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Cash benefits in low-income countries: Simulating the effects on poverty reduction for Senegal and Tanzania

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Cash benefits in low-income countries: Simulating the effects on poverty reduction for Senegal and Tanzania
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Executive summary

In most African countries, the human right to social security is still far from being a reality for the majority of the population. Economic growth is very slow to trickle down to the most vulnerable groups of the population so as to improve their standards of living. Basic social cash transfers are increasingly recognized as an effective instrument to reduce chronic poverty in low-income countries. A recent policy paper from the Department for International Development of the United Kingdom states: “Unless specific measures are taken to reach the poorest, millions will continue to die needlessly or, at the very least, continue to suffer from inhumane living conditions ...”. The Commission for Africa has also called for social cash transfers, by 2007, to be an integral part of national Social Protection Strategies. A conference co-hosted by the Government of Zambia and the African Union recommended that “...social transfer programmes – including the social pension and social transfers to vulnerable children, older persons, people with disabilities and households – be a more utilised policy option in African countries...” and that they be part of national social development plans, as specified in the concluding document to the conference.

Both Senegal and Tanzania have achieved significant success in recent years to extend social security coverage in order to reduce poverty. The National Social Protection Strategy of Senegal, drafted in 2005, suggests the introduction of a universal minimum pension for all elderly not covered by any social insurance pension. In Tanzania, the National Strategy for Growth and the Reduction of Poverty includes some social cash transfer programmes for vulnerable groups of the population.

Social cash transfers are increasingly recognized as an effective instrument in the reduction of poverty. The objective of the present study is to model the introduction of basic social cash transfer programmes on household welfare, poverty incidence and depth in two African countries: Senegal and Tanzania. Based on household budget survey data, a set of social cash transfers were modelled in terms of their impact on poverty reduction. In addition, a rough cost estimate of the simulated transfers is provided.

This study builds on an earlier ILO study, which concluded that a basic and modest social benefit package would be affordable in most African countries if governments would commit a reasonable proportion of budgets to social protection and the international community would be ready to provide some temporary support. While the previous ILO study assessed the affordability from a macro economic perspective, this study models the impact of various social cash transfers at the household level.

The following options are modelled:

- Universal old-age basic to older women and men aged 60 years of age and over, and in the case of Senegal, also disability pensions for disabled persons of working age, at the level of 70 per cent of the food poverty line;
- Universal basic child benefits for children of school age (7-14) and, in the case of Tanzania, orphans aged 0-7, at the level of 35 per cent of the food poverty line;
- A combination thereof;
- Targeted cash transfers to households without an able-bodied person at the level of 70 per cent of the food poverty line per household.

The financial volume of benefit expenditure of these tested options is estimated to be between 0.2 per cent (Senegal) and 0.8 per cent (Tanzania), respectively, of GDP for the

targeted cash transfer to 3.3 per cent (Senegal) and 3.2 per cent (Tanzania), respectively, of GDP for the combination of basic old-age pension and child benefit. This does not include administration expenditure, which tends to be considerably higher for targeted transfers than for universal ones.

The results of the micro-simulations for Senegal and Tanzania show that basic social protection benefits can indeed play an important role in poverty reduction strategies in low-income countries. Introducing basic old-age and disability pensions in Senegal and Tanzania would not only improve the living standard of the benefit recipients, but also of the other members living in the same household, especially children, as transfer typically are shared within the household.

In the case of Senegal, the combination of a basic old-age and disability and a child benefit for school-age children would reduce food poverty rates by 40 percent and reduce the poverty gap by more than half. While child benefits affect all groups of individuals to a somewhat similar extent, old-age and disability pensions have a more pronounced effect on older persons, especially on elderly women, and their family members. Targeted cash benefits show a major effect on households without able-bodied members, but only a minor effect on the overall poverty rate.

In Tanzania, a universal old-age pension would cut poverty rates by 9 per cent, with a considerably stronger effect – 36 per cent – for older men and women and 24 per cent for individuals living in households with elderly family members. A more balanced effect would be achieved by a child benefit for school-age children, which would result in a cut in poverty rates of about 30 per cent. The combination of these two benefits would achieve a reduction in poverty rates of 35 per cent, with even more substantial effects for individuals living in households with children and elderly (a drop of 46 per cent), which face the highest poverty risk. Targeted cash transfers achieve an overall reduction of poverty of 7 per cent. For older men and women, the reduction is more significant at 12 per cent and 18 per cent, respectively; and for individuals living in households without able-bodied members, it is 46 per cent, a much greater impact.

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It goes without saying that errors are the responsibility of the authors.

Abbreviations and acronyms

CPI	Consumer Price Index
CFA	CFA franc (West Africa); currency of the Financial Community of Africa; Communauté financière d’Afrique)
DfLD	Department of International Development, Government of the United Kingdom
ESAM-II	Enquête sénégalaise auprès des menages
GDP	Gross Domestic Product
hh	Household
HDI	Human Development Index/Indicators
ILO	International Labor Organization/Office
IMF	International Monetary Fund
MFFSD	Ministère de la Femme, de la Famille et du Développement Sociale, Republic of Senegal
ODA	Official Development Assistance
PPP	Purchasing Power Parities
PRSP	Poverty Reduction Strategy Paper
STEP	Strategies and Tools Against Social Exclusion and Poverty
TSh.	Tanzanian Shillings
UNDP	United Nations Development Programme

1. Introduction

This study summarizes the results of a micro-simulation of social cash transfers and their effects on poverty reduction in two African countries, Senegal and Tanzania. Based on household budget survey data, a set of social cash transfers were modelled in terms of their impact on poverty reduction. In addition, a rough cost estimate of the simulated transfers is provided.

Both Senegal and Tanzania have achieved significant success in recent years in extending social security coverage in order to reduce poverty. The National Social Protection Strategy of Senegal, drafted in 2005, suggests the introduction of a universal minimum pension for all elderly not covered by any social insurance pension (République du Sénégal 2005: 49). This would be a major step towards the extension of social security in the spirit of the ILO Minimum Standards in Social Security Convention.¹ In Tanzania, the National Strategy for Growth and the Reduction of Poverty (United Republic of Tanzania 2005) includes some social cash transfer programmes for vulnerable groups of the population.

Poverty is still a major problem on the African continent, and the outcomes of the United Nations 2004 progress monitoring report of the Millennium Development Goals are not very indicative of the African nations achieving the goal of halving poverty by 2015. Hardly any progress has been measured since 1990 (United Nations 2004a). While other regions of the world recorded considerable progress towards reaching the first Millennium Development Goal, poverty rates in Africa have stagnated or even increased. In 2001, 46 per cent of the population in Sub-Saharan Africa was living on less than US\$1 (PPP) per day, and average real incomes have declined within the last two decades (World Bank 2005b).

In most African countries, the human right to social security is still far from being a reality for the majority of the population.² Economic growth is very slow to trickle down to the most vulnerable groups of the population and to improve standards of living. Basic social cash transfers are increasingly recognized as an effective instrument to reduce chronic poverty in low-income countries (Barrientos and Lloyd-Sherlock 2003). A recent policy paper from the Department for International Development of the United Kingdom states: “Unless specific measures are taken to reach the poorest, millions will continue to die needlessly or, at the very least, continue to suffer from inhumane living conditions” (DfID 2005). A review of existing social cash transfer schemes in Africa demonstrated the potential of such programmes (Save the Children UK, et al. 2005). The Commission for Africa has also called for social cash transfers, by 2007, to be an integral part of national Social Protection Strategies (Commission for Africa 2005: 209-210). A conference co-hosted by the Government of Zambia and the African Union recommended that “...social transfer programmes – including the social pension and social transfers to vulnerable children, older persons, people with disabilities and households – be a more utilised policy option in African countries ...” and that they be part of national social development plans, as specified in the concluding document to the conference.³

¹ Senegal ratified the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102) in 1962 for the following contingencies: employment injury, family benefits and maternity.

² See Articles 22, 23 and 25 of the Universal Declaration of Human Rights, as well as Articles 7, 9 and 11 of the International Covenant on Economic, Social and Human Rights.

³ The “*Livingstone Call for Action*”, March 2006, see www.helpage.org/News/Latestnews/@27954.

Nevertheless, examples of basic social cash transfer schemes are not yet widely used as an instrument of poverty reduction in sub-Saharan Africa. The number of countries that offer basic social protection benefits to the population is relatively small. South Africa, Botswana and Namibia provide social pensions, and Mauritius and the Seychelles have universal benefit programmes (Tostensen 2004; Willmore 2003, 2004). Means-tested cash benefits are found in Botswana and Mozambique. Zambia successfully piloted a social cash transfer scheme targeted to the 10 per cent poorest households.⁴ Some other African countries, such as Ethiopia, have introduced small social cash transfer schemes, partly linked to cash-for-work and cash relief components (Save the Children UK, et al. 2005).

A growing number of evaluations have assessed the effects of social cash transfers on the reduction of poverty, for example on tax-financed pensions in Argentina, Brazil, Chile, Costa Rica and Uruguay (Bertranou, et al. 2004) or on non-contributory pension schemes in Brazil, Bangladesh and South Africa (Barrientos 2004). While such ex-post evaluations are indispensable for the evaluation of existing programmes, policy-makers are also interested to know more about the effects that can be expected from such programmes in a given context ex ante. Micro-simulations have proved to be a useful tool in this respect, as they provide the possibility of easily testing different policy options. This tool has been widely used in high-income and transition countries⁵ yet only a few studies so far have estimated the impact of introducing basic social protection benefits in low-income countries, such as on old-age pensions and conditional cash transfers for a number of African countries (Kakwani, et al. 2005; Kakwani and Subbarao 2005). The objective of the present study is to model the introduction of basic social cash transfer programmes on household welfare, poverty incidence and depth in two countries: Tanzania and Senegal. Are social cash transfers an effective and affordable means to reduce poverty in very low-income countries? This study builds on an earlier ILO study, which concluded that a basic and modest social benefit package would be affordable in most African countries if governments would commit a reasonable proportion of their budgets to social protection and the international community would be ready to provide some temporary support (Pal, et al. 2005). While the previous ILO study assessed the affordability from a macro economic perspective, this study models the impact of various social cash transfers at the household level.

This study starts with a brief discussion on social protection in low-income countries. In the second section, we briefly present the survey data and the methodology used. The third section sketches the background for the analysis, with a brief outline of major economic, demographic and poverty indicators for Senegal and Tanzania. The fourth section presents the results of the micro-simulation of social cash transfers in Senegal and Tanzania. The fifth and concluding chapter sets the results into a wider context.

⁴ On Botswana, see Tostensen 2004; on Mozambique see Low, et al. 1999; on Zambia, see Schubert 2004 and 2005.

⁵ See, for example, Sutherland 2001; Gassmann 2000; Gassmann and Notten 2006; Behrendt 2002; Immervoll, et al. 2001; Matsaganis, et al. 2004; Edmonds 2005.

2. Social protection in low income countries

Many of the existing social insurance schemes in low-income countries fail to reach the poorest groups of the population as the right to transfers is tied to contributions made in the past. While these countries are characterized by large informal economies, social protection programmes tend to cover only a small part of the labour force in the formal economy. As earnings in the informal economy are frequently irregular, statutory social security schemes or mandatory contributions are hard to enforce. Moreover, it is difficult to collect accurate data on the income and wealth of workers in the informal economy. The coverage of most social insurance programmes is therefore limited.⁶

Non-contributory social protection programmes play a limited role in many low-income countries. Tabor (2002) lists several reasons for the low number of social protection programmes in developing countries: limited government resources; the preference of governments for the relief of structural constraints to growth; a small formal sector often dominated by the public service; the dispersed population with limited access to public service infrastructure, especially in rural areas; and the limited institutional capacity to manage social assistance programmes.

Some observers believe that the weak economic and fiscal situation in low-income countries is not predisposed to the introduction of large tax-based social assistance schemes as the number of poor is too high for the narrow tax base (Tostensen 2004). However, the results of earlier research and empirical evidence show that social cash transfers can be feasible even in low-income countries if well designed and adapted to the specific country context.

Senegal and Tanzania are typical examples of countries offering social protection in low-income countries in Africa. In both countries, the provision of formal basic social protection measures is rather limited. In the context of this paper, the provision of assistance for elderly and children is of most interest. The existing social security system in Senegal provides social insurance type benefits to salaried employees. The social insurance system provides pensions (old-age, disability, loss of breadwinner) and family allowances to the insured. Family allowances are paid to insured mothers and consist of pregnancy benefits, maternity benefits during the first two years of a child's life, and child benefits for each child between two and 18 years of age (21 years for students). In 2002, in Senegal, 286,000 children benefited from family allowances.⁷ In 2001, 7.8 per cent of the active population was covered by the formal social insurance scheme, and 12.3 per cent of the population benefited from some type of benefit (République du Sénégal 2005: 49).

These figures show that low coverage is one of the major problems of the current social security system. The majority of the population, most of which work in the informal economy, are not covered. The provision of social assistance to vulnerable groups is limited. Most of the support provided is in the form of emergency relief and disaster management. In 2004, the Government of Senegal spent US\$43 million on social assistance and safety net provisions, of which 53 per cent was externally financed. Of this amount, about US\$12 million was spent by the MFFSD on recurrent expenditures and

⁶ ILO 2001.

⁷ Information from a presentation for the start of the International campaign on social security and coverage for all in Senegal (La campagne mondiale sur la securite sociale et la couverture pour tous. Lancement au Senegal).

transfers to vulnerable groups. The largest part of the funds, though, is allocated to investment projects and micro-credit facilities (World Bank 2005a).

The situation is similar in Tanzania. The existing social security schemes mainly cover the workforce in the formal economy against the risks of old age, invalidity, sickness and maternity. However, only a minority of the Tanzanian population enjoy such social protection, and most of those working in the informal economy are not covered. Other programmes aiming to improve the livelihoods of vulnerable groups of the population exist, but the social assistance provided to them is not regular and dependable. Such programmes tend to provide relief on a one-off basis, on the basis of unclear eligibility criteria and a changing focus.

It is increasingly recognized that basic social protection is also an essential instrument of poverty reduction in low-income countries. Growth alone is not enough to reduce poverty, and some redistribution is necessary to ensure equitable and sustainable development. Vulnerable groups often are not able to benefit from economic growth and move out of poverty solely on their own efforts. Moreover, lower inequality is associated with higher economic growth and subsequent poverty reduction effects (Ravallion 1997: 51-57).

Besides providing access to health care, education and other social services, social cash transfers are effective and efficient in supporting households that are not able to generate sufficient income to make ends meet. Based on clear entitlements, social cash transfers offer a reliable safety net for poor households. They provide short-term poverty relief and aim to reduce structural poverty in the long run. It is critical to break the vicious circle of poverty and to prevent its transmission from one generation to the next.

The Government of Senegal has clearly stated its commitment to social protection policies. Outlining the Government strategy for the next five years, the second Poverty Reduction Strategy Paper identifies social protection as one of the four main pillars.⁸ In addition to several measures aimed at increasing the coverage of formal social insurance schemes, the National Social Protection Strategy, drafted in October 2005, suggests the introduction of a universal minimum pension for all elderly not covered by any social insurance pension. Regarding policies to support women, children and vulnerable groups, the strategy prioritises better targeting of existing programmes and the strengthening of capacities at community level. Proposed measures foresee in the establishment of a database, capacity building programmes for institutions involved in supporting vulnerable groups, strengthening the legislative basis and improving the access of vulnerable groups to the labour market (République du Sénégal 2005: 90-91).

The Tanzanian government has committed itself to reforms in the education, health and water sectors as well as to enhancing social welfare and social protection programmes for vulnerable groups. This includes notably "... adequate social protection and provision of basic needs and services for the vulnerable and needy ..." (United Republic of Tanzania 2005: 33-34).⁹ Under this strategy, it is foreseen, among other objectives for 2010, that effective social protection measures will be increased for orphans and the most vulnerable children; that these measures will cover 20 per cent of children and adults with disabilities and 40 per cent of eligible older people; and that all eligible older persons will have access to free medical care and be attended by specialized medical personnel.

⁸ Currently in preparation.

⁹ United Republic of Tanzania 2005: 33-34.

3. Data and Methodology

The main aim of the study is to assess the impact of various social cash transfers on poverty in Senegal and Tanzania. For this purpose, and based on data from household budget surveys for the two countries, we use static micro-simulations to estimate the effects of social cash transfers on the reduction of poverty.

The data for Senegal stem from the *Enquête sénégalaise auprès des ménages* (ESAM-II) from 2001/02.¹⁰ The simulations for Tanzania are based on the Household Budget Survey (HBS) for Tanzania that was conducted in 2000/01. This survey covers mainland Tanzania only, which represents 33.6 million of the United Republic of Tanzania's 34.6 million (2002) population. More than three quarters of the population live in rural areas.¹¹ Both surveys are representative and provide comprehensive information on the socio-economic conditions of private households. The results are weighted using the original sampling weights as provided by the statistical agencies.

The micro-simulations are based on household consumption. In the case of Tanzania, expenditures on health, education, water and telephone as well as rent and imputed rent were excluded from the total consumption measure (National Bureau of Statistics, Tanzania 2002). In the case of Senegal, the final consumption measure does not include expenditures on taxes and gifts/transfers to other households.

Three different poverty lines have been used for the assessment of the effects of social cash transfers on the reduction of poverty (see Table 1). Each of these countries has two official poverty lines: a food poverty line and a basic needs poverty line, both of which are calculated in similar ways, yet with notable differences in detail.

¹⁰ Access to the datasets was cordially provided by the respective statistical agency: The National Bureau of Statistics of Tanzania, and the Direction de la Prévision et de la Statistique, Senegal.

¹¹ Cf. United Republic of Tanzania 2003.

Table 1. Poverty lines for Tanzania and Senegal (28 days, in local currency)

Senegal	Dakar	Other urban areas	Rural areas	Senegal	
	CFA	CFA	CFA	CFA	In US\$ PPP**
2001/2002					
National poverty lines (per adult equivalent)					
- Food poverty line	9,587	8,898	8,145	8,612*	40
- Basic needs poverty line	24,612	19,958	13,941	17,481*	81
International poverty line (per capita)					
- \$1.08/day poverty line	-	-	-	8,110	37
In 2006 prices***					
National poverty lines (per adult equivalent)					
- Food poverty line	10,052	9,330	8,540	9,030*	43
- Basic needs poverty line	25,806	20,926	14,617	18,329*	87
International poverty line (per capita)					
- \$1.08/day poverty line	-	-	-	8,430	40
Tanzania	Dar-es-Salaam	Other urban areas	Rural areas	Mainland Tanzania	
	TSh.	TSh.	TSh.	TSh.	In US\$ PPP
2000					
National poverty lines (per adult equivalent)					
- Food poverty line	6,719	5,607	5,107	5,295*	12
- Basic needs poverty line	9,203	7,680	6,996	7,253*	17
International poverty line (per capita)					
- \$1.08/day poverty line	-	-	-	11,253	27
In 2006 prices***					
National poverty lines (per adult equivalent)					
- Food poverty line	8,724	7,281	6,631	7,139	14
- Basic needs poverty line	11,950	9,972	9,084	9,778	19
International poverty line (per capita)					
- \$1.08/day poverty line	-	-	-	14,514	29

* The average poverty lines for the country is reported for comparative purposes.
** PPP conversion values (IMF).
*** Projections for 2006 based on CPI (IMF).
Source: Own calculations based on ESAM-II (Senegal) and NBS Tanzania; International Monetary Fund 2005.

In Senegal, the food poverty line is based on the costs of a food basket that covers the minimum calorie requirements of 2,400 kcal per adult equivalent. The composition of the basket is based on the 26 most frequently consumed food items, which accounts for 80 per cent of total food consumption of 50 per cent of the population (households in deciles 2-6). In order to take into account regional price differences, the value of the minimum basket is calculated separately for the capital city, other urban areas and rural areas using the price information from the surveys.¹² The basic poverty line takes into account the need for non-food goods and services. The food poverty line is supplemented with an amount derived from households that have total food expenditures close to the food poverty line (+/- 5 per

¹² For Senegal: République du Sénégal 2004; for Tanzania: National Bureau of Statistics Tanzania 2002.

cent). Average expenditures on non-food goods and services are calculated for the selected households and the resulting amount is added to the food poverty line. Again, the different strata are treated separately (Table 1).

In Tanzania, the food poverty line is based on a minimum calorie requirement of 2,200 kcal per adult equivalent, the definition of which is based on the consumption patterns of the poorest 50 per cent of the population. The quantities consumed (recalculated to reach the minimum calorie requirements) were then priced on the basis of median unit prices calculated from survey data, separately for each of the three regions, Dar-es-Salaam, other urban areas and rural areas. The basic needs poverty line is calculated by increasing the food poverty line by a factor that is derived from the share of expenditure on non-food items of the poorest 25 per cent of the population (National Bureau of Statistics Tanzania 2002: 78-79).

In addition, the \$1/day poverty line is reported for comparative purposes. Originally set in 1985, this third poverty line was redefined at US\$1.08 (PPP) per capita in 1993 prices and adjusted for inflation thereafter.¹³ This paper also reports poverty rates and the poverty gap, for this poverty line, yet with some reservations. Table 1 shows that the relative level of the \$1/day poverty line is very different when compared to national poverty lines. Although this poverty line is similar to the food poverty line in Senegal, it is much higher than the basic needs poverty line in Tanzania. This had critical implications for the micro-simulations and leads to very diverging results. National poverty lines are assumed to be more robust in this respect, as they are defined according to national standards. The micro-simulations will thus rely on national poverty lines only.¹⁴

Poverty assessments are performed at an individual level. Therefore, total household consumption has to be assigned to each individual living in a household according to a given rule. As ‘intra-household distribution of consumption’ has not been observed in the survey¹⁵, we assume equal distribution between household members. In order to take into account economies of scale within larger households and differing needs due to the demographic composition of a household, consumption is adjusted for differences in household size and composition. The methodology used in Senegal assigns a weight of 1 per adult and 0.5 per child below the age of 15.

In Tanzania, the equivalence scale takes into account household size, and age and sex of household members. Male adults aged 19-59 are assigned a weight of 1.0 while women of the same age are assigned a weight of 0.88. The weights assigned to children vary according to age, between 0.4 and 1.2 for boys and between 0.4 and 1.0 for girls. Older persons are assigned a weight of 0.80 (men) and 0.72 (women), respectively.¹⁶

¹³ For a description of the methodology, see Chen and Ravallion 2001 and 2004; Sillers 2005. This poverty line is often referred to as the \$1/day-poverty line, and this practice will also be followed in this paper.

¹⁴ The results are available upon request from the authors.

¹⁵ Household income and budget surveys usually do not record the distribution of resources within the household.

¹⁶ National Bureau of Statistics, Tanzania, 2002: 132. The full set of equivalence scales is shown in Table A2 in the Annex to this paper.

In order to give an estimate of the size of the benefits in current values, all monetary values were adjusted to 2006 on the basis of inflation rates (CPI) (International Monetary Fund 2005).

Poverty rates are measured using the Foster-Greer-Thorbecke class of decomposable poverty measures (Foster, et al. 1984), which – where n represents the total population, q the poor, z the poverty line and c consumption – can be represented as follows:

$$FGT = 1/n * \sum_{c < z}^q \left[\frac{z - c}{z} \right]^\alpha$$

If the parameter $\alpha = 0$, then the equation is simply the headcount index. With $\alpha = 1$, the equation measures the poverty gap, which is the average income shortfall of the poor with respect to the poverty line. When $\alpha = 2$, the equation represents a measure for the severity of poverty as the poorest households are given a greater weight in the equation.

4. Senegal and Tanzania in brief

This section starts with a brief summary of core demographic, economic and social background variables in Senegal and Tanzania, and then goes on to assess the current levels and depth of poverty in both countries.

4.1 Economic and social context

Both Senegal and Tanzania belong to the poorest countries of the world. Senegal ranked 157 and Tanzania 162 out of 177 countries in the Human Development Index in 2004 (see Figure 13 in the Annex). The countries differ considerably, however, in terms of the economic and socio-demographic situation. Senegal's GDP per capita is almost three times that of Tanzania, although the Tanzanian economy has been growing slightly faster over the past years and at a steadier pace.

With respect to health indicators, Senegal is performing better in general. Tanzania, on the other hand, scores slightly better with respect to educational achievement (see Table 2).

Table 2. Senegal and Tanzania: Human Development Indicators

Index	Year	Unit	Senegal	Tanzania
GDP per capita (US\$ PPP) ^a	2005	US\$ PPP	1914	720
HDI rank (out of 177 countries)	2004	rank	157	162
Life expectancy at birth	2002	years	53	44
Remaining life expectancy at age 60	2002	years	13	14
Fertility rate*	2002	%	5	5
Infant mortality rate per 1,000 life births	2002	per 1,000	79	104
Under-5 mortality rate per 1,000 life births	2002	per 1,000	138	175
HIV prevalence (15-49 yrs old)*	2003	%	0.8	8.8
Adult literacy rate (age 15+)	2002	%	39	77
Net primary school enrolment	2002	%	58	54
Ratio of female to male primary enrolment	2000		0.9	1
Children reaching grade 5 (% of grade 1 pupils)	2002	%	68	78
ODA received per capita (US\$)	2002	US\$	45.5	34

*Estimates.
^a International Monetary Fund 2005; UNDP 2005; United Nations 2004b.

On average, the Senegalese population lives ten years longer than it does in Tanzania. Even more worrying for Tanzania is the fact that life expectancy rates have not improved over the last decades. They came down from 50 in 1990 (United Nations 2004b), which is probably a direct impact of the HIV/AIDS epidemic. Senegal has not been affected to the same extent as Tanzania with HIV/AIDS. The HIV prevalence rate in Senegal is estimated to be lower than one per cent of the population aged 15-49, while in Tanzania almost ten per cent are affected. Although fertility rates are equally high in both countries, in Senegal mortality rates for infants and children below age five are considerably lower.

Education related indicators show that the literacy rates among the Tanzanian population are twice as high as for Senegal. Although net primary school enrolment rates are slightly lower in Tanzania, the share of pupils reaching grade 5 is 10 percentage points higher.

4.2 Population size and structure

The two countries also differ considerably in population size. Tanzania, with its 34.6 million people (2002), has more than three times the population of Senegal (10.5 million in 2004) (World Bank 2004). Both countries are predominantly rural. More than three quarters of the Tanzanian population live in rural areas according to the latest population census (United Republic of Tanzania 2003). For Senegal, estimates based on the ESAM-II indicate that almost three out of five people live rurally.

Significantly different are the two countries in terms of household size: average size in Senegal being twice as large as that found in Tanzania. In rural Senegal, an average household counts more than ten members.¹⁷ Equally, the average number of children per household is significantly larger in Senegal. More than four children are living in an average household in Senegal, compared to two children in Tanzania.

In view of these differences, it is surprising to see that the broad age structure of the population is very similar (see Table 3 and Table 4). In both countries, the age group 15-59 represents almost exactly half of the population. Children under the age of fifteen represent 44 per cent of the population while older persons aged 60 and over number just under 6 per cent of the population.

¹⁷ In respect of average household size, Senegal is very different from most other African countries, with average household sizes being about five members.

Table 3. Structure of population in Senegal (in % of population, 2001-2002)

	Dakar	Other urban areas	Rural areas	Senegal
All individuals				
Men	49.2	46.2	48.1	48.0
Women	50.8	53.8	51.9	52.0
Children (0-14)	36.4	42.2	47.1	43.8
Adults (15-59)	59.3	52.4	46.5	50.5
Elderly (60+)	4.0	5.3	6.2	5.5
All households				
Households with children (0-14)	82.3	90.7	95.9	91.3
- with elderly (60+)	27.3	40.4	51.3	42.9
- with children and elderly	24.0	37.3	48.8	40.1
- with children (7-14)	66.4	79.6	86.3	79.8
- with 1-2 children	30.2	21.7	18.9	22.4
- with 3-5 children	36.6	44.4	41.5	40.8
- with 6 or more children	15.4	24.6	35.5	28.2
- with male household head	75.3	69.6	87.0	80.6
- with female household head	24.7	30.4	13.0	19.4
3-generation households	24.0	37.1	48.3	39.8
Households with missing generation	1.7	2.2	2.1	2.0
Households without able-bodied members	9.2	13.8	14.0	12.7
Single person households	5.7	3.5	0.8	2.6
Polygamous households	20.6	23.6	33.4	28.1
Average household size	8.4	9.6	10.5	9.8
Average number of children (0-14)	3.1	4.1	4.9	4.3
Average number of elderly (60+)	0.3	0.5	0.7	0.5
Average number of school-age children (7-14)	1.6	2.1	2.5	2.2
Source: Own calculation based on ESAM-II.				

From the perspective of the present study, children and the elderly are the main concerns as they belong to the most vulnerable groups and depend frequently on the care of other household members. Nine out of ten Senegalese households are with children. In rural areas, this share is as high as 96 per cent. Forth-one per cent of the households include three to five children, and 28 per cent have six or more children (Table 3). In Tanzania, almost four out of five households are with children. Forty per cent of households are with one or two children, and 32 per cent have three to five children. Only six per cent of households include six children or more.

The elderly comprise small groups in both countries. Only 5.5 per cent of the population in Senegal is 60 years or older. The large household size in Senegal translates into a large number of three-generation households; 40 per cent of all households in Senegal include both children and elderly. Most of these households consist of at least one member of each age-group (child, working-age, elderly): four out of ten households in Senegal consist of three generations, compared to six out of ten in Tanzania. The share of households with a missing generation, i.e. households with only children and elderly, is comparatively small with 2.0 per cent in Senegal and 1.3 per cent in Tanzania.

Table 4. Structure of population in Tanzania (in % of population, 2001-2002)

	Dar-es-Salaam	Other urban areas	Rural areas	Mainland Tanzania
All individuals				
Men	49.2	47.3	48.4	48.3
Women	50.8	52.7	51.7	51.7
Children (0-14)	34.9	40.5	45.7	44.4
Adults (15-59)	61.6	55.1	48.3	50.1
Elderly (60+)	3.4	4.4	5.9	5.6
All households				
Households with children (0-14)	65.7	71.7	80.1	77.8
- with elderly (60+)	12.1	17.0	24.4	22.5
- with children and elderly	8.0	12.1	17.1	15.8
- with children (7-14)	43.5	48.7	57.4	55.2
- with 1-2 children	41.6	42.0	39.7	40.2
- with 3-5 children	22.6	29.2	34.0	32.0
- with 6 or more children	1.5	3.4	6.4	5.6
- with male household head	79.1	72.0	77.8	77.0
- with female household head	20.9	27.8	22.1	22.9
3-generation households	7.9	11.4	15.6	14.4
Households with missing generation	0.1	0.7	1.6	1.3
Households without able-bodied members	11.6	16.6	25.2	23.0
Average household size	4.3	4.5	5.1	4.9
Average number of children (0-14)	1.5	1.8	2.3	2.2
Average number of elderly (60+)	0.2	0.2	0.3	0.3
Average number of school-age children (7-14)	0.8	0.9	1.1	1.0

Source: Own calculations based on HBS 2000/01.

While the proportion of older persons in the total population in Tanzania is almost identical to that of Senegal, household structures are different (5.5 per cent versus 5.6 per cent). The smaller household size implies that older persons are found in only 23 per cent of households in Tanzania compared to 43 per cent in Senegal. The majority of these households, that is 16 per cent of all households, comprise both children and older persons.

Households without any able-bodied household member are particularly vulnerable to living in poverty as their income-generating abilities are usually limited. These households are defined as households in which all members are either below 20 years of age or 60 and older, are disabled or have reported sick in the month preceding the survey. According to this definition, 13 per cent of Senegalese and 22 per cent of Tanzanian households can be classified as vulnerable without able-bodied household members.¹⁸

¹⁸ A more stringent definition for Senegal required that members reported sick or injured in the month preceding the survey during both survey visits. Only 2.6 per cent of households fall into this category.

The distribution of the population in urban and rural regions shows marked differences between the two countries (see Table 5). While four in five Tanzanians lives in rural areas, less than two in five Senegalese do so. In both countries, however, children and the elderly concentrate in rural areas.

Table 5. Distribution of population in urban and rural regions

Senegal	Dakar	Other urban areas	Rural areas	Senegal
	All individuals	22.4	19.1	58.5
Children (0-14)	18.6	18.4	63.0	100.0
Adults (15-59)	26.3	19.9	53.9	100.0
Elderly (60+)	16.3	18.3	65.4	100.0
Tanzania	Dar-es-Salaam	Other urban areas	Rural areas	Tanzania
	All individuals	5.8	13.8	80.4
Children (0-14)	4.5	12.5	82.9	100.0
Adults (15-59)	7.1	15.3	77.6	100.0
Elderly (60+)	3.6	11.0	85.4	100.0

Source: Own calculations based on ESAM II and HBS.

4.3 Consumption

Both in Senegal and Tanzania, average consumption levels are considerably higher in the capital cities and other urban areas than in rural areas. Average household consumption per adult equivalent is almost three times higher in Dakar than in rural Senegal (see Table 6).

Table 6. Senegal: Average consumption levels

	Dakar	Other urban areas	Rural areas	Senegal	
	CFA	CFA	CFA	CFA	In US\$ PPP
Average consumption 2001/2002 (28 days)					
Per household	228,460	162,992	98,044	144,528	667
Per adult equivalent	32,681	21,426	12,239	18,572	86
Per capita	27,100	16,985	9,365	14,793	68
Average Consumption, in 2006 Prices (projected) (28 days) *					
Per household	239,540	170,897	102,799	151,537	717
Per adult equivalent	34,266	22,465	12,832	19,473	92
Per capita	28,414	17,809	9,819	15,510	73

* Projections based on CPI (IMF).
Source: Own calculations based on ESAM-II.

In Tanzania, the gap between urban and rural areas is less pronounced than in Senegal. The average consumption per adult equivalent in Dar-es-Salaam is 83 per cent higher than in rural areas (see Table 7).

Table 7. Tanzania: average consumption levels

	Dar-es-Salaam	Other urban areas	Rural areas	Mainland Tanzania	In US\$ PPP
	Tsh.	Tsh.	Tsh.	Tsh.	
Average consumption 2001/2002 (28 days)					
Per household	73,028	52,807	37,641	42,285	98
Per adult equivalent	22,942	16,624	10,824	12,506	29
Per capita	21,387	14,499	8,928	10,598	24
Average consumption, in 2006 prices (projected) (28 days) *					
Per household	94,825	68,569	48,875	54,905	106
Per adult equivalent	29,789	21,585	14,054	16,239	31
Per capita	27,770	18,826	11,593	13,762	27

* Projections based on CPI (IMF).

Source: Own calculations based on HBS.

4.4 Poverty rates and poverty depth

Both in Senegal and Tanzania, poverty is predominantly found in rural areas. One out of five individuals lives below the food poverty line, and two out three have less than the basic needs poverty line in Senegal. In Tanzania, 22 per cent of the population live below the food poverty line and 41 per cent consume less than the basic needs level¹⁹ (see Table 8). In both countries, individuals living in urban areas, and especially those living in capital cities, face a significantly lower risk of living in poverty than their rural compatriots. Thirty per cent of the rural population are classified as food poor; slightly more than in Tanzania (25 per cent). Less than 3 per cent of the population living in Dakar consume less than the food poverty line while food poverty rates in Dar-es-Salaam reach more than 9 per cent. Based on the national definition of minimum basic needs, almost two thirds of the Senegalese population cannot make ends meet; the same is true for two in five Tanzanians.

While these national lines are relevant for each country separately, the US\$1 per day poverty line should allow a cross-national comparison, yet the results raise some questions. As expected, based on the main economic and social indicators, poverty in Tanzania is wider and deeper than in Senegal, yet it is questionable whether the magnitude of this difference is reflected correctly. While 23 per cent of the total population live below the \$1/day poverty line in Senegal, four out of five households are classified as poor in Tanzania.

¹⁹ Note that rates are not directly comparable because of national poverty lines used and differences between welfare indicators.

Table 8. Senegal and Tanzania: Poverty rates and poverty gap by region

	Senegal (2001-2002)			Mainland Tanzania (2000-2001)				
	Dakar	Other urban areas	Rural areas	Senegal	Dar-es-Salaam	Other urban areas	Rural areas	Tanzania
Poverty rate (headcount)								
Food	2.4	8.7	29.9	19.7	9.4	14.6	24.5	22.2
Basic needs	49.3	58.8	73.1	65.0	22.8	28.9	44.1	40.8
1\$/day	3.1	15.4	52.6	34.4	40.2	60.7	86.0	79.8
Poverty gap (as % of poverty line)								
Food	0.5	1.8	6.9	4.5	2.2	4.2	6.6	6.0
Basic needs	14.8	19.9	26.4	22.5	6.0	8.9	14.0	12.8
1\$/day	0.6	3.3	15.2	9.6	12.9	24.6	43.1	38.8

Source: Own calculations based on ESAM-II and HBS.

Breaking down poverty risks for different groups of the Senegalese population, Table 9 shows that age or sex is not directly associated with significantly higher or lower poverty risks, although children have slightly higher and working-age adults slightly lower than average poverty rates. Differences are more pronounced when considering different household types. Households with elderly face a clearly higher poverty risk than other households. This translates into higher than average poverty rates for individuals living in households with elderly (24 per cent below the food poverty line), households with children and elderly (24 per cent) and three-generation households (23 per cent). The presence of children, usually an indicator for the increased vulnerability of households, is not a good poverty indicator in the case of Senegal, as more than 90 per cent of the households have children. The distinctive factor is the number of children present in the household. Individuals living in households with up to five children face a lower poverty risk than the national average, while the presence of six or more children increases considerably the risk of living in poverty (28 per cent). The definition of vulnerable households as applied in this paper does not identify the households most at risk of living in poverty in Senegal. Only 12 per cent of individuals living in such households live below the food poverty line in Senegal.

Table 9. Senegal: Poverty rates and gap by age, sex and household type, 2001/02

Senegal	Poverty rate (headcount)			Poverty gap (as % of poverty line)		
	Food poverty line	Basic needs poverty line	1\$/day poverty line	Food poverty line	Basic needs poverty line	1\$/day poverty line
All individuals	19.7	65.0	34.4	4.5	22.5	9.6
Children (0-14)	20.9	66.7	38.5	4.7	23.1	10.9
Working age adults (15-59)	18.4	63.3	30.7	4.2	21.9	8.5
Elderly (60+)	20.8	66.5	35.2	4.6	23.1	9.4
Men	20.1	65.4	35.0	4.6	22.8	9.8
Women	19.4	64.7	33.9	4.4	22.3	9.5
Individuals living in the following household type:						
- with children (0-14)	20.1	65.9	35.2	4.6	22.9	9.9
- with school-age children (7-14)	20.9	66.8	36.6	4.7	23.3	10.4
- with elderly (60+)	23.9	71.8	40.0	5.6	25.8	11.4
- with children & elderly	24.4	72.6	40.8	5.6	26.2	11.6
- with 1-2 children	7.6	45.5	5.5	1.7	13.5	2.4
- with 3-5 children	15.1	60.7	15.4	3.2	19.8	6.6
- with 6 or more children	27.9	76.4	34.9	6.6	28.2	14.8
- with male household head	21.9	67.3	37.6	5.0	23.7	10.7
- with female household head	8.5	53.6	18.6	1.9	16.7	4.4
3-generation households	24.4	72.7	40.8	5.2	25.3	11.7
Household with missing generation	3.3	21.9	1.8	0.8	7.8	0.7
Household w/o able-bodied member	11.5	50.6	26.3	3.0	15.3	7.0
Single person households	1.4	8.6	0.9	0.4	2.5	0.3
Polygamous household head	25.6	70.2	42.3	5.8	25.7	12.5

Note: Poverty rates corresponding with 1\$/day poverty line are higher than for the food poverty line although the level of the poverty line would indicate otherwise. However, the international poverty line of 1\$/day is a per capita measure, while the national food poverty line and the respective poverty rates are per adult equivalent.

Source: Own calculations based on ESAM-II.

The situation in Tanzania is different, where differences between population groups are more pronounced (see Table 10). Children face a higher risk of living in poverty than working-age adults or the elderly. Poverty rates for the elderly are also slightly below the national average as is the case in Senegal. However, the presence of children and – in particular – older persons in a household increases considerably its vulnerability to poverty. Thirty-two per cent of individuals living in households with elderly are found below the food poverty line compared to the national average of 22 per cent.

Table 10. Tanzania: Poverty rates and gap by age, sex and household type, 2001/02

Mainland Tanzania	Poverty rate (headcount)			Poverty gap (as % of poverty line)		
	Food poverty line	Basic needs poverty line	1\$/day poverty line	Food poverty line	Basic needs poverty line	1\$/day poverty line
All individuals	21.7	40.4	79.6	5.7	12.5	38.5
Children (0-14)	24.0	43.7	84.4	6.4	13.7	42.5
Working age adults (15-59)	19.8	37.6	75.4	5.1	11.4	35.1
Elderly (60+)	20.5	40.0	79.8	5.6	12.4	38.1
Men	21.7	40.3	79.2	5.8	12.5	38.2
Women	21.8	40.5	79.9	5.6	12.5	38.8
Individuals living in the following household type						
- with children (0-14)	23.2	42.8	82.9	6.1	13.4	40.8
- with school-age children (7-14)	27.1	47.4	85.1	7.2	15.2	43.0
- with elderly (60+)	30.0	50.8	87.1	8.3	17.0	44.8
- with children & elderly	33.3	55.7	90.6	9.3	18.9	48.1
- with 1-2 children	12.5	27.9	72.8	3.1	7.7	30.5
- with 3-5 children	27.1	48.2	87.2	7.2	15.4	44.7
- with 6 or more children	40.4	64.0	94.7	11.8	22.4	54.8
- with male household head	21.8	40.7	80.0	5.7	12.5	38.9
- with female household head	21.5	39.2	78.1	5.6	12.2	37.0
3-generation households	34.4	56.0	90.6	9.6	19.3	48.2
Household with missing generation	6.4	49.0	90.7	1.4	8.9	45.8
Household w/o able-bodied member	19.3	36.5	77.4	5.6	11.7	37.4

Note: Poverty rates corresponding with 1\$/day poverty line are higher than for the food poverty line although the level of the poverty line would indicate otherwise. However, the international poverty line of 1\$/day is a per capita measure, while the national food poverty line and the respective poverty rates are per adult equivalent.

Source: Own calculations based on HBS.

In terms of the poverty gap, food-poor individuals living in Senegal consume on average 4.5 per cent less than the food poverty line. This means, they lack on average US\$1.9 PPP per adult to meet the minimum food standards in 2006 prices. The gap with respect to the basic needs poverty line is 22.5 per cent for the basic-needs-poor, translating into a shortage of US\$19.6 PPP per adult. In order to bring everybody up to the international poverty line, US\$3.8 PPP for each poor individual would be necessary. The gap is most pronounced for poor individuals living in rural areas. Poverty is only slightly deeper for children and elderly than for working-age adults, irrespective of the poverty line used. However, the poverty gap is deeper when children and/or elderly are present in a household.

In Tanzania, those living in extreme poverty (below the food poverty) line lack on average 6 per cent of this poverty line. In respect of the basic needs poverty line, the average consumption shortfall is 13 per cent of this poverty line. The poor would need on average additional resources of US\$0.83 PPP per adult per month to reach the food poverty line, and US\$2.42 PPP to reach the basic needs poverty line. In rural areas, the poverty gap reach 14 per cent of the basic needs poverty line whereas it is only 6 per cent in Dar-es-Salaam.

The largest consumption shortfall is found for individuals living in households with six and more children. Poor individuals living in these households on average consume 12 per cent

less than the food poverty line, which implies that they would need on average another TSh 842 or US\$1.63 PPP per adult equivalent per month in order to be able to cover their minimum food needs. Taking into account non-food basic needs, these individuals would require TSh 2,190, that is US\$4.24 PPP, per adult equivalent per month in order to reach a minimum consumption standard.

5. Social cash transfers and their impact on poverty reduction

This section presents the results of the micro-simulation of introducing a basic social protection package on poverty in the two countries under review. A basic old-age and disability pension, universal child transfers and a social cash transfer to the most vulnerable groups are analysed separately. In addition, the effect of introducing a combined basic old-age pension and universal child benefit is simulated.²⁰ The main assumptions are summarized in Table 11 and will be explained in more detail in the following sections of the paper.

Table 11. Basic assumptions for the simulation of social cash transfers

Benefit type	Eligibility	Entitlements
Old-age and disability pension	Individuals who are 60 years and older, and – only for Senegal – for those who are disabled (15-59 years)	70 per cent of food poverty line per eligible individual
Child benefit	All school-age children (from 7 to 14 years of age) and orphans before school age	35 per cent of food poverty line per eligible child
Targeted cash transfer	Vulnerable households, i.e. households without able-bodied household members (members are either under the age of 20 or above the age of 59, or sick or injured or handicapped)	Equivalent to one old-age pension (70 per cent of food poverty line) per household

As benefits have been modelled relative to national food poverty lines, their level is assumed to vary according to the region in which beneficiaries live in line with these poverty lines. Table 12 shows benefit levels of all benefits for Senegal and Tanzania.

Table 12. Benefit levels (per 28 days)

Senegal	Dakar	Other urban areas	Rural areas	Senegal	
	CFA	CFA	CFA	CFA	US\$ PPP
Food poverty line	10,052	9,330	8,540	9,030	42.71
Old-age and disability pension	7,036	6,531	5,978	6,321	29.90
Child benefit	3,518	3,266	2,989	3,161	14.95
Targeted cash transfer	7,036	6,531	5,978	6,321	29.90
Tanzania	Dar-es-Salaam	Other urban areas	Rural areas	Tanzania	
	TSh.	TSh.	TSh.	TSh.	US\$ PPP
Food poverty line	8,724	7,281	6,631	7,139	13.81
Old-age pension*	6,107	5,097	4,642	4,997	9.66
Child benefit	3,053	2,548	2,321	2,499	4.83
Targeted cash transfer	6,107	5,097	4,642	4,997	9.66

* Disability pensions could not be considered for Tanzania.

Source: Own calculations based on HBS.

²⁰ Note in the main report that the results corresponding to the national food poverty line are shown. Results based on the basic poverty line are presented in the Annex.

Before turning to the assessment of the poverty-reducing effects of such basic social protection benefits, a cost estimate will be given. Based on the survey, the total benefit expenditure of the modelled benefit options has been estimated as follows: A basic old-age and disability pension of 70 per cent of the value of the food poverty line would cost the equivalent of 1.2 per cent of GDP in 2006 values in Senegal while a child benefit for children in school age would be 2.1 per cent of GDP (see Table 13). The combined old-age and child benefit would amount to 3.3 per cent of GDP. The modelled targeted cash transfer would require 0.2 per cent of GDP.

In Tanzania, the universal old-age pension is estimated to come at a cost of 1.1 per cent of GDP in 2006 values while the costs of a universal child benefit for school-age children and orphans is estimated at 2.1 per cent of GDP. The total cost of a combination of these benefits would require 3.2 per cent of GDP and lead to a reduction of the food poverty gap by two thirds. The modelled targeted cash transfer has a more pronounced effect on closing the poverty gap than in Senegal, but also comes at a higher cost, 0.8 per cent of GDP.

Table 13. Estimated costs of the simulated benefits

	% of poverty gap closed	Total estimated costs per year (million CFA/TSh.)	In mio US\$ (PPP US\$ ex.rate)	As % of 2006 GDP
Senegal				
Old-age and disability pension (70% of food poverty line)	22	54'258	256.61	1.2
Child benefit for children (7-14) (35% of food poverty line)	40	96'174	454.85	2.1
Combination of old-age and disability pension and child benefit	56	150,432	711.46	3.3
Targeted cash transfer (70% of food poverty line per eligible household)	2	11,116	52.57	0.2
Mainland Tanzania				
Old-age pension (70% of food poverty line)	20	148,422	142.93	1.1
Child benefit for children (7-14) and orphans (35% of food poverty liine)	40	281,100	270.70	2.1
Combination of old-age pension and child benefit	67	429,523	413.63	3.2
Targeted cash transfer (70% of food poverty line per eligible household)	15	113,068	108.89	0.8

Source: Own calculations based on ESAM II and HBS, and IMF data.

These estimates do not take into account any administrative costs. Based on estimates of the OECD, administrative costs of social cash transfer programs vary between 7 to 11 per cent of total programme costs in many OECD countries.²¹ According to Fultz and Pieris (1999: 24-26), administration costs for universal pension schemes are generally low. They amount to 2 per cent to 3 per cent of transfers in Mauritius, 4.5 per cent in Botswana and 15 per cent in Namibia. The latter is a result of the dispersed population over a large territory. For universal child benefits, there is not much empirical evidence from existing programmes. Given that benefit amounts are lower, we can assume that administrative costs for such benefits are slightly higher than for pensions. Administration costs for

²¹ Quoted in Tabor 2002: 15.

targeted benefits tend to be considerably higher than for universal benefits, and depend on the targeting mechanisms chosen.

The results of the micro-simulations discussed in the text are based on the food poverty line in both countries. This poverty line reflects the most vital needs of individuals, based on minimum calorific requirements, and thus gives an account of the most extreme forms of poverty. Results based on the slightly more generous basic needs poverty line are reported in the Annex.

The impact of different social cash transfers on poverty incidence and depth is assessed through static micro-simulation on the basis of household budget survey data. Changes in the poverty rates before and after the introduction of each policy option are used to assess the poverty reduction effect. It is assumed that the additional income is entirely used for consumption, particularly for very poor households. However, it is perceivable that households save part of the benefit or invest in small income-generating activities, as Schubert (2005) has found for the targeted cash transfer scheme in Zambia, and Low et al. (1999) report for Mozambique.

The simulation takes only first-order effects on household consumption levels into account. Second-order effects on individual behaviour, household composition or macro-economic effects are not taken into account.

The assessment of the poverty-reducing effects of social cash transfers is based on the assumption that transfers are equally shared among household members. There is not much systematic evidence on the intra-household distribution of social cash transfers or other forms of income in an African context.

5.1 Basic old-age and disability pension

Old age and disability are major poverty risks, especially where family bonds are being weakened because of migration, the effects of HIV/AIDS and other epidemics, as well as widespread destitution. Although life expectancy at birth in Sub-Saharan Africa regrettably remains well below what is normally considered as pensionable age, it should be recalled that much of this low life expectancy is attributed to high child mortality. Much too often mortality in the younger adult ages is due to HIV/AIDS, other diseases and accidents. However, having lived through these perils up to the age of 60, men can expect to live another 12 years in Senegal and 13 years in Tanzania; and women even 14 years and 15 years, respectively. This implies that once age 60 is reached, individuals can expect to live well into their seventies. Providing the small but growing number of older persons in Sub-Saharan Africa with a minimum level of income security during their old age would not only improve their standards of living, but also that of the households in which they are living (Barrientos 2004; Barrientos and Lloyd-Sherlock 2003).

The simulation of a basic old-age and disability pension is based on the assumption that all persons of 60 years of age and older receive a monthly transfer of 70 per cent of the national food poverty line, that is, on average 6,321 CFA (US\$30 PPP) per month in 2006 values in Senegal²² and 3,707 TSh. (US\$12 PPP) in Tanzania. As benefit levels are set relative to the food poverty line, the modelled size of the benefit varies depending on the

²² The official minimum wage is currently 42,000 CFA per month, and an average social insurance pension about 17,700 CFA.

whether the recipient lives in an urban or rural region. Note, that all eligible persons receive the transfer, irrespective of income or receipt of a social insurance pension.²³

In Senegal, persons of working-age (15-59 years old) who are disabled are also eligible for the basic pension.²⁴ According to the survey, one per cent of the working-age population would be eligible for a disability pension in Senegal. In Tanzania, the disability pensions could not be modelled, as no information on disability was available in the survey.

Table 14. Beneficiary rates of old-age and disability pensions

Senegal	Dakar	Other urban	Senegal	Dakar
Eligible persons	4.5	6.0	6.7	6.1
Individuals living together with beneficiary	40.8	50.6	58.7	53.1
Households with beneficiary	29.6	43.8	53.6	45.5
Tanzania	Dar-es-Salaam	Other urban areas	Rural areas	Mainland Tanzania
Eligible persons	3.4	4.4	5.9	5.6
Individuals living together with beneficiary	19.9	23.3	27.8	24.8
Households with beneficiary	14.1	18.8	24.7	20.6

Source: Own calculations based on ESAM-II.

Although only 6 per cent of the Senegalese population would be eligible for an old-age and disability pension, 45 per cent of all households and more than half of all individuals would indirectly benefit. Individual coverage is slightly lower in Tanzania at 5.6 per cent of the population, which is partly due to the fact that disability pensions could not be modelled in this case. Nevertheless, there is a marked difference in terms of household coverage. While close to half of Senegalese households would indirectly benefit from an old-age and disability pension, in Tanzania it would be so for only one in five households. Although the proportion of eligible persons in the total population does not vary considerably between the two countries, the share of households and individuals that would be (in-)directly affected by the introduction of a basic old-age and disability pension is markedly different. This can be explained by the difference in average household size, which for Senegal is almost double the size of Tanzania. The larger household size increases the probability that a household has an eligible person. In both countries, the share of elderly persons and recipient households is larger in rural areas and smallest in the capital cities.

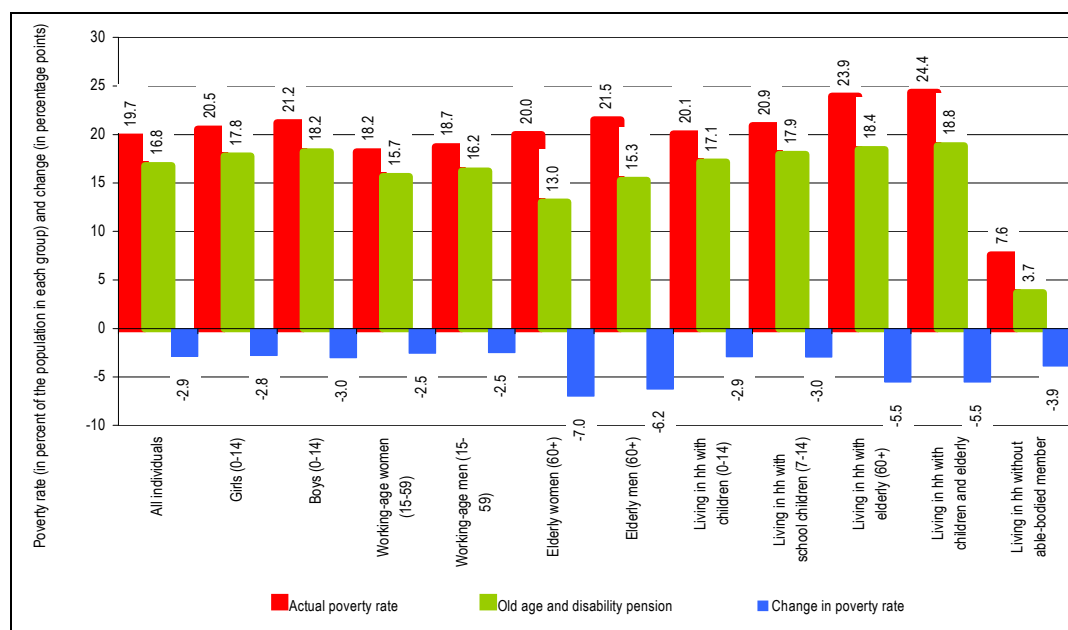
The size of the simulated benefit (70 per cent of the food poverty line) should be sufficient to lift the elderly out of poverty taking into account that the average poverty gap of the elderly is 4.6 per cent of the food poverty line and 23.1 per cent with respect to the basic needs poverty line in Senegal, and 5.6 per cent and 12.4 per cent, respectively, in Tanzania. In reality, the basic pension would contribute to overall household resources and shared with other household members. As a result, the poverty reduction effects will be less pronounced. In the case of Senegal, the effect would be even more diluted due to the large average household size.

²³ This choice made is mainly data-driven as no income data are collected in the ESAM-II.

²⁴ Estimates for Tanzania do not include the disabled, as no information on disability status was available. The share of the disabled population in Senegal is 1 per cent, according to survey data.

Overall, the introduction of a basic old-age and disability pension would reduce food poverty by three percentage points in Senegal, compared to two per cent in Tanzania (see Figure 1). The largest impact is recorded for the target groups itself, elderly men and women. In Senegal, the poverty rate for elderly women could be reduced by more than a third, from 20 per cent to 13 per cent, and the gap in the poverty line would be closed by almost half, from 4.4 per cent to 2.4 per cent. Children would indirectly benefit as well, although to a lesser extent. Forty per cent of households in Senegal have children and elderly in them. The poverty rate for persons living in such households would be lowered by 5.5 percentage points, a reduction of almost one quarter in relative terms.

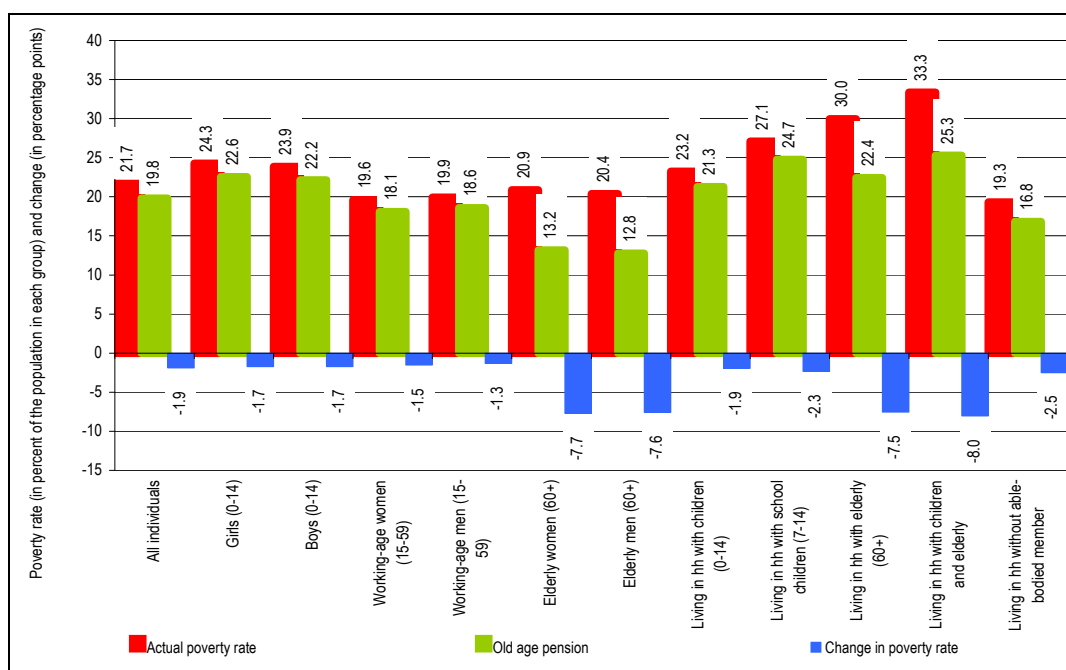
Figure 1. Senegal: Absolute poverty reduction effect of basic old-age and disability pension; actual and simulated poverty rates (headcount)



Source: Own calculations based on ESAM II.

The impact of basic old-age pensions on poverty levels for the elderly is larger in Tanzania, with an absolute reduction of poverty of 8 per cent, but the effect on other households is smaller. This difference can be mainly attributed to the difference in average household size between the two countries.

Figure 2. Tanzania: Absolute poverty reduction effect of basic old-age pension; actual and simulated poverty rates (headcount)



Source: Own calculations based on HBS.

Old-age pensions also have a marked effect on the poverty gap (see tables in the Appendix). In Senegal, the consumption shortfall of the poor would be reduced by 1 percentage point from 4.5 per cent to 3.5 per cent of the food poverty line. For older men and women, the poverty gap is even reduced by two percentage points. In Tanzania, the consumption shortfall of older women and men would be dramatically reduced from 5.3 per cent and 5.8 per cent, respectively, of the food poverty line to 1.1 per cent and 1.9 per cent, respectively. Overall, the poverty gap would be reduced from 5.7 per cent to 4.7 per cent of the food poverty line.

The results of the micro-simulation confirm that non-contributory old-age pensions reduce poverty not only among the elderly, but also among other household members. By this token, they enable investments in human and physical capital within the recipient household and strengthen the intergenerational solidarity and transfer. From a more macro-perspective, universal pensions may insure poor communities against the adverse effects of policy reforms (e.g. in agriculture) and can encourage local economic activity (Barrientos 2004).

5.2 Universal child benefit

Family allowances can be an effective tool for poverty reduction, especially if the number of children is strongly correlated with poverty.²⁵ Universal child and family allowances have never been introduced in African countries, as it was feared that such systems would contribute to increasing fertility rates, thereby further aggravating the demographic pressure. A recent study on conditional cash transfers in African countries concluded that (i) any social cash transfer programme needs to be sizeable in order to have a significant

²⁵ See, e.g., Tabor 2002.

impact on poverty, (ii) conditionalities such as regular school-attendance should be an integral part of the programme, and (iii) narrow targeting is not an issue regarding the pervasiveness of poverty in these countries (Kakwani, et al. 2005: 9). There are however important reservations against introducing conditional cash transfer programmes in African countries where the existing education and health infrastructure often tends to be inadequate to justify the implementation of such programmes (Save the Children UK, et al. 2005).

In this paper, we simulate the introduction of a universal child benefit for all school-age children between 7 and 14 years of age. In the case of Tanzania, orphans under the age of 7 could also be included. Limiting eligibility to school age children reduces the undesirable fertility-inducing effect of an unrestricted child benefit. While the simulation does not take into account any conditionality, in practice, eligibility could possibly be tied to regular school-attendance and other human capacity improving measures, such as regular health checks, vaccinations, etc., provided that the necessary infrastructure were to be available.

The level of the benefit is set at 35 per cent of the national food poverty line per eligible child, that is, half of the basic pension level. This corresponds to about 3,160 CFA (US\$15 PPP) per child per month in Senegal, and 2499 TSh. (US\$4.84 PPP) in Tanzania. As for the old-age and disability pension, the benefit is modelled relative to the poverty line, meaning that it varies depending on whether the child lives in an urban or rural setting.

Table 15. Beneficiary rates of child benefits for school-age children

Senegal	Dakar	Other urban areas	Rural areas	Total
Eligible persons	19.0	22.4	23.9	22.5
Individuals living together with beneficiary	66.4	79.6	86.3	79.8
Households with beneficiary	82.2	89.3	92.4	89.5
Mainland Tanzania	Dar-es-Salaam	Other urban areas	Rural areas	Total
Eligible persons	22.1	25.9	27.4	26.8
Individuals living together with beneficiary	71.5	74.5	79.0	76.0
Households with beneficiary	51.8	55.4	61.6	57.3

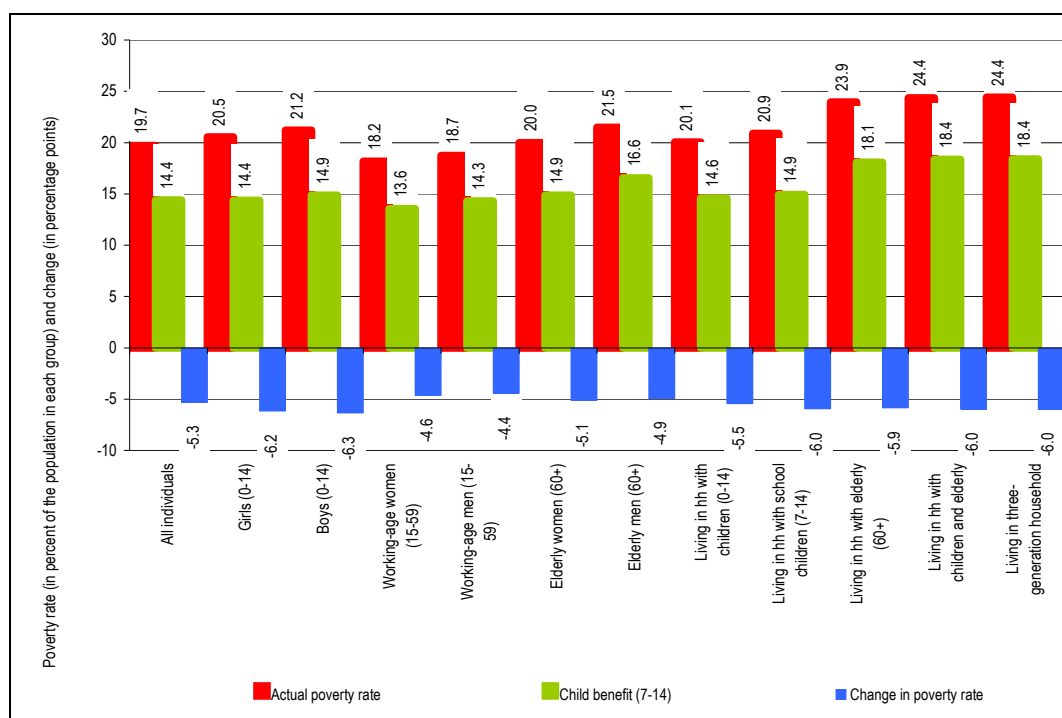
Source: Own calculations based on ESAM-II and HBS.

Twenty-three per cent of the population in Senegal are children of school age (7-14 years old) and would thus be eligible for the modelled child cash transfer. As an effect of the large households, almost nine out of ten households would benefit from a universal child benefit, covering 80 per cent of the population. In Tanzania, the proportion of eligible children would be higher (27 per cent), but only six out of ten households would benefit, also covering almost 80 per cent of the population. Coverage rates are higher in rural areas as children live relatively more often in rural households.

In Senegal, the introduction of a universal child benefit for school-age children (7-14) would reduce the poverty rate by six percentage points from 20 to 14 per cent (see Figure 3). The benefit would reduce the income shortfall for the poor from 4.5 per cent to 2.5 per cent of the food poverty line. In relative terms, poverty would be reduced by almost 30 per cent, and the poverty gap diminished with 40 per cent. Boys and girls benefit almost equally from the introduction of the child benefits in terms of the reduction of their poverty risk. The transfer also benefits other household members living with children, especially the elderly. As most households in Senegal have children in them, however, the

distribution of the poverty reduction effect is rather equal across the different population groups. The same applies to the reduction of the poverty gap.

Figure 3. Senegal: Poverty reduction effect of universal child benefit for school-age children; actual and simulated poverty rate (headcount)

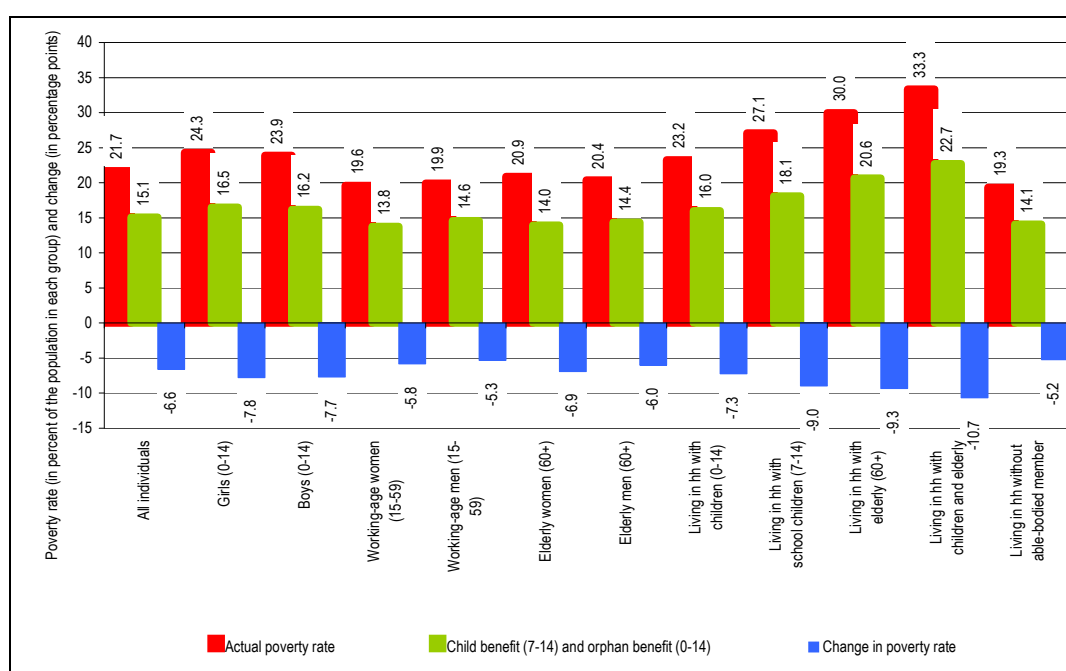


Source: Own calculations based on ESAM-II.

Again, the overall effect is slightly larger in Tanzania where poverty rates are reduced by 6.6 percentage points (see Figure 4). Households with children benefit more from the allowance, and its introduction could reduce poverty by a third in these households. Poverty rates of children aged 0-14 would be reduced by 7.8 percentage points for girls and 7.7 percentage points for boys. Taking into account that the modelled benefit reaches only children of school age, this is a marked reduction in poverty rates. If children up to the age of six were also to be eligible for such benefits, the effects on poverty reduction could even be higher.

The most dramatic reduction in poverty rates is noted for individuals living in households with children and the elderly. This group faces the highest poverty risk: one third of these individuals are poor. However, a universal child benefit for school age children would reduce their poverty risk by eleven percentage points to less than one in four children.

Figure 4. Tanzania: Poverty reduction effect of universal child benefit for school-age children and orphans; actual and simulated poverty rate (headcount)



Source: Own calculations based on HBS.

The impact on the poverty gap is also remarkable (see tables in the Appendix). In Senegal, universal child benefits to school age children would reduce the poverty gap of the total population from 4.5 per cent to 2.7 per cent of the food poverty line, a reduction of 37.5 per cent. In Tanzania, the overall poverty gap would be reduced by more than half; that is from 5.7 per cent to 2.8 per cent of the food poverty line. The effect on the consumption shortfall of children is even more pronounced; their poverty gap would be reduced from 6.1 per cent to 2.9 per cent of the food poverty line.

In addition to these first order effects, such benefits are very likely to spur more far reaching effects in the short and the long term. Experience with similar programmes, mainly in Latin America, has shown positive effects of conditional child cash transfers on school enrolment rates and the empowerment of women. For example, net enrolment rates in the mandatory grades increased gradually from 87 per cent to 96 per cent after the introduction of a conditional cash transfer programme for children in Brazil (Bolsa Escola/Bolsa Familia). The position of women is strengthened by the condition that cash transfers had to be given to the mothers (or female heads of recipient households), as required in Brazil and Mexico (Progres/Oportunidades programme) (Kakwani, et al. 2005).

5.3 Combined effects of old-age pension and child benefits

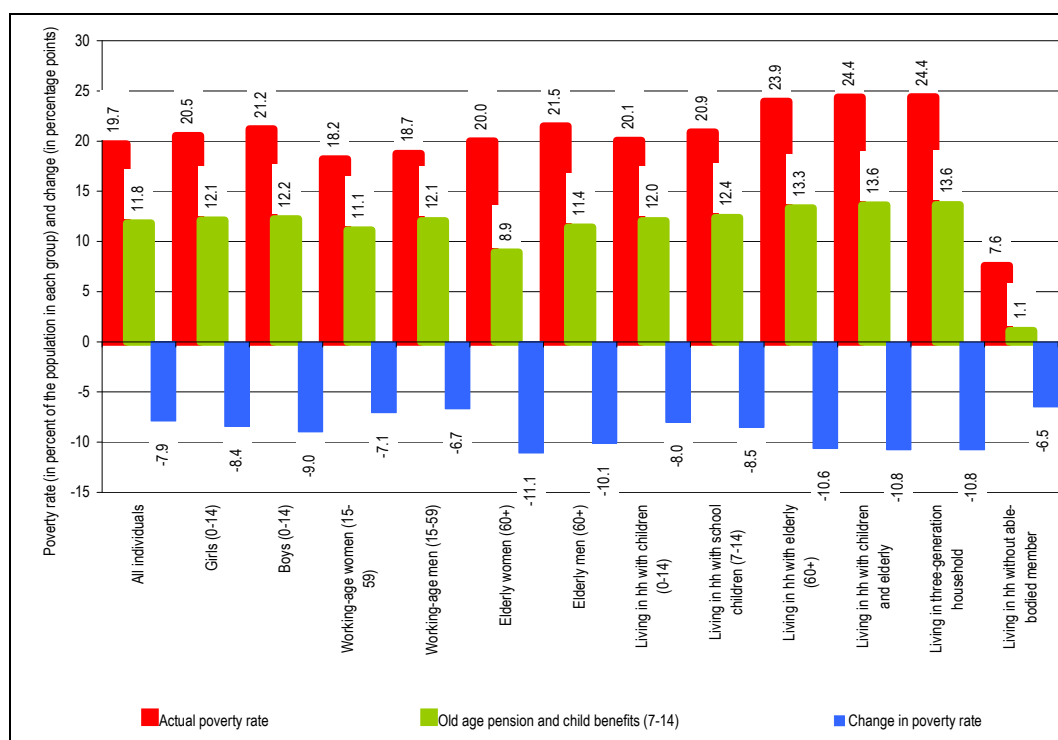
After the assessment of the impact of each benefit separately, we now combine the two benefits and assign basic old-age and disability pensions and child benefits simultaneously. We expect to find even stronger effects with respect to the poverty risks of elderly and children.

Table 16. Beneficiary rates of combined old-age and child benefits

Senegal	Dakar	Other urban areas	Senegal	Dakar
Eligible persons	23.5	28.4	30.6	28.6
Individuals living together with beneficiary	73.0	87.6	94.2	87.4
Households with beneficiary	87.3	94.4	97.0	94.3
Tanzania	Dar-es-Salaam	Other urban areas	Tanzania	Dar-es-Salaam
Eligible persons	25.6	30.4	33.4	32.5
Individuals living together with beneficiary	75.2	78.6	83.3	80.1
Households with beneficiary	56.3	62.0	70.0	64.4

Source: Own calculations based on ESAM-II and HBS.

As Table 16 shows, even though less than one in three Senegalese would benefit from either the child or old-age transfers, the large majority of the population would benefit indirectly. Only 5 per cent of the Senegalese households would not be covered by the combined benefit package. In Tanzania, the share of beneficiaries would be slightly higher than in Senegal, but the transfers would reach only two out of three households or 80 per cent of the population. Again, in both countries, rural areas would benefit proportionally more, as the share of eligible persons is higher in these areas.

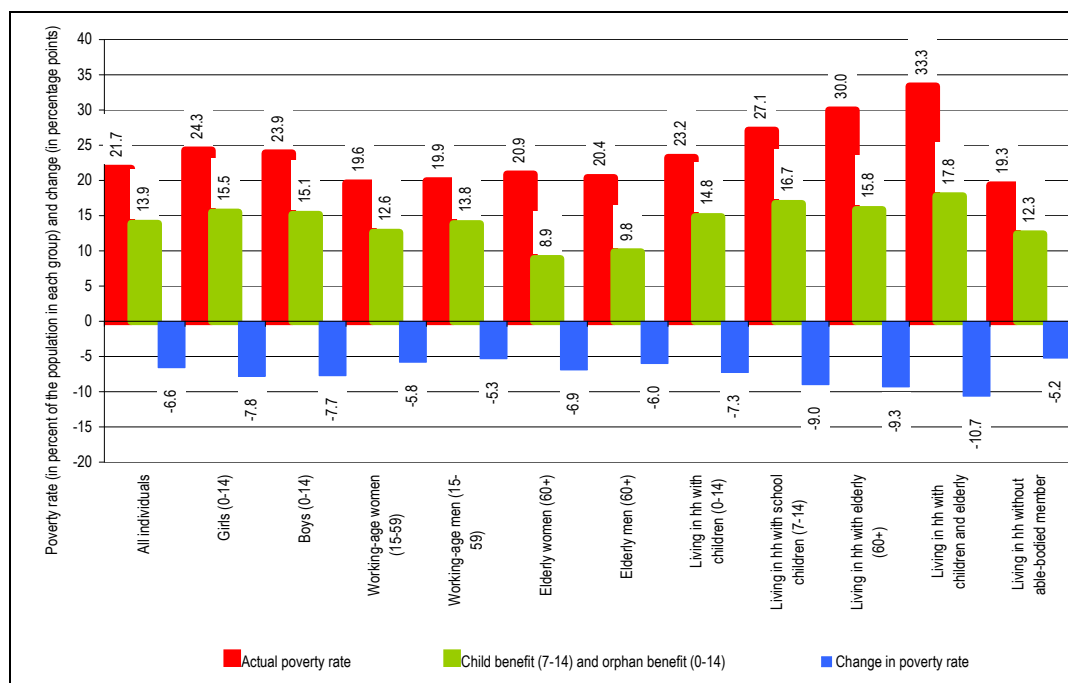
Figure 5. Senegal: Poverty reduction effect of a combined old-age and child benefit; actual and simulated poverty rate (headcount)

Source: Own calculations based on ESAM-II.

The effect of the combined benefits on poverty is significant. Overall, the poverty rate would be reduced by eight percentage points in both countries (see Figures 5 and 6), a relative reduction of 42 per cent for Senegal and 36 per cent for Tanzania. The groups that benefit the most are elderly women, and individuals living in households with elderly, with

elderly and children and those living in three-generation households. Children also benefit relatively more than the average, with boys experiencing a larger poverty rate reduction than girls in Senegal. In Tanzania, the effects on boys and girls are virtually equal.

Figure 6. Tanzania: Poverty reduction effect of a combined old-age and child benefit; actual and simulated poverty rate (headcount)



Source: Own calculations based on HBS.

It is also worth looking at the effect on the poverty gap, that is, the average consumption shortfall of the poor (see tables in Appendix). The poverty gap would be reduced by more than half if such a combined benefit were to be introduced in Senegal: from 4.5 per cent to 2.0 per cent of the food poverty line. Two-third of the poverty gap would be closed for poor elderly men and women, and more than half for poor children.

In Tanzania, the overall poverty gap would be reduced by two thirds, that is from 6 per cent to 2 per cent of the food poverty line. The – initially slightly higher – poverty gap for children would also be reduced by about two thirds to slightly more than 2 per cent of the food poverty line. The most striking effects are found for the elderly and individuals living in households with older persons. For the latter group, the poverty gap would be reduced to less than 0.5 percentage points. For the elderly themselves, the poverty gap would even become slightly negative, that is the average consumption of (before transfers) poor older persons would surpass the food poverty line.

5.4 Targeted cash transfer to the most vulnerable

Finally, we assess the impact of a targeted cash transfer to the most vulnerable households. This type of benefit is inspired by a pilot project implemented in Zambia (Schubert 2005) where the equivalent of US\$6.34 PPP is given monthly to the poorest 10 per cent of

households identified by local communities.²⁶ Given the different levels of development in Senegal and Tanzania, a slightly different approach has been taken for the micro-simulations. It is assumed that eligible households would receive the equivalent of one old-age pension, which had been set at 70 per cent of the food poverty line of one adult equivalent. Monthly benefit levels would correspond at US\$30 PPP in Senegal and US\$10 PPP in Tanzania.

The self-help capacity of a household is an essential criteria in order to be selected for the programme in Zambia. It includes mainly elderly women, many of whom are taking care of children. In order to simulate a similar benefit for Senegal and Tanzania, households without self-help capacity are defined as those without able-bodied household members of working age (20-59). Being able-bodied is defined in the analysis as not being disabled nor having reported sick or injured during the month preceding the survey. While the pilot project in Zambia worked on the premise that benefits would be provided to a maximum of 10 per cent of households, this condition is not followed in this study.

Table 17. Beneficiary rates of targeted cash transfer

Senegal	Dakar	Other urban areas	Rural areas	Total Senegal
Eligible households	9.2	13.8	14.0	12.7
Individuals living in eligible household	4.5	7.9	9.0	7.8
Tanzania	Dar-es-Salaam	Other urban areas	Rural areas	Total Tanzania
Eligible households	10.1	16.9	24.5	19.1
Individuals living in eligible household	6.7	12.3	18.0	14.1

Source: Own calculations based on ESAM-II.

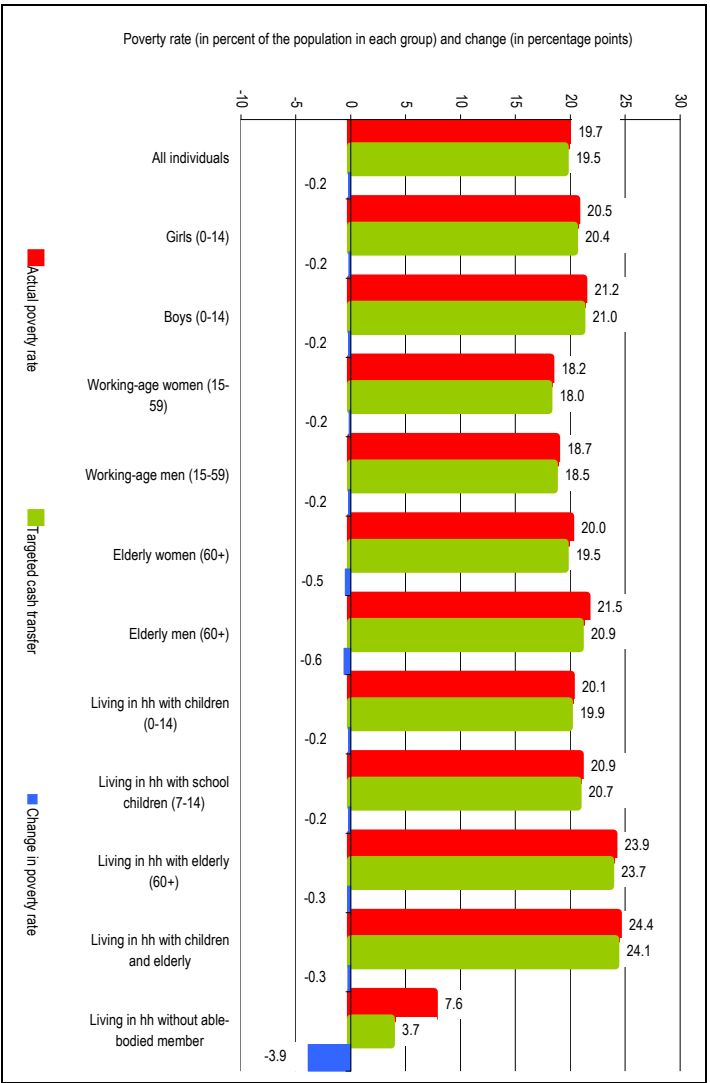
In Senegal, 13 per cent of all households meet the eligibility criteria, but they constitute only 8 per cent of the population. This reflects that mainly smaller households belong to this category. In Tanzania, 19 per cent of all households meet the criteria, and these represent 14 per cent of the population.

It should be noted that the poverty risk for the target group – households without able-bodied members – is slightly lower than the average in Tanzania (see Table 9) and much lower in Senegal (Table 10). It could not be established whether these figures reflect the target group's actual situation or whether these results are due to methodological problems, such as a lower probability of very poor households being included in the survey. More research would be needed to clarify this aspect and improve the definition of vulnerable households.

Analysing the impact of the targeted cash transfer in Senegal, Figure 7 shows that although poverty rates for the target group – households without any able-bodied member – are halved, the impact on overall poverty rates remains limited. There are two possible reasons for this. First, there are some doubts as to whether the target group is well defined in the case of Senegal. Secondly, as Senegalese households are comparatively large with on average ten household members, the benefit translates into a very small amount per adult, even though the average household size of the target group is smaller than overall average household size.

²⁶ The exact amounts are US\$6.34 PPP for households without children and US\$8.45 for households with children.

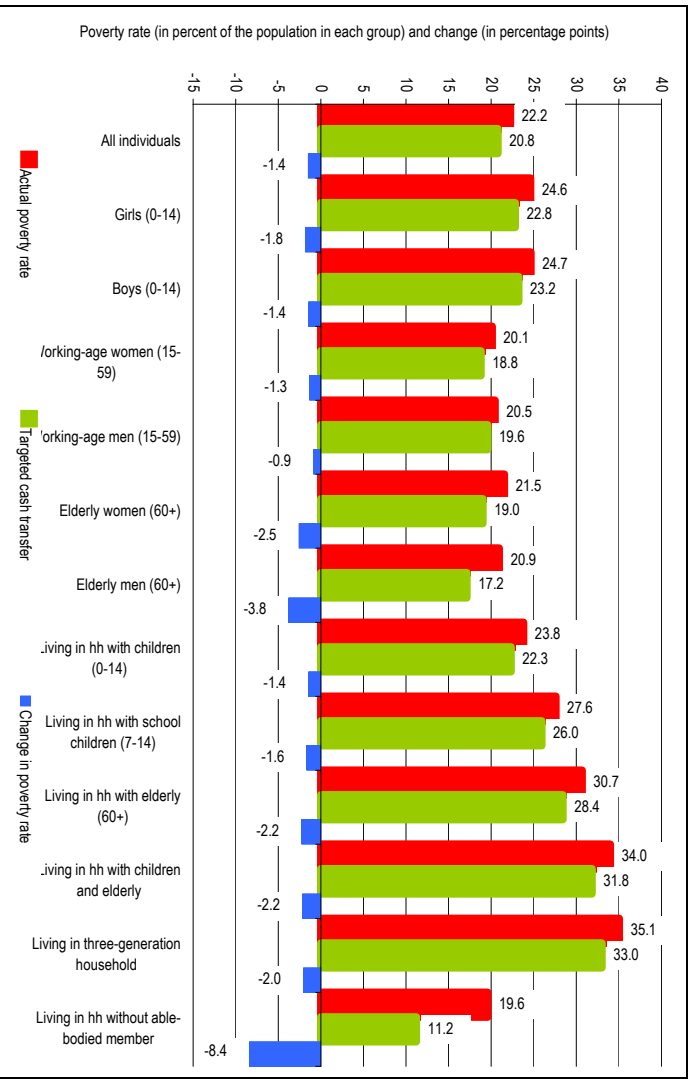
Figure 7. Senegal: Poverty reduction effect of a targeted cash transfer to households without able-bodied members; actual and simulated poverty rate (headcount)



Source: Own calculations based on ESAM-II.

The results for Tanzania show a more pronounced effect on the reduction of poverty than in Senegal. Overall poverty rates would decline from 22.2 per cent to 20.8 per cent of the population, a drop of 1.4 percentage points. The most sizeable effect is recorded for the target group itself, households without an able-bodied member, whose poverty rates would drop from 19.6 to 11.2 per cent.

Figure 8. Tanzania: Poverty reduction effect of a targeted cash transfer to households without able-bodied members; actual and simulated poverty rate (headcount)



Source: Own calculations based on HBS.

Targeted cash transfers would achieve a marked reduction of the poverty gap for households without an able-bodied member in Senegal (a reduction from 1.5 per cent to 0.7 per cent of the food poverty line), yet the overall effect would be rather limited (see Table A3 in Annex).

In Tanzania, the effect on the poverty gap is more substantial than in Senegal. The poverty gap for households without an able-bodied person would be almost fully closed – from 5.3 per cent to 0.4 per cent of the food poverty line. The overall poverty gap is estimated to reduce from 6.0 per cent to 5.1 per cent of the food poverty line.

In addition to such direct effects on poverty reduction, it is presumed that targeted cash transfers would have a wider impact on well-being of beneficiary households and their communities. The first results of the pilot project in Zambia have been promising. School attendance rates have improved, as did the general appearance of the children. It is assumed that more than half of the transfer is spent on the needs of the children that form the majority in the targeted households (Schubert 2005).

The evaluation of a cash programme in Mozambique concludes that the optimal benefit size covers one-third of the daily caloric needs of the recipients in order to have an impact but with minimal disincentive effects (Low, et al. 1999). Although the cash transfer had no significant impact on food consumption levels, recipients relied less on donations from neighbours and family members and purchased the food on the markets. It was, however, observed that over half of the recipients occasionally used the transfer for participation in micro-credit schemes.

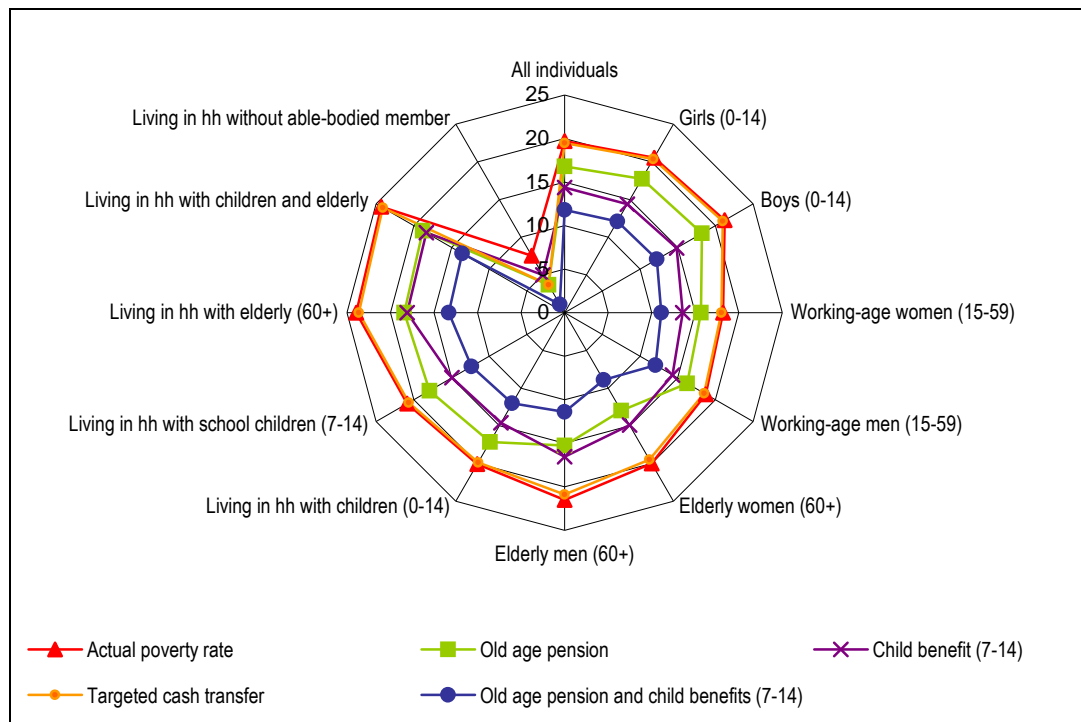
6. Conclusions

The results of the micro-simulation for Senegal and Tanzania show that basic social protection benefits can indeed play an important role in poverty reduction strategies in low-income countries. What clearly matters for the impact is the size of the benefit in relation to the poverty line and the eligibility criteria.

Introducing basic old-age and disability pensions in Senegal and Tanzania would not only improve the living standard of benefit recipients, but also of other members living in the same household, especially children. The following figures provide a direct comparison of the poverty reduction impact of old-age and child benefits as well as a targeted cash transfer.²⁷

In the case of Senegal, the combined benefit has the highest impact because of its high coverage rate (see Figure 9). While child benefits affect all groups of individuals to a rather similar extent, old-age and disability pensions have a more pronounced effect on older persons, especially on elderly women, and their family members. The figure shows that for all households with elderly, old-age benefits reduce relative poverty by almost one quarter. Targeted cash benefits show a major effect on households without able-bodied members, but only a minor effect on the overall poverty rate.

Figure 9. Senegal: Poverty rate reduction of options tested



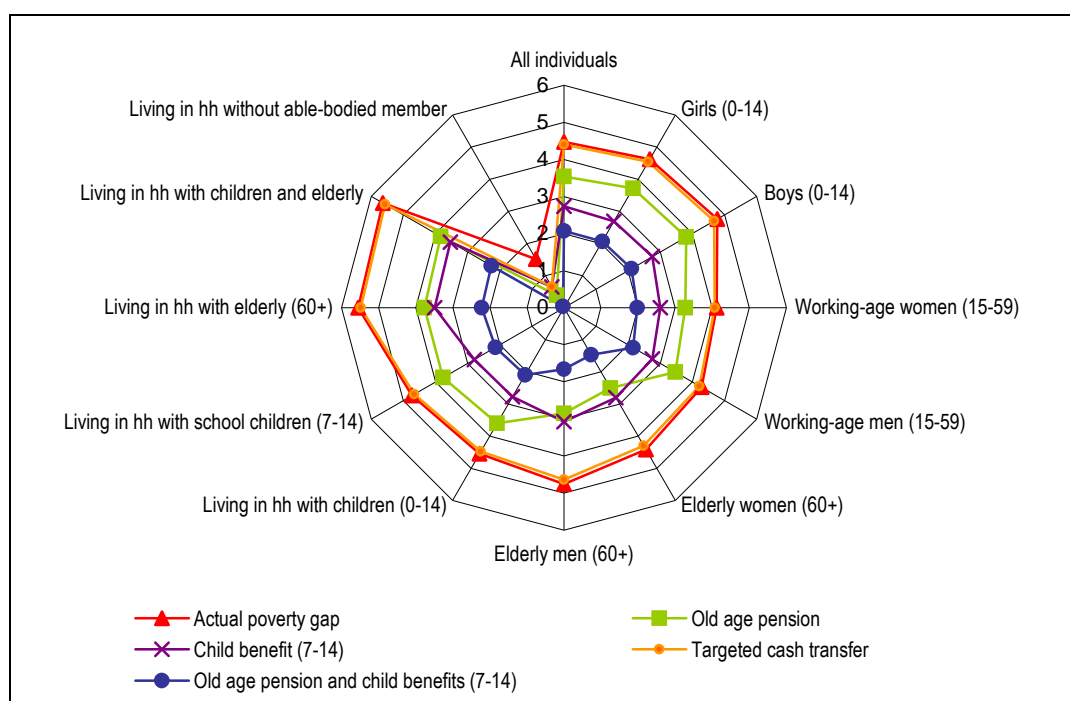
Source: Own calculations based on ESAM-II.

The relative reduction of the poverty gap is even more pronounced (Figure 10). Whereas old-age pensions would reduce the poverty gap on average by one-fifth, child benefits for school-age children would cut the poverty gap by two-fifth. Combined, these benefits can

²⁷ More graphs showing the relative reduction of the poverty rate and the poverty gap can be found in the Annex.

close the food poverty gap by more than half, and even two-thirds for the elderly population.

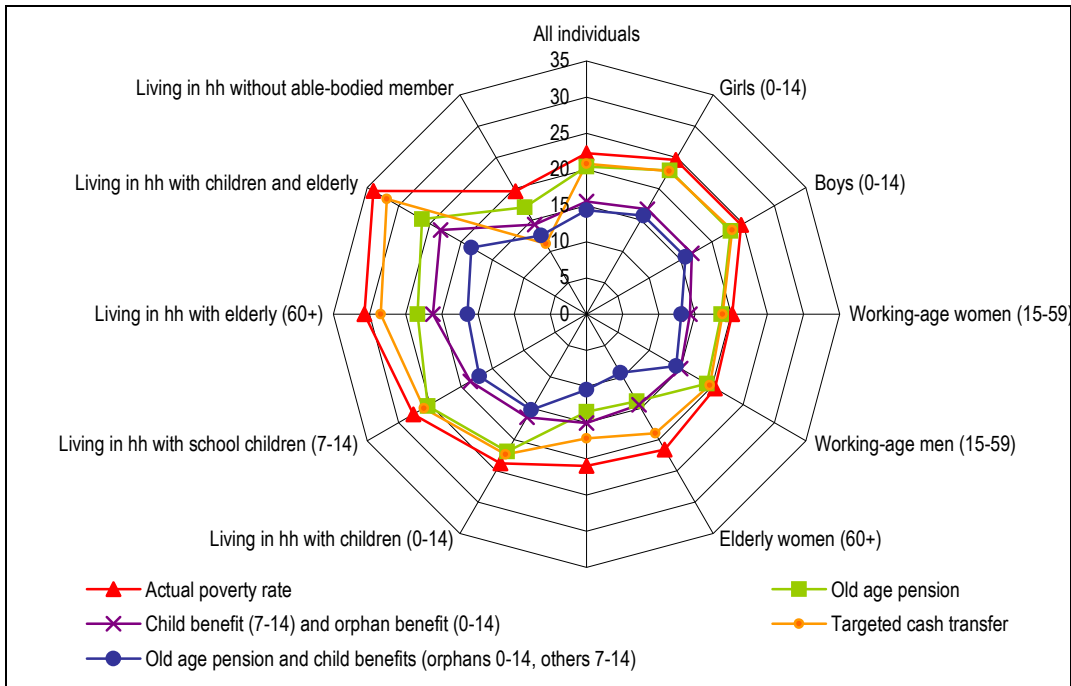
Figure 10. Senegal: Poverty gap reduction of options tested



Source: Own calculations based on ESAM-II.

In Tanzania, a universal old-age pension would cut poverty rates by 9 per cent, with a considerably stronger effect – 36 per cent – for older men and women and 24 per cent for individuals living in households with elderly family members (see Figure 11). A more balanced effect would be achieved by a child benefit for school-age children, which would result in a cut in poverty rates by around 30 per cent. The combination of these two benefits would achieve a reduction in poverty rates of 35 per cent, with even more substantial effects for individuals living in households with children and elderly (a drop of 46 per cent), which face the highest poverty risk. Targeted cash transfers achieve an overall reduction of poverty of 7 per cent, yet with a much stronger effect on older persons (minus 12 per cent and 18 per cent, respectively, for older women and men) and individuals living in households without able-bodied members (minus 46 per cent).

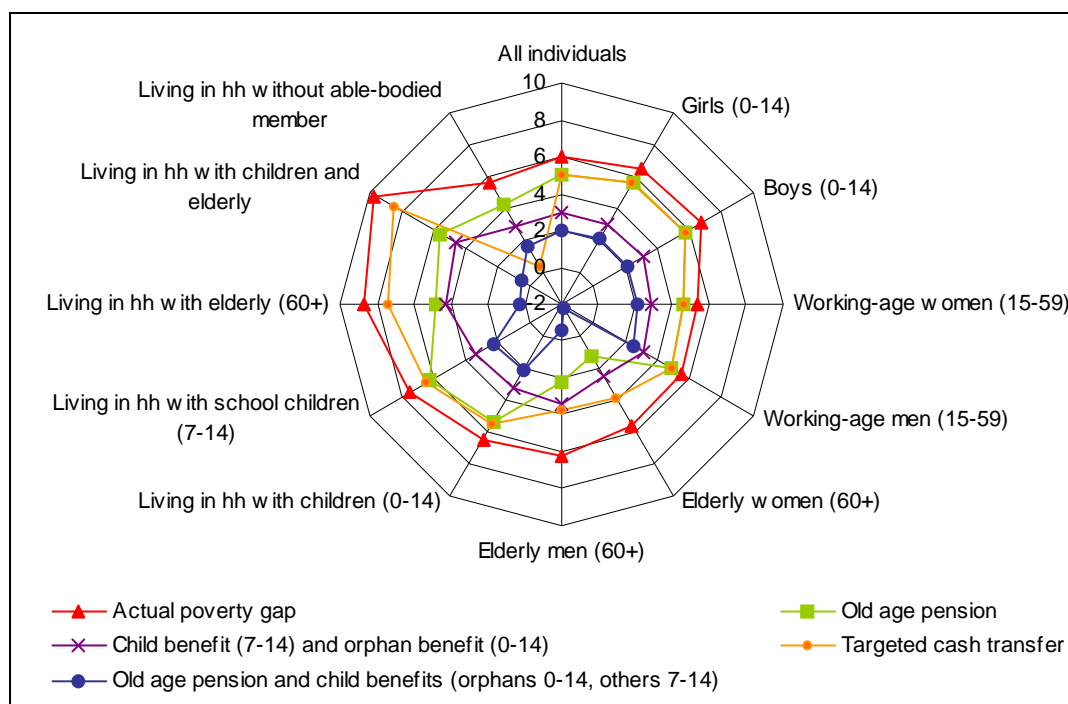
Figure 11. Tanzania: Poverty rate reduction of options tested



Source: Own calculations based on HBS.

The relative effects on the poverty gap in Tanzania are larger and more heterogeneous across groups of the population (see Figure 12). Old-age pensions would reduce the poverty gap by 77 per cent for older women and by 65 per cent for older men while compressing the overall poverty gap for the total population by 17 per cent. Child benefits are more balanced across groups, cutting the poverty gap by about one-half across the board. With the combination of these two benefits, total shortfall in consumption would reduce by two-thirds for the total population. The targeted cash transfer would almost fully close the poverty gap for households without able-bodied members (a reduction of 93 per cent), which would cut the overall poverty gap by 15 per cent.

Figure 12. Tanzania: Poverty gap reduction of old-age and child benefits



Source: Own calculations based on HBS.

The main advantage of basic old-age and disability pensions is that recipients do not have to withdraw from the labour market. According to Barrientos (2004), non-contributory basic pension schemes are sustainable because they redistribute income in a socially desirable direction: throughout life and from urban to rural areas. The first represents a social preference to support the elderly, while the latter prevents the migration from rural to urban areas. Basic old-age pensions can also be a response to problems arising from social and economic changes, such as those induced by the HIV/AIDS pandemic, which leaves many households with a missing generation, and grandparents as main care providers for children. Evidence from many countries has shown that pensions indeed have a major positive impact on the physical and social development of children living in pensioner households (Barrientos and Lloyd-Sherlock 2003).

Kakwani and Subbarao (2005) argue against the universal provision of basic old-age pensions because of disincentive effects, which argument, however, is not appropriate in this context. The objective of basic old-age pensions is to support those citizens that are at the end of the life cycle and have no longer the necessary productive capacity to fully sustain themselves on their own. Kakwani and Subbarao (2005) further argue that basic old-age pensions would not be affordable for most African countries. However, the calculations used to support these contentions are based on the assumption that social pensions should fill the entire poverty gap of households in which elderly persons live, not just for the elderly persons themselves but also for other household members. This assumption overburdens social old-age pensions with functions that they cannot and should not fulfil. While such pensions aim at providing elderly persons with a minimum income in view of their limited earnings capacity, they are not meant to single-handedly lift large households above the poverty line. Universal old-age pensions can contribute to achieving this objective, but complementary measures would be required to meet this objective, such as transfers to vulnerable children and other groups or measures to promote employment of prime-age adults. The calculations provided in this paper as well as in earlier studies (Pal, et al. 2005) show that the costs of basic old-age pensions are not out of reach for many low-income countries.

Universal child benefits can be a very effective tool in poverty alleviation, especially when the poverty risk is clearly correlated with the presence of children in a household. The situation in Senegal is quite specific and takes into account the large average household size and the average number of children per household. As a result, the simulated child benefit reaches across almost all households. In a real policy setting, the allocation of the benefit could be tied to conditions such as regular school attendance or basic health checks, thereby aiming to achieve objectives that go beyond poverty reduction in the short-run, as is the case in many Latin American countries, provided that the necessary infrastructure is available. If affordability is an issue, or if it is socially not desirable that almost all households indirectly benefit from the transfer, additional criteria could be introduced, such as limiting the benefit to school-age children living in rural areas.

The most ambiguous results were obtained for the targeted cash transfer. The results from the pilot scheme in Zambia sound very promising, but it is not easy to transfer such experiences from one country to the other. The results of this study show that vulnerability may strongly vary between countries. While households without able-bodied members were identified as particularly vulnerable in Zambia, this might not necessarily be true in other countries. Both in Senegal and Tanzania, households without able-bodied household members appeared not to be the group most at risk. If a targeted cash transfer were to be introduced in one of these countries, considerable effort should be devoted to refining eligibility criteria. A means-tested approach would hardly be realistic. Means testing translates into higher costs in terms of administration and leakage. Based on a study analysing the targeting outcomes of 122 programmes in 48 countries, income targeting works better in countries with higher income, more inequality and where governments are held accountable (Coady, et al. 2004).

Other issues affecting the targeting performance are the level of local administration and implementation capacity. Every system entails costs and has to be monitored and evaluated. Narrow targeting, which may be efficient in terms of the use of scarce resources can be very costly in implementation. If categorical indicators can serve as a proxy, the poor are more easily identified and the system is easier to implement and administer. Categorical targeting combined with community-based targeting may be a feasible option in rural areas, as the example of Zambia has shown. A recent study from Malawi, however, demonstrated that in a context of deep and omnipresent poverty, targeting might meet quite strong resistance from communities, on the grounds that all community members are equally poor and nobody should be singled out (Chinsinga 2005). This shows that other issues, more related to factors such as cultural and political economy, may then play a larger role.

In a context of deep and omnipresent poverty, universal benefits for specific groups of the population may be more appropriate than narrowly targeted benefits. The cost estimations have shown that both types of benefits would be affordable, possibly with some external support. Existing programmes show encouraging results, both in terms of programme effectiveness in the reduction of poverty as well as in terms of financial and administrative feasibility.

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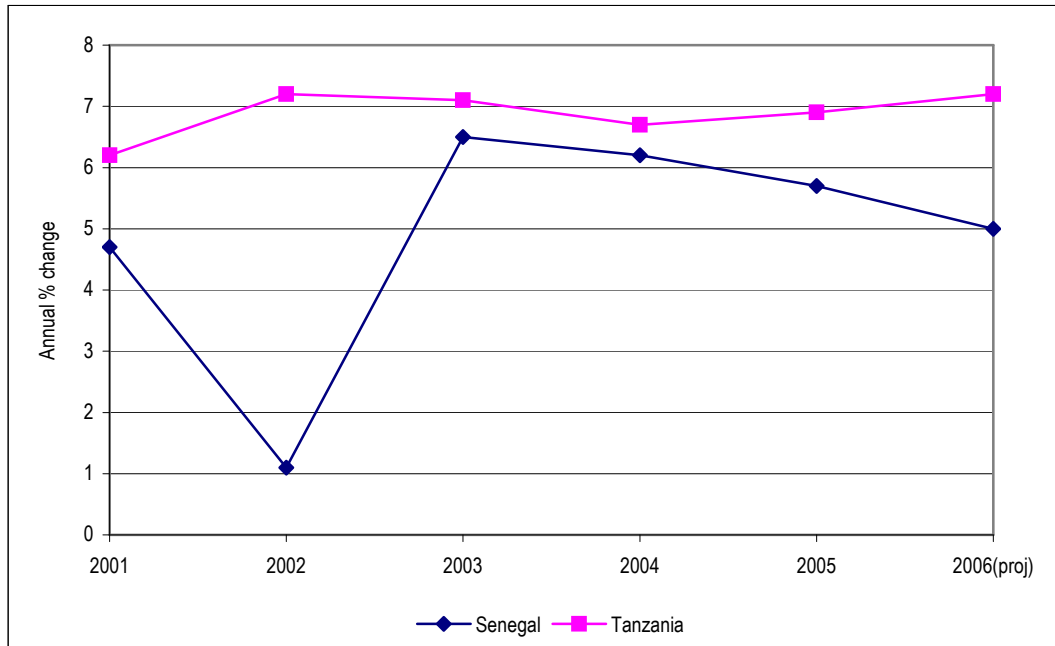
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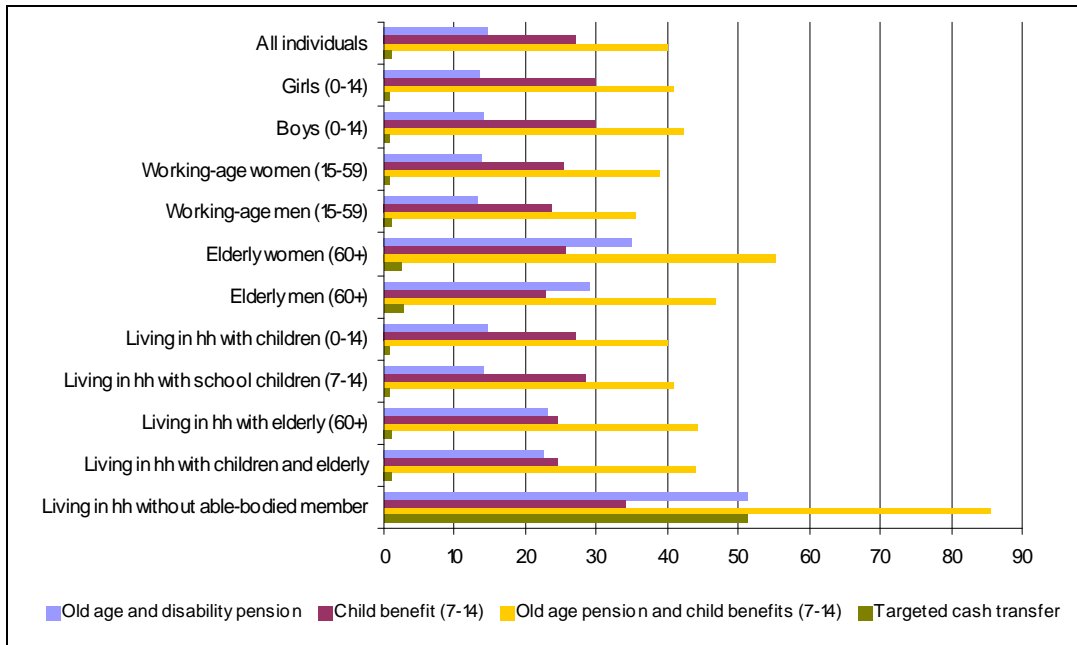
8. Annex

Figure A1. GDP annual growth rate, 2001-2006



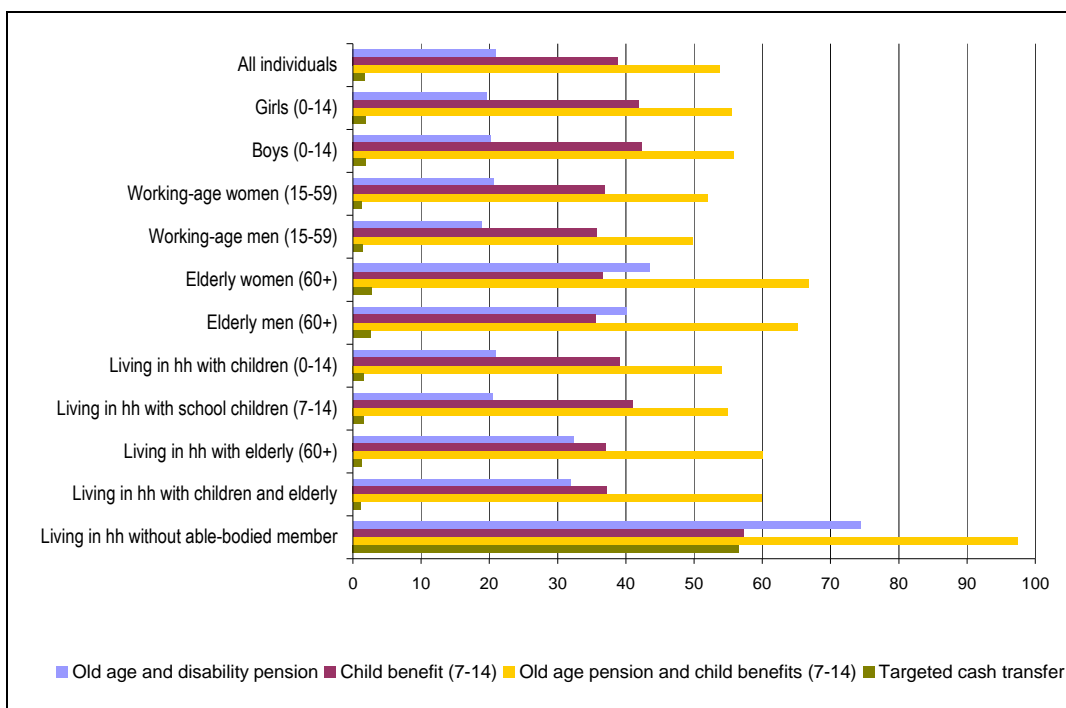
Source: IMF 2005.

Figure A2. Senegal: Relative reduction of poverty rate (headcount) for all benefit options, food poverty line



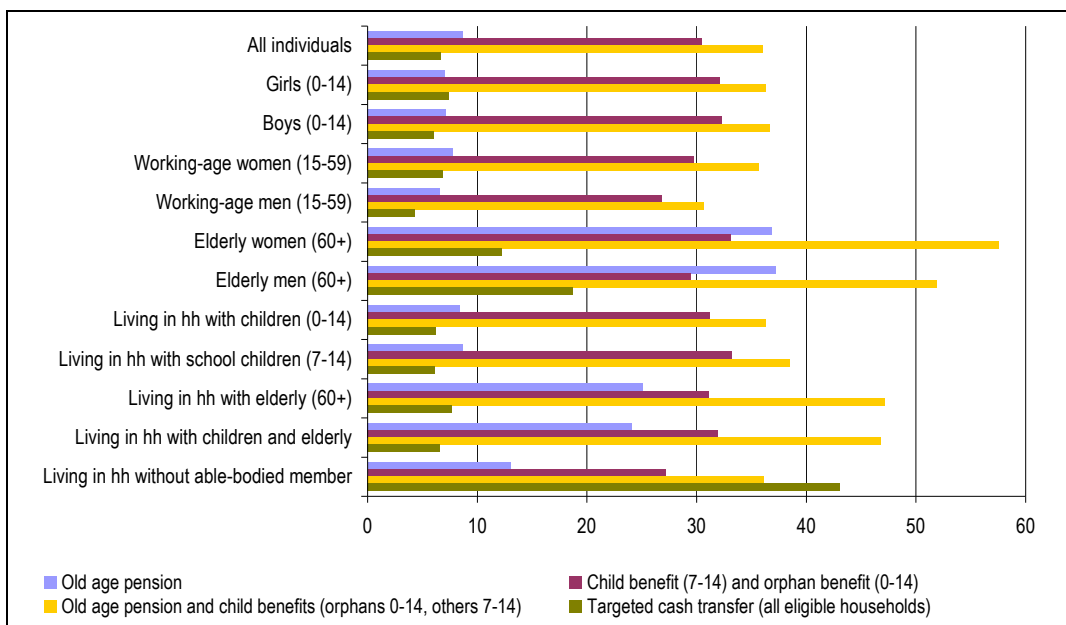
Source: Own calculations based on ESAM II.

Figure A3. Senegal: Relative reduction of poverty gap for all benefit options, food poverty line



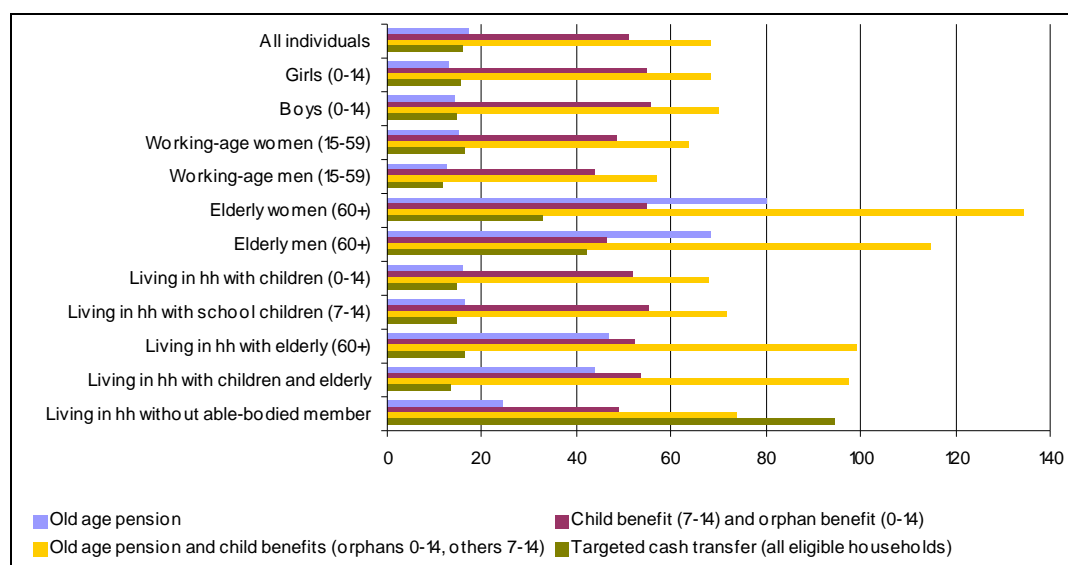
Source: Own calculations based on ESAM II.

Figure A4. Tanzania: Relative reduction of poverty rate (headcount) for all benefit options, food poverty line



Source: Own calculations based on HBS.

Figure A5. Tanzania: Relative reduction of poverty gap for all benefit options, food poverty line



Source: Own calculations based on HBS.

Table A1. Senegal: Basic assumptions used for simulations

Indicator	Source	2001	2002	2003	2004	2005	2006
Population	www.finances.gouv.sn	9,956,202	10,127,809				
Real GDP growth	IMF 2005	4.7	1.1	6.5	6.2	5.7	5
GDP per capita, current CFA	IMF 2005	347477	352561	367910	387074	408033	425702
GDP per capita, current, US\$ PPP	IMF 2005	1621	1628	1718	1813	1914	2013
CPI inflation	IMF 2005	3	2.3	0	0.5	1.5	1.9
PPP/US\$ exchange rate	IMF 2005	214	217	214	214	213	211
Exchange rate (LCU/US\$)	ILO	733.0	697.0	581.2	528.3	581.2	
PPP conversion	ILO	0.30	0.32	0.38		0.37	
Poverty line and aggregate consumption based on 2001/02 survey, 28 days (in CFA)							
Aggregate consumption per adult equivalent			18,572				19,473
Food poverty line (national average) per adult equivalent			8,612				9,030
Basic needs poverty line (national average) per adult equivalent			17,481				18,329
US\$1 per day poverty line per capita			6,550				6,394

Table A2. Tanzania: Adult equivalence scales

Age group	Males	Females
0-2	0.40	0.40
3-4	0.40	0.48
5-6	0.56	0.56
7-8	0.64	0.64
9-10	0.76	0.76
11-12	0.80	0.88
13-14	1.00	1.00
15-18	1.20	1.00
19-59	1.00	0.88
60+	0.80	0.72

Source: National Bureau of Statistics, Tanzania 2002: 132.

Table A3. Senegal: Overview on the results of the micro-simulation, food poverty line

	Old-age and disability pension						Universal child benefit (7-14)						Combined old-age and child benefit						Targeted cash transfer					
	Poverty rate (headcount)			Poverty gap (% of PL)			Poverty rate (headcount)			Poverty gap (% of PL)			Poverty rate (headcount)			Poverty gap (% of PL)			Poverty rate (headcount)			Poverty gap (% of PL)		
	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change
Total population	19.7	16.8	-2.9	4.5	3.5	-0.9	19.7	14.4	-5.3	4.5	2.7	-1.7	19.7	11.8	-7.9	4.5	2.1	-2.4	19.7	19.5	-0.2	4.5	4.4	-0.1
Girls (0-14)	20.5	17.8	-2.8	4.6	3.7	-0.9	20.5	14.4	-6.2	4.6	2.7	-1.9	20.5	12.1	-8.4	4.6	2.1	-2.6	20.5	20.4	-0.2	4.6	4.5	-0.1
Boys (0-14)	21.2	18.2	-3.0	4.8	3.8	-1.0	21.2	14.9	-6.3	4.8	2.8	-2.0	21.2	12.2	-9.0	4.8	2.1	-2.7	21.2	21.0	-0.2	4.8	4.7	-0.1
Women (15-59)	18.2	15.7	-2.5	4.1	3.3	-0.9	18.2	13.6	-4.6	4.1	2.6	-1.5	18.2	11.1	-7.1	4.1	2.0	-2.1	18.2	18.0	-0.2	4.1	4.1	-0.0
Men (15-59)	18.7	16.2	-2.5	4.3	3.5	-0.8	18.7	14.3	-4.4	4.3	2.8	-1.5	18.7	12.1	-6.7	4.3	2.2	-2.1	18.7	18.5	-0.2	4.3	4.2	-0.1
Elderly women (60+)	20.0	13.0	-7.0	4.4	2.5	-1.9	20.0	14.9	-5.1	4.4	2.8	-1.6	20.0	8.9	-11.1	4.4	1.5	-3.0	20.0	19.5	-0.5	4.4	4.3	-0.1
Elderly men (60+)	21.5	15.3	-6.2	4.8	2.9	-1.9	21.5	16.6	-4.9	4.8	3.1	-1.7	21.5	11.4	-10.1	4.8	1.7	-3.1	21.5	20.9	-0.6	4.8	4.6	-0.1
Living in hh with children	20.1	17.1	-2.9	4.6	3.6	-1.0	20.1	14.6	-5.5	4.6	2.8	-1.8	20.1	12.0	-8.0	4.6	2.1	-2.5	20.1	19.9	-0.2	4.6	4.5	-0.1
Living in hh with kids 7-14	20.9	17.9	-3.0	4.7	3.8	-1.0	20.9	14.9	-6.0	4.7	2.8	-1.9	20.9	12.4	-8.5	4.7	2.1	-2.6	20.9	20.7	-0.2	4.7	4.7	-0.1
Living in hh with elderly	23.9	18.4	-5.5	5.6	3.8	-1.8	23.9	18.1	-5.9	5.6	3.5	-2.1	23.9	13.3	-10.6	5.6	2.2	-3.3	23.9	23.7	-0.3	5.6	5.5	-0.1
Living in hh with kids+elderly	24.4	18.8	-5.5	5.6	3.8	-1.8	24.4	18.4	-6.0	5.6	3.5	-2.1	24.4	13.6	-10.8	5.6	2.3	-3.4	24.4	24.1	-0.3	5.6	5.6	-0.1
Living in hh with 3 generations	20.1	17.1	-2.9	5.7	3.8	-1.8	20.1	18.4	-6.0	5.7	3.5	-2.1	20.1	13.6	-10.8	5.7	2.3	-3.4	20.1	19.9	-0.2	5.7	5.6	-0.1
Living in hh w/o able member	7.6	3.7	-3.9	4.5	3.5	-0.9	7.6	14.4	-5.3	4.5	2.7	-1.7	7.6	11.8	-7.9	4.5	2.1	-2.4	7.6	3.7	-3.9	4.5	4.4	-0.1

Table A4. Senegal: Overview on the results of the micro-simulation, basic needs poverty line

	Old-age and disability pension						Universal child benefit (7-14)						Combined old-age and child benefit						Targeted cash transfer					
	Poverty rate (headcount)			Poverty gap (% of PL)			Poverty rate (headcount)			Poverty gap (% of PL)			Poverty rate (headcount)			Poverty gap (% of PL)			Poverty rate (headcount)			Poverty gap (% of PL)		
	Before	After Change		Before	After Change		Before	After Change		Before	After Change		Before	After Change		Before	After Change		Before	After Change		Before	After Change	
Total population	65.0	62.9	-2.1	22.5	20.7	-1.8	65.0	60.7	-4.3	22.5	19.0	-3.5	65.0	58.7	-6.3	22.5	17.3	-5.3	65.0	64.5	-0.5	22.5	22.3	-0.2
Girls (0-14)	66.6	64.5	-2.1	23.0	21.2	-1.8	66.6	61.6	-5.1	23.0	18.9	-4.1	66.6	59.6	-7.0	23.0	17.3	-5.7	66.6	66.1	-0.5	23.0	22.7	-0.3
Boys (0-14)	66.8	65.0	-1.8	23.2	21.5	-1.8	66.8	61.8	-5.0	23.2	19.1	-4.2	66.8	59.8	-7.0	23.2	17.4	-5.8	66.8	66.3	-0.5	23.2	23.0	-0.3
Women (15-59)	63.1	61.0	-2.1	21.6	19.9	-1.7	63.1	59.1	-3.9	21.6	18.5	-3.1	63.1	57.3	-5.8	21.6	16.9	-4.7	63.1	62.6	-0.5	21.6	21.4	-0.2
Men (15-59)	63.6	61.9	-1.7	22.2	20.6	-1.6	63.6	60.1	-3.5	22.2	19.2	-3.0	63.6	58.5	-5.1	22.2	17.7	-4.5	63.6	63.3	-0.3	22.2	22.0	-0.2
Elderly women (60+)	64.7	59.3	-5.5	22.4	17.9	-4.5	64.7	61.4	-3.3	22.4	19.3	-3.1	64.7	56.2	-8.6	22.4	15.1	-7.3	64.7	64.3	-0.5	22.4	22.0	-0.4
Elderly men (60+)	68.2	62.9	-5.3	23.8	19.6	-4.2	68.2	64.5	-3.7	23.8	20.5	-3.3	68.2	59.3	-9.0	23.8	16.6	-7.3	68.2	67.5	-0.8	23.8	23.4	-0.4
Living in hh with children	65.9	63.8	-2.1	22.9	21.0	-1.9	65.9	61.5	-4.4	22.9	19.2	-3.6	65.9	59.5	-6.4	22.9	17.5	-5.4	65.9	65.5	-0.5	22.9	22.6	-0.2
Living in hh with kids 7-14	66.8	64.7	-2.1	23.3	21.5	-1.8	66.8	62.1	-4.8	23.3	19.4	-4.0	66.8	60.0	-6.8	23.3	17.6	-5.7	66.8	66.4	-0.5	23.3	23.1	-0.2
Living in hh with elderly	71.8	67.9	-4.0	25.8	22.3	-3.5	71.8	68.1	-3.8	25.8	22.1	-3.7	71.8	64.2	-7.6	25.8	18.8	-7.0	71.8	71.5	-0.4	25.8	25.6	-0.2
Living in hh with kids + elderly	72.6	68.7	-3.9	26.2	22.7	-3.5	72.6	68.7	-3.8	26.2	22.3	-3.8	72.6	65.0	-7.6	26.2	19.1	-7.1	72.6	72.2	-0.3	26.2	25.9	-0.2
Living in hh with 3 generations	72.7	68.8	-3.9	26.2	22.7	-3.5	72.7	68.8	-3.9	26.2	22.4	-3.8	72.7	65.1	-7.6	26.2	19.1	-7.1	72.7	72.3	-0.4	26.2	26.0	-0.2
Living in hh w/o able member	43.5	37.5	-6.0	12.3	8.3	-4.1	43.5	38.8	-4.7	12.3	9.2	-3.1	43.5	32.4	-11.2	12.3	5.6	-6.7	43.5	36.0	-7.5	12.3	8.9	-3.4

Table A5. Tanzania: Overview on the results of the micro-simulation, food poverty line

	Old-age and disability pension						Universal child benefit (7-14)						Combined old-age and child benefit						Targeted cash transfer					
	Poverty rate (headcount)			Poverty gap (% of poverty line)			Poverty rate (headcount)			Poverty gap (% of poverty line)			Poverty rate (headcount)			Poverty gap (% of poverty line)			Poverty rate (headcount)			Poverty gap (% of poverty line)		
	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change	Before	After	Change
Total population	22.2	20.4	-1.9	6.0	5.0	-1.0	22.2	15.6	-6.7	6.0	3.0	-3.0	22.2	14.4	-7.9	6.0	2.0	-4.0	22.2	20.8	-1.4	6.0	5.1	-0.9
Girls (0-14)	24.6	22.9	-1.7	6.6	5.7	-0.9	24.6	16.8	-7.9	6.6	3.0	-3.6	24.6	15.7	-8.9	6.6	2.2	-4.4	24.6	22.8	-1.8	6.6	5.6	-1.0
Boys (0-14)	24.7	23.0	-1.7	6.7	5.8	-0.9	24.7	16.8	-7.9	6.7	3.1	-3.6	24.7	15.8	-8.9	6.7	2.1	-4.6	24.7	23.2	-1.4	6.7	5.8	-0.9
Women (15-59)	20.1	18.6	-1.5	5.4	4.6	-0.8	20.1	14.3	-5.9	5.4	2.9	-2.5	20.1	13.1	-7.0	5.4	2.1	-3.3	20.1	18.8	-1.3	5.4	4.5	-0.8
Men (15-59)	20.5	19.2	-1.3	5.4	4.8	-0.7	20.5	15.0	-5.4	5.4	3.1	-2.3	20.5	14.3	-6.2	5.4	2.4	-3.0	20.5	19.6	-0.9	5.4	4.8	-0.6
Elderly women (60+)	21.5	13.9	-7.7	5.6	1.3	-4.3	21.5	14.5	-7.1	5.6	2.6	-3.0	21.5	9.3	-12.2	5.6	-1.7	-7.3	21.5	19.0	-2.5	5.6	3.8	-1.7
Elderly men (60+)	20.9	13.5	-7.5	6.2	2.2	-4.0	20.9	15.0	-5.9	6.2	3.4	-2.8	20.9	10.4	-10.5	6.2	-0.6	-6.8	20.9	17.2	-3.8	6.2	3.7	-2.5
Living in hh with children	23.8	21.9	-1.9	6.4	5.4	6.4	23.8	16.4	-7.3	6.4	3.1	-3.3	23.8	15.3	-8.5	6.4	2.1	-4.3	23.8	22.3	-1.4	6.4	5.5	-0.9
Living in hh with kids 7-14	27.6	25.3	-2.3	7.5	6.3	7.5	27.6	18.5	-9.1	7.5	3.4	-4.0	27.6	17.1	-10.5	7.5	2.2	-5.2	27.6	26.0	-1.6	7.5	6.4	-1.0
Living in hh with elderly	30.7	23.3	-7.3	8.7	4.8	8.7	30.7	21.2	-9.5	8.7	4.3	-4.5	30.7	16.4	-14.2	8.7	0.3	-8.4	30.7	28.4	-2.2	8.7	7.4	-1.3
Living in hh with kids+elderly	34.0	26.2	-7.8	9.7	5.6	9.7	34.0	23.2	-10.8	9.7	4.6	-5.1	34.0	18.4	-15.6	9.7	0.5	-9.2	34.0	31.8	-2.2	9.7	8.5	-1.2
Living in hh with 3 generations	35.1	27.2	-7.9	10.0	5.8	10.0	35.1	24.0	-11.0	10.0	4.8	-5.2	35.1	19.1	-16.0	10.0	0.6	-9.4	35.1	33.0	-2.0	10.0	8.8	-1.2
Living in hh w/o able member	19.6	17.1	-2.5	5.7	4.3	-1.4	19.6	14.3	-5.3	5.7	2.9	-2.8	19.6	12.6	-7.0	5.7	1.5	-4.1	19.6	11.2	-8.4	5.7	0.4	-5.3

Table A6. Tanzania: Overview on the results of the micro-simulation, basic needs poverty line

	Old-age and disability pension						Universal child benefit (7-14)				Combined old-age and child benefit				Targeted cash transfer									
	Poverty rate (headcount)		Poverty gap (% of poverty line)		Poverty rate (headcount)		Poverty gap (% of PL)		Poverty rate (headcount)		Poverty gap (% of poverty line)		Poverty rate (headcount)		Poverty gap (% of poverty line)									
	Before	After Change	Before	After Change	Before	After Change	Before	After Change	Before	After Change	Before	After Change	Before	After Change	Before	After Change								
Total population	40.8	38.6	-2.2	12.8	11.4	-1.4	40.8	34.2	-6.6	12.8	8.9	-3.9	40.8	31.9	-8.8	12.8	7.5	-5.3	40.8	38.4	-2.3	12.8	11.4	-1.4
Girls (0-14)	44.3	42.5	-1.8	14.0	12.8	-1.2	44.3	36.2	-8.1	14.0	9.3	-4.7	44.3	34.2	-10.1	14.0	8.2	-5.8	44.3	41.6	-2.7	14.0	12.4	-1.7
Boys (0-14)	44.1	42.2	-1.9	14.2	13.0	-1.2	44.1	36.3	-7.7	14.2	9.5	-4.7	44.1	34.5	-9.6	14.2	8.3	-5.9	44.1	41.7	-2.3	14.2	12.7	-1.4
Women (15-59)	37.8	36.2	-1.6	11.7	10.6	-1.1	37.8	32.1	-5.7	11.7	8.4	-3.3	37.8	30.5	-7.3	11.7	7.3	-4.4	37.8	36.0	-1.7	11.7	10.6	-1.2
Men (15-59)	38.1	36.7	-1.4	11.7	10.8	-0.9	38.1	32.9	-5.2	11.7	8.7	-3.0	38.1	31.4	-6.7	11.7	7.9	-3.9	38.1	36.6	-1.5	11.7	10.8	-0.9
Elderly women (60+)	42.0	28.6	-13.4	12.8	4.9	-7.8	42.0	34.9	-7.1	12.8	8.6	-4.2	42.0	22.6	-19.4	12.8	0.7	-12.1	42.0	33.0	-9.0	12.8	7.8	-5.0
Elderly men (60+)	38.4	28.0	-10.4	12.5	6.2	-6.4	38.4	33.4	-5.0	12.5	9.0	-3.5	38.4	23.1	-15.4	12.5	2.7	-9.9	38.4	33.3	-5.1	12.5	9.0	-3.5
Living in hh with children	43.2	41.0	-2.2	13.7	12.3	-1.4	43.2	35.9	-7.2	13.7	9.4	-4.3	43.2	33.7	-9.4	13.7	8.0	-5.6	43.2	40.9	-2.3	13.7	12.3	-1.4
Living in hh with kids 7-14	47.8	45.6	-2.1	15.5	14.0	-1.5	47.8	39.1	-8.6	15.5	10.4	-5.1	47.8	36.8	-10.9	15.5	8.9	-6.6	47.8	45.4	-2.3	15.5	14.0	-1.5
Living in hh with elderly	51.2	42.4	-8.7	17.5	11.9	-5.5	51.2	43.7	-7.5	17.5	12.2	-5.3	51.2	34.8	-16.3	17.5	6.7	-10.8	51.2	47.4	-3.8	17.5	15.2	-2.3
Living in hh with kids+elderly	56.0	47.2	-8.8	19.3	13.7	-5.6	56.0	47.5	-8.5	19.3	13.3	-6.0	56.0	38.5	-17.4	19.3	7.7	-11.6	56.0	52.4	-3.6	19.3	17.2	-2.1
Living in hh with 3 generations	56.2	48.6	-7.6	19.7	14.5	-5.2	56.2	48.3	-7.9	19.7	13.8	-5.9	56.2	39.9	-16.3	19.7	8.6	-11.1	56.2	54.2	-2.0	19.7	18.2	-1.5
Living in hh w/o able member	36.8	31.9	-4.9	11.8	9.3	-2.5	36.8	31.2	-5.6	11.8	7.9	-3.9	36.8	27.2	-9.6	11.8	5.4	-6.4	36.8	23.3	-13.5	11.8	3.5	-8.3

