well the Cartão Kikuia program is targeted to reduce poverty. An independent evaluation could shed light on its effectiveness and efficiency. The upcoming household survey will be an opportunity to start collecting data for an evaluation that would allow comparing beneficiaries with non-beneficiaries.

57.   **One main difference between Cartão Kikuia and Bolsa Familia is that Bolsa Familia transfers are in cash, not in kind.** The Bolsa familia beneficiaries can choose how to spend their money according to their preferences and availability of local goods. The conditionalities regarding education ensures an intergenerational transfer to reduce future poverty. Thus, the program has a paternalistic design feature paired with a theory of interdependent preferences.[28] In contrast, the Cartão Kikuia program is based on controlling the quality and supply of provisions, reducing the freedom of choice of the beneficiaries. In countries like Ethiopia, Ghana, Kenya, Mozambique, Mauritius, Rwanda, and Zambia cash transfers to vulnerable households proved to be an efficient tool for poverty alleviation.[29,30]

58.   **In-kind transfers require a more complex infrastructure that increases the demand for Government administration and centralization.** The Cartão Kikuia program is designed with the Government playing the dominant role in its implementation. In the current context, it is questionable whether the Government has the capacity to implement the program efficiently. The reported shortcomings as discussed suggest that the current capacity is insufficient. The clear advantage of cash transfers is that the Government does not need to get involved in the supply side of local markets. Instead, it can focus its administrative efforts on reaching the poorest population.

59.   **Another critical difference is the clear and transparent information management of Bolsa Familia.** Anyone can access the number and locations of the beneficiaries and the amount spent. The criteria selection is clear and largely communicated to the whole country through social media and municipalities' transmissions efforts. This is in stark contrast with the opaque design and implementation of Cartão Kikuia, including its targeting, the transfer amounts and the utilization of the transfers. Without reliable data and the knowledge of the targeted population, the capacity of the third parties to evaluate the program and recommend relevant changes remains extremely limited.

60.   **An M&E framework would help to track the expansion of the program and create more accountability.** With the identification of the program main mechanisms and monitoring its inputs, outputs and outcomes can increase transparency and foster accountability of the program. The M&E framework should monitor the main inputs under the program's control as well as external factors to which the program is sensitive. Also the characteristics of the beneficiaries should be added to the M&E framework and measured against a defined target (Table 3).

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[28] See Currie et al, 2007 for a detailed discussion on in cash and in kind transfers.
[29] Monchuk, V. (2013). Reducing Poverty and Investing in People: The New Role of Safety Nets in Africa. World Bank Publications.
[30] See Fiszbein and Schady, 2009, for a review of programs and its main effects on poverty and human capital.

Table 3: An example for an M&E Framework for Cartão Kikuia.

	Indicator	Frequency	Responsible
Inputs	Total expenditures	Yearly	Federal Government
	Number of subscribed households	Monthly	Local Government
	Number of stores by locality	Yearly	Local Government
	Quantity of products supplied by store	Monthly	Local Government
	Number of community chiefs by location	Yearly	Local Government
	Household information: Socioeconomic status of the head, number of members, age of members, information on the structural conditions of the house (bathrooms, computers, fridges, etc)	Yearly	Local Government
Outputs	Quantity of products/kits demanded, by store	Monthly	Local Government
	Amount of money expended, by store and registered card	Monthly	Local Government
	Number of (extreme) poor households attended	Yearly	Local Government
	Number of beneficiaries by locality (Household/People)	Yearly	Local Government
Outcomes/ Impacts	Poverty/extreme poverty levels	Yearly	Federal Government
	Inequality measure (Gini)	Yearly	Federal Government
	Level of local agricultural production	Yearly	Federal Government
	Rate of school attendance among children from 7-15 years old	Yearly	Federal Government
	Rate of school frequency among children from 7-15 years old enrolled in school	Yearly	Federal Government
	Local levels of child nutrition	Yearly	Federal Government
	Rate of child mortality	Yearly	Federal Government
	Rate of adult mortality	Yearly	Federal Government

4 Conclusion

61.   **Given Angola's exposure, fiscal adjustments are necessary with the plunge in oil prices.** The massive loss of revenues means that the Government must exercise strong fiscal discipline. Replacing subsidy programs with better-targeted social protection programs can create better value/protection for less money. A good understanding of the impacts of subsidies and the distribution of their benefits is essential to inform mitigation measures. Furthermore, an assessment of targeting mechanisms for social protection programs helps to ensure that freed up resources are put to better use in protecting the poor and vulnerable.

62.   **The fuel subsidies in Angola only marginally affected the poor as most benefits accrued to better-off households.** Those better-off households consumed the bulk of fuels in absolute and relative terms. Therefore, re-allocation of those resources towards a better-targeted social protection program is useful, especially in the current context of fiscal constraints that demand efficient use of resources while protecting the poor and vulnerable.

63.   **The expansion of the Cartão Kikuia program should be accompanied by reforms of the program to ensure effective targeting and efficient use of resources.** The current program implementation has eligibility criteria that do not improve targeting beyond random selection. A better targeting design with transparent and clear rules would improve the program. Furthermore, the program suffers from supply constraints to access benefits, e.g. stores are empty or not available. In-kind programs are traditionally more difficult to implement and require larger government capacity. Hence, re-designing the program based on direct cash transfers could help overcoming the severe implementation challenges.

64.   **The fuel subsidy reform could be used to motivate a reform of the public transportation system.** Current prices for public transportation are very different from market values (Box 1). The bus service price is officially set at 30 Kwanza since 2005. The price is disconnected from costs and, thus, it leads to under-provision of the service. An adjustment of prices would make public transportation companies less dependent on government transfers, allowing them to spend the extra resources in system maintenance and expansion. Furthermore, higher prices would encourage the expansion of service provision reducing the current rationing of the service.

Box 1: Public Transportation Subsidy Reform

The fuel subsidy reform also affected Angola's inefficient public transportation system. Angola's public transport system is a strongly price-regulated system, which leads to an inefficient, low quality and low service provision along with the emergence of illegal public transportation providers. The inefficient, low quality and insufficient provision of public transportation is explained by low prices that are fixed by the Government. The Government also compensates eventual operational losses of service providers. Thus, the current state of the public transportation system is not surprising. The fuel reform further pressured transportation costs and discouraged public transport provision.

A reform could include the introduction of a transportation card to be used as an alternative way of payment and allow subsidies for the poor. The card could be credited with value to use for access to buses, trains or regularized collective taxis. Targeted populations could receive a monthly credit on this card. Thus, ideally the same card as Cartão Kikuia should be used to avoid the emergence of multiple parallel social protection systems. The transportation card would also provide greater revenue control by the provider and give flexibility in offering discounts or premiums to influence traffic, e.g. in rush hours.

Non-basic modes of transportation like taxis should have non-subsidized market prices for their service. Currently, taxis are an alternative transport service in the country with regulated prices by the government. As soon as a basic public transportation mode is provided to the poor and vulnerable population, other forms of public transportation can be priced at market rates. This would increase supply of the service as well as competition ultimately leading to higher quality and prices close to costs.

Eligibility rules for the transportation card should be clear, publicly available and utilize biometric identification. A well-designed targeting mechanism should be used to create eligibility rules for the transportation card – ideally jointly with a reformed Cartão Kikuia program and as part of the Social Registry that the Government is in the process of building. The rules should be clear and publicly available to create social accountability. Beneficiary registration should involve biometric technology.[31] Angola suffers from multiple identity problems, e.g. there are individuals who possess more than one identity document. This is due to the decentralized way in which birth certificates are emitted and the fact that many records were destroyed during the civil war.

Partnerships with banks for transportation card operation and credit supply could create a more robust system. Usage of the available ATM system can mitigate scale-up constraints on program expansion in urban areas. In addition, transfers can be carried out in partnership with these institutions.

The transportation card would help to reduce illegal transportation services. Beneficiaries of the transportation card will be incentivized to use legal transportation services. To ensure a smooth transition, a process should be created to formalize currently illegal transportation services.

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[31] This strategy has been implemented for public civil servants relisting and saved 3 billion Kwanzas.

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6 Appendix

6.1 Methodology

66. **Micro-level simulation is used to estimate quantitative impacts of the subsidy reforms on poverty.** The simulation uses household consumption data from the household consumption survey IBEP 2009. Household consumption is propagated to 2015 based on real GDP per capita growth using a distribution neutral pass-through of 0.5. Population growth is incorporated by adjusting household weights to match the 2014 Population Census at the strata level (province and urban/rural).

67. **The simulation distinguishes between direct and indirect impacts of the subsidy reforms on poverty.** Direct impact of the subsidy reform is simulated by adjusting household budget constraints with the increase in fuel, electricity and utility prices due to the reduction of the subsidy. As the increase is applied to consumption data in 2011 terms, the relative increase in the price will be applied to the household budget. Substitution effects are considered by estimating cross substitution elasticities based on the 12 CPI product categories.[32] The indirect impact of the subsidy reforms is estimated with the help of an input-output table. The input-output table describes the price changes of outputs due to changes in prices of inputs. The simulation considers the products subject to subsidy reform as inputs and translates the indirect impact on any other consumption good. The behavioral response of households by substitution is incorporated using the same model as for direct impact.

68. **The change in consumption is expressed as Compensating Variation, considered as the percentage of initial consumption, to keep households with the same level of utility before the change in prices.** The model follows two assumptions: First, the households keep the same item shares of consumption after the reform. Second, the households decrease to some extent the consumption of goods that are more expensive for goods and increase consumption of substitute goods. The first assumption can be expressed as:

$$\Delta \ln C = \sum_{j=1}^{k} w_j \times \Delta \ln(p_j)$$

69. **The Compensating Variation for each good is equal to the price variation of the good times the share of the good in household consumption. The total welfare loss is the sum of the losses for all goods whose price increased.** $\Delta \ln C$ is the income variation to keep the household utility constant without considering substitution effects. w_j is the share of consumption in each good j, considering the total household consumption, and $\Delta \ln(p_j)$ is the difference of log prices of in consumed products.

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[32] Deaton, A. and J. Muellbauer (1980), "An Almost Ideal Demand System", American Economic Review, Vol 70, No 3. Estimated by using the approach from Poi, B.P. (2012), "Easy demand system estimation with quaids", Stata Journal, Vol 12, 433 – 446.

70.   **The Compensating Variation value is probably overstated, as consumers substitute to some extent goods with higher prices for lower priced substitutes.** Substitution elasticities can be estimated utilizing the variation of prices and consumption shares following the approach for Quadratic Almost Ideal Demand System Estimators. The elasticities are estimated using IBEP 2008. The elasticities are then applied in the modified equation for the Compensating Variation:

$$\Delta \ln C = \sum_{j=1}^{k} w_j \times \Delta \ln(p_j) + \frac{1}{2} \sum_{i=1}^{k} \sum_{j=1}^{k} w_j \varepsilon_{ji} \times \Delta \ln(p_j) \Delta \ln(p_i)$$

71.   **The term added to the previous equation considers the direct and cross demand-price elasticities for all the goods in the household consumption basket.** Thus, it consider the possibility of substituting the products that became more expensive.

6.2   Bolsa Familia

72.   **The Bolsa Família Program (BFP) is a successful out-market, noncontributory, income distribution initiative that started in 2003.** It is the result of the unification of other cash transfers programs: Erradicação do Trabalho Infantil (1996), Bolsa Escola (2001), Cartão Alimentação (2003), Auxílio-Gás(2001) and Bolsa Alimentação (2001). The unification was pursued under the intent to elevate poverty as a national issue. This notion was fundamental to support the administrative revolution that resulted in the national and unified Bolsa Família Program[33] - under the administration of the Ministry of Social Development and Fight against Hunger (MDS).

73.   **The unification of all the federal cash transfer programs was a significant advance in the social security system in Brazil.** Before, each program had an independent administrative structure. For example, it could be the case that one family would receive all federal benefits while another, in similar conditions, would receive none. Or different amount of money could be paid to families in comparable socioeconomic situation. Under the Bolsa Famila, they unified the entry criteria, the amount of benefits, the administrative agencies and the information system.

74.   **The Bolsa Família Program is not a right and it is completely dependent on the availability of resources – the number of beneficiaries and the amount of resources are limited.** Given this, annually the government defines the goals of the program. In 2003, the program started aiming to attend to 11.2 million families. The number of families attended to each year gradually grew – reaching the targeted number in 2006 (Table 3). In terms of the proportions of **Bolsa Família** , it has an impressive coverage with a low budget. In 2015, the program attended to 14 million families and its total expenditure – R$ 27 million - was approximately half a percent of the Brazilian GDP.

75.   **The innovative institutional framework surrounding the functioning of Bolsa Familia is composed mainly by: the SENARC (National Secretariat for Citizen Incomes - MDS) and the Federal Economic Fund (Caixa).** The National Secretary for Income and Citizenship at the MDS is the main responsible body for the program, while its implementation is under the responsibility of the states and municipalities. The program also has the support of the Ministry of Health and Ministry of Education, both responsible for monitoring compliance with health and education conditionalities.

76.   **The population entitled to the *Bolsa Família Program* is that living under poverty (monthly per capita income between R$77.00 and R$154.00) and extreme poverty (up to R$77.00).** These poverty lines evolved over time. In 2004, it started using the minimum wage as reference (R$200.00) – up to R$50.00 was considered extreme poverty and poverty from R$50-100. The values are updated based on the price index, representing a measure of poverty that does not change conditional to economic development. See Table 2 for a description of the actual values and the criteria used to distribute the resources. The maximum benefit to each family according to the rules is R$259.00 monthly (Table 4).

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[33] The Bolsa Família Program was officially created through the Provisory Measure number 132, from October 20th 2003. It became a law in 2004 (Law number 10,836, from January 9th 2004).

Table 4: Dimensionality of the *Bolsa Família Program* from 2004 to 2015.

Year	#Households with BFP - Million	#Households in the *CadUnico* - Million	Mean Monthly Cash Transfer (per household)	Total Cash Transfers (BFP) - Million	% of GDP spent with BFP
2004	6.6		R$ 69.98	R$ 3,792	
2005	8.7		R$ 62.95	R$ 5,692	0.27
2006	11.0	15.1	R$ 59.56	R$ 7,525	0.32
2007	11.0	16.8	R$ 65.87	R$ 8,965	0.34
2008	10.6	18.3	R$ 78.77	R$ 10,607	0.35
2009	12.4	19.3	R$ 86.30	R$ 12,455	0.38
2010	12.8	20.8	R$ 92.58	R$ 14,373	0.38
2011	13.4	22.3	R$ 109.26	R$ 17,360	0.42
2012	13.9	25.1	R$ 130.76	R$ 21,157	0.48
2013	14.1	27.2	R$ 151.87	R$ 24,890	0.48
2014	14.0	29.2	R$ 169.03	R$ 27,186	0.49
2015	13.8	27.3	R$ 163.06	R$ 25,380	

Source: Ministry of Social Development and Fight against Hunger, Brazil; IBGE – Brazilian Institute of Statistics.

77. **Families are ranked according to well defined and clear criteria: (i) priority families, (ii) low income families, (iii) families with a high number of children under 17 years old.** For the priority group, they must be eligible under the basic income criteria but, once identified, they will receive the benefit even if the limit number of families of that locality has been reached. The priority group is composed of *quilombola*[34] and indigenous families, families with child labor, families with members formerly working under slavery circumstances – among others.

78. **The selection and payment of the beneficiaries are conducted in an impersonal way, by the Federal Economic Fund (Caixa) using the criteria stablished by SENARC.[35]** The selection is made of the beneficiaries in the *Cadastro Unico*, following the criteria defined by SENARC – geographical quotas, income and priority list. For the payment, each family receives a debit card by mail. Then the benefits can be collected in any Caixa's agency (ATM spots). Besides the card, each beneficiary receives instructions and information about the program, such as its functionality, the conditionalities requirements and communication channels.[36]

79. **The *Cadastro Único (CadÚnico)* is a system from which the beneficiaries are selected.** It contains detailed information especially on families living in poverty and extreme poverty. The *Cadastro* contains information on the individuals – schooling levels, occupation, and income. On the households - basic services, sanitation and electricity. The municipalities are responsible of maintaining the system updates. To enter the system, a family can seek for an official location made available by the

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[34] Ethnic groups living in specific territories mainly characterized by slavery historical roots and African ancestry. There are over 2000 quilombola communities in Brazil.
[35] Secretaria Nacional de Renda e Cidadania (National Secretary of Income and Citizenship).
[36] To learn more about the specificities of the payment, see Hellman (2015).

municipality in strategic locations or the municipality seeks for the poorest families at the location. An official agent conducts an interview collecting detailed information on the family.

Table 5: Types of Benefits available to eligible families based on their characteristics in 2016.

Type of Benefit	Amount (R$)	Characteristic of the eligible family	Benefit is limited to:
Basic Benefit	77.00	Extreme poverty.	-
Variable Benefit	35.00	Extreme poverty and poverty, with pregnant women or lactating. Also, presence of children up to 15 years old.	Up to 5
Variable Youth Benefit	42.00	Extreme poverty and poverty, with 16-17 years old adolescents.	Up to 2
Benefit to Overcome Extreme Poverty	Variable	Families that do not reach the minimum per capita income even after receiving the above benefits. Values are calculated case-by-case.	-

Source: Ministry of Social Development and Fight against Hunger, Brazil.

80. **Thanks to the wide promotion of the program, most of the registries are not home based and in most cases the family self-selects into the program.** It is required that the responsible family head is over 16 years old and preferably a woman. Every two years, the families and the municipalities are together responsible for updating the information in the system. Recertification is a fundamental condition for the continuation in the program.

81. **In order to guarantee the human capital development of the next generation, the program requires a few conditionalities in the areas of health and education.** Families are required to keep vaccination records updated for children under 7 years old. Prenatal care is mandatory for pregnant and lactating women. In relation to education, it is required that children up to 15 years old enroll to school and keep attendance levels in a minimum monthly attendance of 85 percent. Adolescents of 16 and 17 years old have to be enrolled and maintain a 75 percent monthly attendance level. The MDS defines the number of families to which monitoring compliance with the conditionalities is required. The Ministry of Education and Ministry of Health are responsible for keeping track of these compliances.

82. **Once the families to be monitored are identified, they are considered as vulnerable families and a package of actions is set in motion to help families to overcome the situation.** Overall, the conditionalities are more useful to keep the government accountable to the population than to take families out of the program. In fact, keeping the registries updated is actually the most important – families that fail to update their information every two years are automatically excluded from the program.

83. **All these mechanisms work to reduce the dependence of the beneficiaries on local authorities – splitting the power among the community, banking agencies and public authorities.** Bolsa Família straightened direct relationships, eliminating any intermediations that could involve political parties or social organizations in the selection into the program or distribution of the benefits as well as the family's continuation or not in the program. The public availability of all databases and the

dissemination of information through radio and television maintain that the program is subjected to public evaluation constantly.

84.   **The administrative decentralization of the program contains other specific features to guarantee accountability of all parts involved.** Social Accountability Boards - equally composed of government and civil society - seeks to monitor local authorities and guarantee that the poorest population has access to the program. Over a quarter of the members is formed by Bolsa Familia's beneficiaries, implying a conflict of interest. One-fifth of the municipalities did not have a council although this is a legal requirement of the program. Seventy-three percent of the members were supporters of the mayors, a major indicative of political manipulation.[37]

85.   **The program also counts with the supervision of supreme audit agencies: CGU[38], TCU[39] and MP[40].** Each has its specificities, but in general they investigate particular cases, perform financial audits and guarantee the publicity of the beneficiaries list. Besides, the program has different hotlines. Caixa's focuses on payment and registry issues, MDS's covers general public and managers and Senarc's attends to a more technical set of queries.

6.2.1   Targeting

86.   **The efficacy of the BFP targeting is one of the highest: 80 percent of the resources are allocated to the poorest 40 percent of the population.[41]** The BPF ranks among the 10th best programs out of 122 programs. [42] The targeting mechanism used in the BFP is a mix of geographical quotas and (un)verified means test. The information on income is self-declared and it can be compared to an independent survey also covering income, the Annual Social Information Report (RAIS).

87.   **Geographical quotas are the first step in the targeting mechanism.** Based on PNAD and the Census, measures of the percentage of people living under poverty in each municipality are estimated. Along with the fact that there is no limit number of people to be included in the *CadUnico* system, the quotas give the municipality incentive to reach the poorest people in the region. However, this supposes a good social control in the municipality level, a hypothesis that does not meet empirical validation so far. These local criteria are flexible and municipalities could ask for a higher amount under the argument that the locality has a larger number of potential beneficiaries. Interestingly, the national quota seems to have been respected during all the years.[43]

88.   **Due to the lack of reliability of the self-declared income, the reported income impacts targeting by 2 percentage points, contributing only 5 percent of the overall effect.** Using data from

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[37] Lindert et al, 2007; Hall, 2008.
[38] General Comptroller's Office (Controladoria Geral da União).
[39] Federal Audit Court (Tribunal de Contas da União)
[40] Public Prosecutor's Office (Ministério Público)
[41] Soares, 2010.
[42] Soares, 2007.
[43] Lindert et al (2007).

PNAD 2005, the contribution of each component to the targeting of the BFP can be simulated.[44] Using a poverty line of one half of the minimum wage in 2004, the targeting of the BFP was 57 percent (Figure 22).

Figure 24: Bolsa Familia decomposition of the overall targeting level by component.
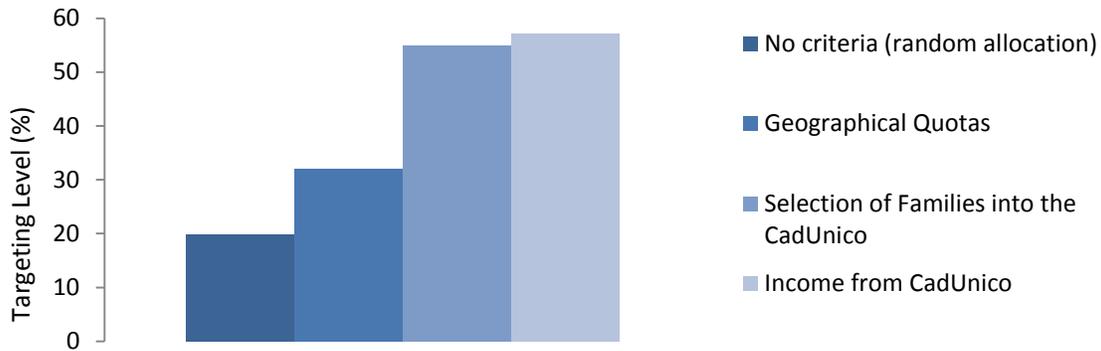

Source: Barros et al (2010b).

89.   **In 2014, 88 million people were registered in the *CadÚnico* system while 48 million people were selected to benefit from *Bolsa Família.*** However, according to the National Household Sample Survey (PNAD) there are 20 million people living in poverty. Since *Bolsa Família* targeting is based on self-reported income with poor verification mechanisms, it is likely that people are underestimating their income in order to qualify for the benefit.

90.   **A distinction between permanent (or structural) and transitory income is paramount to interpret measures of targeting and coverage and to propose more efficient measures.** A reason why the gap between the eligible for the BFP as registered in the *CadUnico* and the one estimated from PNAD (Figure 22) could be a result of the vulnerability of the family income. PNAD registers the income in the last month before the interview- which does not capture the dynamics of family income. Using data from a monthly survey on income (PME – Monthly Employment Survey[45]), it can be estimated that in a given month, 13 percent of the population swift from a poor to a non-poor condition. This possibility is likely to happen since 60 percent of the adults in the beneficiated families in the BFP are not in the formal labor sector.[46] This is added to the fact that the interval between the two BFP's interviews is of almost a year and by the time the person enters PNAD, that information is not comparable to the one in the *CadUnico* anymore.

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[44] Barros et al (2010).
[45] A survey that is similar to CPS – Current Population Survey – in the US.
[46] Ribas and Machado (2008).

Figure 25: Number of people in the *CadUnico*, BPF Beneficiaries and in Poverty, in 2014.[47]
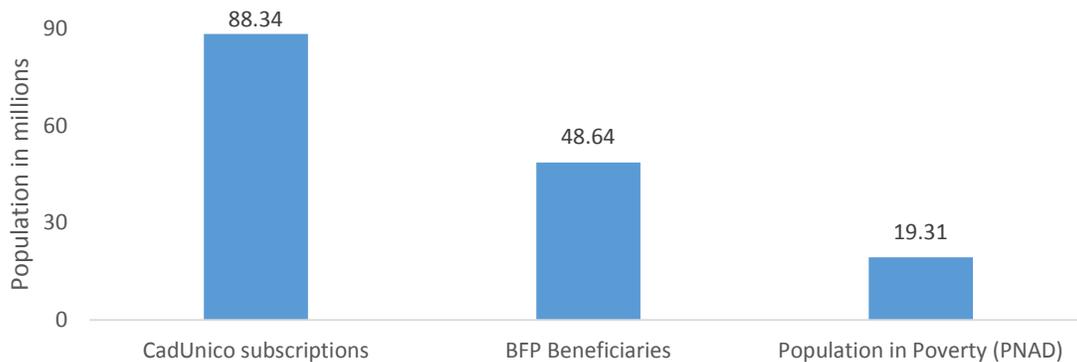
91. **A study of another Brazilian CCT program - *Renda Melhor* Program (RMP), similar to the BFP - addresses important issues: the use of declared, current or structural income and their impact on the improvement in targeting.** The *Renda Melhor* program is complementary to the *Bolsa Família*. It seeks to complement the per capita income up to R$100, even if the family is already a beneficiary of other programs. It is focused only on the extremely poor families, which limits the possibilities of the new methodology to reduce the exclusion error since it is not possible to rescue the extremely poor families already left out of BFP. Different from BFP that uses self-declared income to define how poor the family is, the RMP bases on proxy means test to estimate the degree of poverty of each candidate – although the actual methodology used by the program is not clear. To learn more about the program, its income measures and targeting effectiveness, see Barros et al, 2016.

92. **A detailed evaluation of the targeting performance of RMP was performed to compare declared income option to the verified means test or proxy means test option.[48]** A sample of families beneficiaries of BFP and RMP were interviewed in 2012 (baseline) and 2013 (follow-up) in order to obtain information to be compared to the *CadUnico*. Detailed information was obtained in relation to family income sources. The measure of *current income* (verified means test) was retrieved by adding all sources divided by the number of members in the household. *Structural income* (proxy means test) is the amount of resources a family has that is less subject to transitory shocks. Barros et al (2016) estimated a structural income using proxies (e.g. schooling years of the adult members of the family) that were highly correlated with the structural component and were not correlated with the transitory component. Also, consumption habits were used as proxy for the structural income such as rent, education and health expenditures.

93. **Declared income was found to be a poor measure of the actual income, while current income and structural income showed to be better predictors.** When information on the declared income and

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the current income collected by the surveys were compared, it was found that the income declared in the *cadastro* was lower than the one collected in the home visits. The income variation in the *cadastro* is 63 percent of the one collected in the home visits. According to the *cadastro*, 47 percent of the families have income lower than R$100, becoming eligible for the benefit. The survey, on the other hand, counted 31 percent of the families in that situation. The under-declaration of income increases the inclusion error. More worrying is the fact that the number of families in extreme poverty is higher among the surveyed families than in the *cadastro* – leading to an increase in the exclusion error. The results in relation to the comparison of declared income and structural income are similar to this, leading to similar conclusions.

94.   **As found by a different simulation study, increasing the targeting of the program would increase the income of poorest significantly.** A study on the impact of the BFP on the income of poorest 40 percent of the population compared to what it would be if the targeting method were changed to the random allocation of the resources show that the current method (quotas, cadastro and declared income) is three times more effective than the alternative.[49]

95.   **Despite the current targeting performance of BFP, it is clear that there is room for improvement if more information already available in the *CadUnico* were used.** For example, the *Rede de Oportunidades*, from Panama, is more efficient in allocating resources to the poorest 20 percent in the population. The main difference between the two programs is the use of *proxy means test* (PMT) in Panama's program.

6.2.2   Poverty Impact

96.   **Since early 2000, Brazil has changed greatly in relation to its socioeconomic outcomes.** The country has met many of the Millennium Development Goals years in advance and the overall Human Development Indexes improved substantially throughout the country.

97.   **From 1999 to 2009, Bolsa Familia accounted for 16 percent of the overall decrease in the inequality, which is an impressive result for a program that costs less than 1 percent of a household total income.** The decrease in the level of inequality was roughly constant until early 2000 and it started decreasing to less than 0.52 in 10 years. Regarding the effect attributed to BFP, the main explanation for these expressive results is the targeting of the program. [50]

98.   **Besides inequality and poverty, studies have found positive impacts of BFP on educational, health and crime outcomes.** A study found that BFP increased enrollment rates by 18 percentage points and lowered dropout rates by 1.5 percentage points among the participant children. Also, they found an increase in 2 percentage points in grade promotion. It also indicates the program has a higher impact

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[49] Barros et al (2010); Soares (2010).
[50] The other share of the decrease is credited to the increase in the labor income (59 percent) and Pensions (15 percent).

among racial minorities than whites.[51] Regarding health outcomes, the program improved health care utilization, with positive spillovers on older siblings.[52] In relation to crime rates, evidence indicates a reduction in crime rates caused by the reduction in inequality rather than for incapacitation from time spent in school.[53]

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[51] Glewwe and Kassouf, 2010, 2008.

[52] Shei et al 2014.

[53] Chioda et al 2013.