QUANTITATIVE IMPACTS OF BASIC INCOME GRANT ON INCOME DISTRIBUTION IN COTE D'IVOIRE: TIME TO CHANGE OUR SOCIETIES

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Abstract

This paper tries to engage the economic and political debate around the proposition of a basic income grant (BIG) in Côte d'Ivoire. We simulate the economic wide and distributional impact of a universal basic income grant (BIG) in Cote d'Ivoire. How the BIG is financed is investigated. We use a microsimulated computable general equilibrium (CGE) model to analyze the effects of a universal basic income grant on the economy and on households. The model is performed using a Côte d'Ivoire's 2003 social accounting matrix (SAM) based on the 1998 household survey composed of 4,200 households, and 2003 national accounts data. The paper uses a value added tax (VAT) financing approach to provide a reasonable feasible scenario, as we are all consumers. The results suggest that the macroeconomic impacts of the basic income grant are a powerful social protection tool in fighting poverty and inequality towards a welfare state.

JEL Classification: H55; I32; I38; D31; C68

Keywords: Basic income grant, BIG, Fiscal policy; Poverty; Inequality; Welfare; Micro-simulated CGE. SAM, Social Account Matrix, Cote d´Ivoire

1. Introduction

After 55 years of independence Côte d'Ivoire social situation remains extremely crucial both before and after the 2002-2011 political crisis period. In effect poverty has increase from 10% en 1985, 36.8% in 1995 to 48.9% in 2008 (MEMPD/INS, 2008)[2], and 46.3% in 2015 (INS, ENV2015) although a lot of effort have been made in recent years since 2011. The overall Gini inequality index was 0.60 in 1998, indicating high inequality in the whole population. Looking at the economic data of West African countries including Côte d'Ivoire, we notice that economic indicators have evolved favorably. In effect trade (imports and exports), foreign investment, aid to development received mainly from European Union by these countries have increased since 10 to 20 years (see Table A1, A2 and A4 to A8 and graphs in appendix). Despite these good environment towards West African countries, their social conditions remain weak regarding international standards. Poverty and inequality still high in these countries (see Tables 3 in appendix). Thus African countries have not yet guarantees fundamental human and socio-economic rights, including the right to food, the right to social security.

Internationally in 2009 the United Nations (UN) have proposed a social protection basis and asked countries to define a social protection system in order to protect vulnerable population. Following UN, the African Union (AU) Ministry conference has also adopted a social protection policy in October 2008 (Windhoek, Namibia) and by Heads of State executive committee in January 2009 (Addis-Ababa) as an obligation for the State.

Several Western African countries including Capo-Verde, Ghana, Mali, Niger and Senegal adopted national social protection policies. Côte d'Ivoire also engaged into that process in favour of an enforcement of social protection, and the government prioritizes the reduction of vulnerability for population through a national social protection strategy. In that

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regards the Ivorian government has recently in 2014 set up the CNAM[3] and the CMU[4] to foster social protection of population.

Technically, all social protection interventions are contributive and mean test based, meaning that they are conditional to contributing or participating in an activity or programme, which is not the case of the Basic Income Grant (BIG). Moreover in the protection of vulnerable people there is the targeting problem of beneficiary population. By avoiding a mean test and the targeting problem, it is expected that the BIG will be able to close the poverty gap (Samson et al, 2002) and effectively reach millions of people in the poorest households currently not receiving, even indirectly, any form of social assistance. The grant "has the potential, more than any other possible social protection intervention, to reduce poverty and promote human development and sustainable livelihoods", Taylor (2002).

Nevertheless Basic income grant financing is a key question. In the case of Côte d'Ivoire, government deficit and direct tax financing are not sustainable options in the long-term, and the required changes in indirect tax rates are substantially higher than currently predicted. Furthermore, a reduction in government current expenditure to finance the BIG will undoubtedly undermine other government policy objectives. Moreover, in the context of trade liberalization, import and export taxes cannot be increased. Therefore a value added tax (VAT) financing approach provides the only reasonable scenario.

It is recognise in the literature that the overall economic impact of the BIG is transmitted through three main mechanisms (Samson *et al*, 2002). These include an increase in:
(i)   factor productivity resulting from an improvement in health, education and social stability;
(ii) labor supply as people would able to spend more time in search of employment and be able to finance their own entrepreneurial activities, and an increase in labor demand resulting from the increase in productivity; and finally
(iii) economic growth through an increase in aggregate demand, and through a compositional shift in income away from households with import- and capital-intensive spending patterns.

Although the BIG is an individual allocation it is installed by a macroeconomic decision from government. The general framework in the various studies on microeconomic impact of macroeconomic policies is the CGE model with several representative household categories. The model is used to simulate the modification in the mean income of each homogeneous household category following a change in consumption prices (see Aka, 2006).

To take into account the heterogeneity among households the only alternative is to model each household individually relaxing the representative agent hypothesis. In the micro simulation CGE method Cockburn (2001) shows that this implies the construction of a model, which includes as much categories as in the household survey. Here we use a microsimulated CGE model to investigate the impacts of the BIG in Côte d'Ivoire.

In the following, section 2 of the paper presents a reference to economic literature related with economic development in Côte d'Ivoire. Section 3 presents the methodology and the data used in this study while section 4 presents the statistical results and policy experiments, and section 5 gives a brief conclusion. Finally an Appendix includes data.

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2. Economic Development and poverty in Cote d´Ivoire and Western Africa

This section presents a comparison of Côte d´Ivoire with other six Western African countries: Benin, Burkina Faso, Mali, Niger, Senegal and Togo. Some interesting features of the seven countries of this study are included in the Appendix. Here we present a short summary.

Table 1: General view of Imports - West African countries from EU

Import (Trade value in 1000 USD)							
Year	BEN	BFA	CIV	MLI	NER	SEN	TGO
1995	-	225218	1251445	-	139160	-	268944
2000	273586	291879	1055887	265825	98428	748935	161601
2005	345855	386942	2429537	329480	182374	1538793	249522
2010	813854	618320	1978111	1129597	578643	2086761	395019
2014	1030617	783043	3034965	-	510841	2918611	-

BEN: BENIN, BFA: BURKINA-FASO, CIV: COTE D'IVOIRE, GNB: GUINEA-BISAU, MLI: MALI, NER: NIGER, SEN: SENEGAL, TGO: TOGO. Source: WITS

Table 2: General view of Exports - West African countries to EU

Export (Trade value in 1000 USD)							
Year	BEN	BFA	CIV	MLI	NER	SEN	TGO
1995	-	26171	2076337	-	659	-	56832
2000	34503	71778	1662919	32414	73013	322040	40677
2005	27726	45415	3065070	62231	122308	347233	35559
2010	22485	117348	4023239	163607	77084	298281	16563
2014	49659	224528	4536878	-	407865	469135	-

Source: WITS

Tables 1 and 2 show that generally Exports values is below the Imports value, leading to current account deficits. Therefore it is interesting to analyse the trade evolution and to increase the capacity to export.

In that line the empirical relationships between exports growth and economic performance for western Africa countries is examine by Aka (2008) using a non-linear Markov Switching VAR model. He finds causality from exports to GDP and vice versa in Benin, while causality is found only from GDP to exports in Senegal and Togo supporting the growth-driven exports (GDE) point of view, and from exports to GDP in Niger supporting the export-led growth (ELG) hypothesis. He finds bi-directional regime-dependent causality between exports and GDP in Burkina Faso, Côte d'Ivoire and Mali where both hypotheses hold implying a virtuous circle of growth and exports.

Accordingly to table A3, in the Annex, Povety headcount ratio of Côte d´Ivoire had a value of 33.6% in 1998, 48,9% in 2008 and 46.3% in 2015, while other Western African countries have also high values of this index (36.2% in Benin, year 2011, 46.7% in Burkina-Faso, year 2009, 69.3% in Guinea-Bisau, year 2010, 43.6% in Mali, year 2009, 48.9% in Niger, year2011, 46.7% in Senegal, year 2010 and 58.7% in Togo, year 2011.

The Gini index, in table A4 of the Annex, shows that in Côte d´Ivoire inequality evolved from 45.53% in year 1985 to 40.56% in year 1995, and 43.18% in year 2008. There was a slight decrease. Other countries of Western Africa have very alike values for the period 2008-2011 (in year 2011: Benin 43.44%, Senegal 40.28% and Togo 46.02%). These values are expected to decrease with economic development, when more groups of citizens reach income per capita close to country average.

Accordingly to the study by Guisan (2014) the low levels of manufacturing production and investment per head of many African countries is the main cause of poverty. In that

study are selected several important indicators of economic development in African areas. In tables 3 and 4 we include some selected data from that study.

Table 3 presents the evolution of real value-added of manufacturing per head (QMH), real GDP per head (GDPH), real investment per head (IH) and real savings per head (SH) for the years 2000-2010. Countries belonging to each area are listed in Guisan and Exposito (2002). North Western Africa includes, among other countries: Benin, Côte d´Ivoire, Senegal and Togo. Sahel-Central Africa includes, among other countries: Burkina-Faso, Mali and Niger. Both areas show, generally, values of these important indicators below African average and very far from World average. Table 4 shows the values of IH and SH in the seven countries of this study in comparison with African average.

Table 3. Industry, Investment and real GDP per capita in African areas, 2000-2010 (Dollar at 2005 prices and PPPs)

Area	QMH 2000	QMH 2010	GDPH 2000	GDPH 2010	IH 2000	IH 2010	SH 2000	SH 2010
1. Northern Africa	659	752	4412	5851	1012	1657	1684	1427
2. North West Africa	**94**	**144**	**1359**	**1894**	**80**	**412**	**733**	**567**
3.Sahel-Central Africa	**87**	**86**	**729**	**878**	**118**	**170**	**159**	**120**
4. North East Africa	33	38	534	907	108	193	190	146
5. Eastern Africa	100	124	965	1246	168	293	280	213
6. Southern Africa	645	529	3924	4859	659	931	973	810
Africa	278	282	2080	2638	413	620	733	578
Asia-Pacific	903	1443	4004	6333	1093	2115	2625	2315
America	3312	3052	19865	21908	3977	3811	3471	3094
Europe and Eurasia	3220	3191	17408	20828	3722	4151	4310	4195
World	1494	1728	7905	9852	1788	2403	2746	2422

Source: Guisan, M.C. (2014). Values, in USD, at 2005 Prices and Purchasing Power Parities (PPPs)

Table 4. Investment and Savings in six Countries of Africa, year 2010(USD at 2005 PPPs)

Country	IH 2010	SH 2010	IH-HS 2010
Benin	367	103	264
Burkina Faso	211	93	117
Cote d´Ivoire	236	200	36
Mali	184	94	90
Niger	115	30	85
Togo	167	9	158
Average of Africa	620	578	42

Source: Guisan (2014) from World Bank Statistics.

The group of countries of table 4 has levels of investment and savings per head below African average, due to their lows levels of GDP per head. Fostering industrial production, and the educational level of population are two important ways to foster economic development and increase the capacity of these countries for savings and investment and International cooperation is also important in this regard.

The empirical saving-investment relationships has by investigated by Aka (2007 b) for Côte d'Ivoire and Ghana over the period 1960–1998. Using a Markov Switching VAR model he finds regime-dependent causality from saving to investment in Côte d'Ivoire but not in Ghana. In terms of Feldstein and Horioka (1980) capital mobility hypothesis these findings

suggest a more capital mobility in Ghana than in Côte d'Ivoire implying that foreign capital flows towards Côte d'Ivoire and not to Ghana during the studied period.

Table 5, presents some data selected from table A7, in the Appendix, in order to see the evolution of Foreign Direct Investment. Althouth there has been an increase in many countries, the amount of FDI is usually low, and it should be desirable to increase it in order to reach at least the level of the African average for investment per head.

Table 5: General view of FDI inflows to West African countries (% of GDP)

Foreign direct investment, net inflows (% of GDP)							
Year	BEN	BFA	CIV	GNB	MLI	NER	SEN	TGO
1995	0.61	0.41	1.92	0.02	4.12	0.38	0.65	2.00
2000	2.33	0.88	2.19	0.19	3.10	0.47	1.34	3.24
2005	-0.18	0.59	2.04	1.48	2.92	1.46	1.93	4.54
2010	0.77	0.43	1.44	3.10	4.01	13.92	2.06	3.94
2014	3.94	2.73	1.35	2.10	1.65	9.41	2.19	6.46

Source: World Development Indicators (2015)

Investment is important for growth, and importantly the share of private investment in total investment is crucial to enhance growth. Investigating the impact of public and private investment on Côte d'Ivoire's economic performance (GDP growth) over the period 1969-2001, Aka (2007 a) shows that in the short run an increase in private investment by 100% enhances economic growth by 28%, while 100% increase in public investment lead to only 7% increase in real GDP. In the long run nevertheless the impact of public investment on GDP growth has been higher than private investment, 100% increase in private investment lead to 25% increase in GDP, while public investment impacts growth by 37%. On the other hand, 100% increase in employment lead to 38% increase in long run GDP growth. The main findings indicate that while the short run efficiency of public capital can be further improved in Côte d'Ivoire, in the same time the efficiency of private investment can be improved in the long run.

While pro-poor expenditure exist in various sectors across African countries, poverty is not diminishing sharply. Guisan and Exposito (2002 and 2007) analyse the evolution of education, health expenditure and economic development in 39 African countries for the period 2000-2005, they shows that the low levels of health expenditure in many Africa countries are far from evolving to the necessary speed to meet the social demand. They find that the main causes of this bad situation are the low levels of economic development and the low levels of international cooperation to increase average years of schooling of population. They estimate a cross-section model which shows the important positive effect of the educational level of population on economic development and the highly positive effect of economic development on health expenditure in those countries. Their main conclusion is that international cooperation addressed to improve health expenditure in Africa should devote a particular attention to human capital and help to increase the average years of schooling of adult population in the poorest countries.

To diminish poverty, besides a policy addressed to increase international cooperation for investment and production per head, there are also other interesting measures, like the Basic Income Grant (BIG) that we analyse here.

3. Methodology and Data

We succinctly present here the characteristics of the CGE model and the procedure to implement micro simulation. The CGE[5] model will be calibrated using a disaggregated SAM

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[5] Inspired by Decaluwé et al. (1999), and based on Aka (2006).

for Côte d'Ivoire including several accounts. The SAM includes 4 factors of production: skilled and unskilled labour, capital and land.

Production

A Leontief type function, combining value added and intermediate consumption determine production. Value added is differently obtained according to sectors. In vegetal production branches (food agriculture and export agriculture), it is obtained by a combination, using a CES function, of land and a composite factor capital-labor. The composite factor is from the combination of labour and capital using a CES technology. In other branches the value added results from the combination of labour and capital using a CES function.

Income, saving and taxes

Households' income derives from the remuneration of production factors (capital, labour and land), transfers from government, rest of the world and firms. Disposal income after direct taxes paid to government and transfer to the rest of the world is used to buy goods and services to satisfy consumption needs. Households' saving is supposed to be the disposal income's residual after consumption. Firms gains revenue from the remuneration of capital, aids from the government and the rest of the world. Government revenue is collected from fiscal receipts through tax on production; tax on imports and exports and from the return on capital. Public saving is the difference between government revenue and its consumption.

Prices

We suppose that Côte d'Ivoire is a small open economy so that the country has no influence on international import and export prices, which are thus exogenous. Consumption price help to guarantee equilibrium between supply and demand. It's a function of domestic prices including taxes and the import prices plus import taxes. Investment price is a geometric mean of composite goods prices.

Demand

Aggregate demand for each tradable sector is composed of households' consumption expenditure, intermediate consumptions and investment expenditures. The structure of households' final consumption is derived from the maximisation of a LES function subject to budget constraint.

International Trade

The model of external trade is based on Armington (1969) hypothesis for a small economy with a constant elasticity of substitution between imports and domestic goods. From the supply side producers proceed to an optimal distribution of their production between sales on domestic market and export according to a constant elasticity of transformation function.

Equilibrium and Closure of the Model

Equilibrium is defined by equality between supply and demand of goods and factors on all markets. Tax reforms are often analysed in "revenue neutral" terms so as to ensure that the results are not driven by the induced changes in the level and composition of investment if the experiment produces changes in government saving. Total saving is equal to total investment. Total investment is supposed exogenous and public saving is fix, thus the equilibrium between investment and saving is obtained by adjustment of private saving. Moreover the current account balance is supposed fix so that equilibrium on exports and imports market is realised through adjustment of real exchange rate.

In fact as we assume in the model that public investment, government savings and foreign savings are fixed. Following tax reform, government revenue decreases (increases), resulting in the decrease (increase) of government savings as public investment is fixed. For the equilibrium between total investment and total savings to be realized, private investment must decrease (increase) and there will then be less (more) supply than demand (excess demand, or excess supply). It follows that the consumer price index (CPI) will

increase (decreases). For example in case of a decrease in the CPI the real income of households will increase and thus poverty will decrease in the population.

Introducing micro simulation

In a first step we use income and expenditure vectors constructed from the household survey data. In the SAM the consumption goods have to correspond to categories in the ENV98 survey, same for income and expenditure in the SAM and in the survey.

When coherence is made between the two databases we increase the number of household categories in the CGE model up to the number of households in the survey (4,200) and we introduce income, expenditure and individual savings. Income and expenditures are multiplied by their weight in the sample before including in the model. Moreover labour is segmented between skilled and unskilled in order to analyse labour market.

Income distribution indexes

Prior to the study of poverty and inequality is the definition of welfare, or standard of living. The living standard for an individual is measured as his level of utility, obtained by maximization of his utility function for a given income and a price system. Given the difficulties for income measurement, surveys in Côte d'Ivoire rely on consumption criteria and expenditure per capita is therefore retained as welfare indicator.

The use of per capita consumption allows identifying several poverty lines in Côte d'Ivoire. The DSA survey (1993) has estimated the poverty line at CFAF 248,300 and 70% of the population lived below this line. In 1995, poverty line is CFAF144,000 and 36.8% of the population was below this relative poverty line. This approach arbitrarily determines the poverty line. A concept using the basic needs has been proposed by Sen (1976, 1981, 1985, 1987), but the utilitarian view is still the main basic approach in welfare analysis.

Measuring welfare

To measure social welfare, various indexes are used in the literature, Atkinson, S-Gini, Theil, but one of the most used is the Atkinson index (1987)[6]

But in CGE model equivalent variation (EV) and compensatory variation (CV) are also often used to measure social welfare, by comparing the utility of households at price and income in a reference situation to the utility in the new situation (see Varian 1992, Decaluwé et al. 2001). In fact it is shown (Willig, 1976; Weber, 2003) that the difference between the two measures is small if the change in welfare is due to a price change of a market commodity, but can be arbitrarily large, when the welfare change is induced by change of a non-market public good, depending on the degree of substitutability between the public good and other market commodities (Randall and Stoll, 1980; Hanemann, 1991).

The equivalent and compensating variation are the welfare measures in standard demand theory (Hicks, 1939) that directly correspond to willingness to accept (WTA) and willingness to pay (WTP) (Hanemann, 1991). In this study we use Equivalent variation (EV)[i].

Measuring inequality

Several indexes exist in the literature to measure inequality (Atkinson, S-Gini, Generalized Entropy) but one of the most used is the Gini index, which is the ratio of the difference between perfect equality line and the Lorenz curve [see Sen 1997, for presentation][ii]

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[6] Defined by: $W = \int_0^1 U(Q(p)) \;\; \omega(p;\rho)\,dp$

where $\omega(p;\rho)$ is the density of poor, and $U(Q(p))$ is the living standards utility function $Q(p)$ The social welfare function is then the expected utility for the poorest individual in a sample of ρ individual, $1<\rho<2$. In this index, the parameter ρ indicates the weight given to the gap from the mean of living standards. It is an ethic parameter indicating aversion to inequality.

Measuring poverty

The determination of poverty line is controversial when studying income distribution, because of its important political implications, Sen (1976, 1981), Ravallion (1996). Two approaches are frequently used to determine the poverty line. The first uses the notion of living standard Equivalent Distributed Equally (EDE), while the second combines the living standard and poverty line in a poverty gap. In this study we use the poverty line constructed for Côte d'Ivoire (see Aka 2006) based on the constant basic needs (CBN) approach by Ravallion and Bidani (1994). Using the ENV98 survey, we choose a basket of 20 goods from the survey among the 37 items available. With the calories content of these goods (daily needs fixed at 2,400 calories) and their respective prices (from INS, 2001), we evaluated the food poverty line in Côte d'Ivoire at CFAF292,030.04 per year (US$1.23 per day). Next, taking into account regional price index (RPI) for the five strata of the ENV98 survey, this poverty line has been evaluated to CFAF288,816.58 per year (US$1.21 per day), which is used in the study. As we use weights in the survey to compute the poverty line, the poverty line is thus measured per adult equivalent.

When the poverty line has been determined, several indexes help to characterize poverty (FGT index, Watts's (1968) index, and Clark, Hemming and Ulph (1981) (CHU) index). The FGT (Foster, Greer, Thorbecke, 1984) is used in this study, as it is a more general index[iii].

Estimating areas income distribution

To better capture the transmission mechanism of chocks on areas, we will classify regions first according to the strata of the survey and second we will suppose that factors are mobile between strata then according to Cities of the survey. A classification based on the new ten regions in the country is also possible. Theses classifications will help to study poverty and inequality impacts at a much disaggregated level.

The data

The empirical base of our CGE model is the Social Accounting Matrix (SAM) built from the 1997's input – output table by Aka (2006). The first version of this SAM included 44 production sectors, two production factors (labour and capital), 12 institutional agents including 9 categories of households, to which are added the government, firms and the rest of the world. Aggregating the production sectors, which were brought to 16 sectors, modified the initial version. In addition to this modification, the last version used in this study includes four factors of production instead of two. Land, which constitutes a significant factor, was introduced into the agricultural sectors; and labour is disaggregated in skilled and unskilled labour. Moreover, modifications are introduced to the value added distribution between the production factors to correct the capital intensive over-estimates such as they appear in the national accounts. This effort is justified by the fact that the impact of the economic policies can be strongly dependent on the sources of income of the households and factor income of production in their possession.

We use also the data from the household survey. The ENV98 survey conducted in 1998 for Côte d'Ivoire includes 4,200 households and 25,594 individuals organised in 5 strata (Abidjan, Other cities, Forest east, Forest west, Savannah). This survey is the most relevant to Côte d'Ivoire before the political crisis (Aka and Diallo, 2011).

4. Statistical Results and Experiments

First we try to determine the amount of the BIG departing from the poverty line. Taking the poverty line as US$1.23 per day will lead to an amount of CFAF22,448 per month[7] (CFAF269,376 per year).

Taking a total population of 21 million in Côte d'Ivoire in 2007, giving this minimum to all population will lead to CFAF5,656,896 million representing 58% of year 2007 GDP. Indeed this is not possible. For example in France the computed BIG in 2014 represents 15% of GDP (Bresson, 2014).

With nearly 50% of poverty incidence in 1998, giving this amount even to half of population will lead to CFAF2,828,448 million representing 29% of GDP, which appears again not possible. We therefore simulate the amount compatible with the possibilities of the country's finances.

Adopting a VAT financing approach, the 2007 national accounts indicate that final consumption is CFAF8,294.779 million and the VAT is CFAF371,573 million. Thus the VAT represents 4.5% of final consumption.

To get a total BIG representing 10% of GDP, the monthly amount per person should be CFAF7,738 but this implies increasing the VAT by 12%.

With an individual amount of CFAF1,650 the total BIG will represent 4.3% of GDP, which is almost half of the share of year 2015 pro-poor spending in the Ivorian Government budget and represent 9.1% of GDP. Adopting the amount of CFAF1,650 and increasing the VAT with the total amount of the grant leads to new VAT of CFAF787,373 million representing 9.5% of final consumption.

Therefore to get the require amount of the grant, the VAT should be increased by 5% from 4.5%. Increasing the VAT to the current normal rate of 18% gives a potential increase of 13.5%, but this seems again impossible. Here we thus simulate the increase of VAT by 5%[8] far from the potential increase just to reach the required total amount of the total BIG.

Following the 5% increase in VAT reflecting the allocation on an unconditional basic income grant of CFAF1,650 to all the population, Government income increases while firms' income decreases. As expected, we observe from the simulation an increase in labour demand, in economic growth through an increase in aggregate demand (and final consumption expenditure). Wage rate and rate of return to capital decreases but rate of return to capital increases in food crop agricultural sector; forestry and fishing and livestock sectors.

The microeconomic results indicate that poverty decreases from 38.7% to 30% following the BIG (Table 1). These reductions are also reflected at the disaggregated strata level. In effect poverty decreases in the five regions from Abidjan to Savannah.

At the much disaggregated level in the ten regions, poverty deceases by more than 6 points in all regions following the BIG instalment. The highest poverty incidence (Odienne) decreases sharply from 50.5% to 26.6% (Table 2).

Overall following the BIG simulation from the microsimulated CGE model, inequality decrease from 76.9% to 75.4% and welfare (Equivalent Variation) increases for the population.

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[7] National Institute of Statistics determines poverty line as FCFA22,417 per month, INS, ENV2015.
[8] Using year 2012 national account data, this percentage increase corresponds to an individual basic income grant amount of CFAF2,000 for a population of 23 million, representing 4% of GDP.

Table 1: Poverty in five strata

P0	Indexes	Base year	After BIG Simulation
	1-Abidjan	.3003	.2665
	2-Other_cities	.3642	.2697
	3-Forest West	.3778	.2902
	4-Forest East	.4594	.3420
	5-Savannah	.4157	.3341
	All	.3874	.3002
P1	1-Abidjan	.0913	.1099
	2-Other_cities	.1250	.1148
	3-Forest West	.1480	.1139
	4-Forest East	.1653	.1522
	5-Savannah	.1741	.1463
	All	.1445	.1273
P2	1-Abidjan	.0366	.0598
	2-Other_cities	.0570	.0626
	3-Forest West	.0728	.0568
	4-Forest East	.0782	.0879
	5-Savannah	.0910	.0841
	All	.0698	.0701

Source: Authors' calculations[9]

Table 2: Poverty in ten regions

	Indexes	Base year	After BIG Simulation
P0	1- ABIDJAN	.3650	.3030
	2- DALOA	.3690	.3073
	3- KORHOGO	.3717	.3020
	4- BOUAKE	.3622	.3016
	5- ABENGOUROU	.4791	.3690
	6- MAN	.4430	.3140
	7- YAMOUSSOKRO	.3867	.2670
	8- BONDOUKOU	.4989	.3989
	9- SAN-PEDRO	.3395	.3080
	10- ODIENNE	.5057	.2662
P1	1- ABIDJAN	.1221	.1347
	2- DALOA	.1385	.1217
	3- KORHOGO	.1482	.1454
	4- BOUAKE	.1331	.1273
	5- ABENGOUROU	.1793	.1407
	6- MAN	.1850	.1413
	7- YAMOUSSOKRO	.1484	.1092
	8- BONDOUKOU	.1779	.1678

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[9] P_0: proportion of poor person whose expenditure level is under the poverty line, and it measures the incidence of poverty.

P_1: the poverty gap, depth or intensity of poverty i.e. the mean of the gap between poor people's living standard and the poverty line.

P_2: the poverty severity index, which is sensitive to the distribution of living standard among the poor.

	9- SAN-PEDRO	.1008	.1141
	10- ODIENNE	.2232	.1095
P2	1- ABIDJAN	.0548	.0782
	2- DALOA	.0660	.0615
	3- KORHOGO	.0722	.0860
	4- BOUAKE	.0635	.0701
	5- ABENGOUROU	.0915	.0686
	6- MAN	.0950	.0779
	7- YAMOUSSOKRO	.0716	.0615
	8- BONDOUKOU	.0832	.0938
	9- SAN-PEDRO	.0441	.0560
	10- ODIENNE	.1249	.0604
GINI		.7690	.7540
EV		.0000	1.986

Source: Authors' calculations

5. Conclusion

This paper has raised the urgent need to engage the debates around the proposition of a Basic income grant (BIG) in Côte d'Ivoire and in African countries. Although a BIG would not be a panacea for all the shortcomings of the current social security system, it has a crucial role to play as a core component of a comprehensive social protection system.

The simulated amount (CFAF 1,650) seems very small but in the hand of a poor person in Côte d'Ivoire it could produce great utility.

This policy will be equivalent in the case of Côte d'Ivoire to use the half part of the pro-poor budget for the Basic income grant. The BIG would be particularly effective firstly in alleviating poverty and inequality and increasing welfare as shown by the simulations, and secondly to ultimately eliminate poverty. It represents a powerful way of transforming fundamentally the Ivorian society and the hope for a transition to a more equal rights and a welfare state in Côte d'Ivoire.

The BIG could represent the building block of a new way of living together in Côte d'Ivoire, only the political will is required.

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Appendix: General view of economic data - West African countries – European Union

Table A1: General view of Imports West African countries from EU

Year	BEN	BFA	CIV	MLI	NER	SEN	TGO
Import (Trade value in 1000 USD)							
1995	-	225218,496	1251445,65	-	139160,708	-	268944,663
1996	-	273801,926	1255374,48	316325,248	160050,501	947607,556	318401,431
1997	-	338660,002	1425580,81	251664,958	146270,183	838140,641	296483,685
1998	388610,774	369391,974	1628069,7	325139,993	185191,537	905200,166	386006,217
1999	367419,369	331145,3	1492861,59	345539,706	137120,021	893800,222	268688,25
2000	273586,656	291879,261	1055887,7	265825,618	98428,432	748935,925	161601,898
2001	268929,753	212108,161	1137556,68	364339,721	110910,619	901162,072	156649,367
2002	321897,354	229734,172	1158013,66	314509,458	122979,691	848020,819	177415,369
2003	399040,136	297122,591	1723804,41	406254,228	154999,805	1133679,79	289875,546
2004	385186,799	365415,651	2304327,02	421922,306	174145,792	1286445,66	238454,459
2005	345855,648	386942,206	2429537,49	329480,892	182374,045	1538793,66	249522,789
2006	367120,778	-	2326330,07	465591,414	230726,774	1901432,06	-
2007	573772,506	467183,568	2412482,82	548910,444	342555,772	2271652,1	341025,069
2008	620954,289	566114,199	2169279,3	870746,562	378658,875	2600179,39	409228,874
2009	623830,163	612497,494	2045140,4	-	441787,34	2067017,14	421742,417
2010	813854,618	618320,445	1978111,6	1129597,46	578643,232	2086761,32	395019,937
2011	856763,506	796214,124	1754507,68	683107,834	660857,098	2444079,33	441493,751
2012	861147,785	-	2617512,63	680719,944	398720,191	2446890,48	561696,325
2013	903399,479	1468769,16	2808363,2	-	331569,369	2862160,65	656162,723
2014	1030617,85	783043,287	3034965,28	-	510841,299	2918611,94	-

BEN: BENIN, BFA: BURKINA-FASO, CIV: COTE D'IVOIRE, GNB: GUINEA-BISAU, MLI: MALI,
NER: NIGER, SEN: SENEGAL, TGO: TOGO.

Source: WITS

Table A2: General view of Exports - West African countries to EU

Year	BEN	BFA	CIV	MLI	NER	SEN	TGO
Export (Trade value in 1000 USD)
1995	-	26171,717	2076337,82	-	659,761	-	56832,339
1996	-	17437,89	2174633,25	50768,412	148,351	61271,235	48400,294
1997	-	68807,584	2303165,51	7231,883	26358,385	46086,014	61461,379
1998	48261,183	86161,673	2329705,05	1793,347	12409,807	104901,345	38931,493
1999	34869,841	80474,167	2040874,29	25429,512	77033,062	99019,358	51938,72
2000	34503,538	71778,751	1662919,36	32414,614	73013,339	322040,511	40677,533
2001	33005,069	64816,588	1748960,35	92730,722	73252,805	330699,754	26615,331
2002	36019,707	94053,805	2566881,32	203164,505	69638,328	60069,349	28161,6
2003	30703,194	18020,736	2941982,72	143858,521	91748,383	344136,889	73878,535
2004	23548,789	36867,329	3395714,77	86352,111	108577,505	375287,692	51271,568
2005	27726,818	45415,151	3065070,83	62231,896	122308,03	347233,458	35559,985
2006	24303,049	-	4061374,06	61231,15	129859,218	230608,449	-
2007	32744,849	157664,151	4024090,34	84585,914	229764,878	397265,612	11189,367
2008	26463,833	97700,657	4696119,43	51443,147	286941,023	369120,339	20372,664
2009	21481,51	118590,802	4978821,34	-	317396,142	386504,766	14254,166
2010	22485,996	117348,154	4023239,14	163607,176	77084,16	298281,456	16563,559
2011	29437,989	191432,963	4155913,57	60294,071	494809,927	379646,651	24145,038
2012	24010,492	-	3853411,75	57194,718	556046,636	338004,89	122290,469
2013	29625,927	128897,551	4004791,12	-	555497,671	402435,018	35739,581
2014	49659,585	224528,535	4536878,67	-	407865,806	469135,921	-

Source: WITS

Table A3: General view of poverty and inequality in West African countries

Poverty headcount ratio at national poverty lines (% of population)							
Year	BEN	BFA	CIV	GNB	MLI	NER	SEN	TGO
1998	..	..	33,6	..				
2000	..	..	..	..	..	..	55,2	..
2001	..	..	..	..	55,6	..	..	..
2002	..	..	..	64,7	..	..	..	..
2003	..	51,1	..	..	..	..	..	..
2005	..	..	..	..	..	..	48,3	..
2006	37,2	..	..	..	47,5	..	..	61,7
2007	33,3	..	..	..	..	..	..	..
2008			48,9					
2009	35,2	46,7	..	..	43,6	..	..	..
2010	..	..	..	69,3	..	..	46,7	..
2011	36,2	..	..	..	..	48,9	..	58,7
2015	..	..	46,3	..	..	..	..	..

Source: World Development Indicators, 2015

GINI index (World Bank estimate)							
Year	BEN	BFA	CIV	GNB	MLI	NER	SEN	TGO
1985	..	..	45,53	..	..	..	..	..
1986	..	..	37,97	..	..	..	..	..
1987	..	..	40,51	..	..	..	..	..
1988	..	..	36,89	..	..	..	..	..
1991	..	..	..	..	..	..	54,14	..
1992	..	..	39,39	..	..	36,1	..	..
1993	..	..	39,35	43,61	..	..	..	..
1994	..	48,07	..	..	50,44	41,53	41,44	..
1995	..	..	40,56	..	..	..	..	..
1998	..	49,94	38,96	..	..	..	..	..
2001	..	..	..	..	39,87	..	41,23	..
2002	..	..	41,34	35,57	..	..	..	..
2003	38,58	43,25	..	..	..	..	..	..
2005	..	..	..	..	..	44,43	39,22	..
2006	..	..	..	..	38,93	..	..	42,21
2007	..	..	..	..	..	37,3	..	..
2008	..	..	43,18	..	..	..	..	..
2009	..	39,76	..	..	33,04	..	..	..
2010	..	..	..	50,66	..	..	..	..
2011	43,44	..	..	..	..	31,45	40,28	46,02

Table A4: General view of aid from European Union Institutions to West African countries

Net bilateral aid flows from DAC donors, European Union institutions (thousand current US$)							
Year	BEN	BFA	CIV	GNB	MLI	NER	SEN	TGO
1975	13600	17570	21380	2900	32450	31590	23610	10070
1976	11840	6320	25520	1130	8670	32860	17690	12290
1977	6140	14420	20460	7460	11970	17860	10710	6910
1978	11650	25210	6360	6660	15750	32720	47820	14130
1979	14250	20860	13230	10930	31270	29140	108520	17640
1980	13580	10570	11410	10620	41580	9270	24200	7630
1981	9110	19000	26180	6040	25160	11750	60390	7470
1982	6750	19530	29480	10540	18780	12930	39600	3190
1983	7820	15460	9990	4410	10870	13270	16200	16810
1984	6530	16980	9780	8880	29420	16120	20690	20370
1985	5110	13820	9310	6470	24720	27500	6010	9370
1986	10530	8700	42530	6130	20910	26960	64820	15350
1987	11790	15220	25680	11060	32960	18570	73850	3500
1988	28290	23720	206050	6920	22880	21990	64800	10020
1989	36640	14000	132640	10970	47140	15750	21180	7480
1990	44400	20200	136400	4500	42100	42200	23600	40400
1991	17230	34890	137490	7000	45180	52490	27200	13840
1992	36650	61190	122950	7530	71120	43450	39980	34540
1993	39200	82540	29370	4770	58170	49170	46290	4530
1994	10430	47020	134070	24830	52710	43810	69640	9430
1995	16610	73240	55380	12720	82470	40730	75180	15650
1996	26000	48850	104100	13660	59400	38660	42130	8720
1997	31970	64700	41370	25850	51440	40460	44960	4760
1998	29680	65260	42370	9110	35510	46010	95720	5070
1999	25310	53270	8070	16250	23150	19220	56950	3300
2000	2810	41570	2960	17360	9560	13310	41550	3090
2001	43410	31250	71770	17950	28790	38920	27450	4410
2002	27850	68720	4990	22270	51830	38880	54860	3650
2003	51000	84110	6450	19790	107920	57310	37850	4570
2004	88680	87650	22690	14120	116800	88590	58910	5250
2005	37830	101160	20750	16260	130450	78460	32770	8160
2006	35120	133680	76540	33250	126660	87190	33710	10370
2007	81830	201600	69850	44930	178660	114710	95250	31070
2008	127620	148560	145520	48370	149340	152890	141190	39020
2009	146640	165430	71850	60120	101720	64440	134450	46360
2010	122750	164110	66930	16570	98520	150790	84050	48920
2011	63130	143740	99080	20580	140420	135710	109770	45770
2012	79090	157890	169500	14740	85710	223840	98140	27500
2013	78950	199260	138060	18750	296720	182510	63600	34100

Source: World Development Indicators, 2015

Table A5: General view of ODA received by West African countries

| Net official development assistance received (thousand constant 2012 US$) | | | | | | | |
Year	BEN	BFA	CIV	GNB	MLI	NER	SEN	TGO
1975	208	334	374	79	551	524	525	157
1976	193	291	412	89	322	486	441	166
1977	167	377	364	133	376	334	411	214
1978	185	460	380	148	459	463	645	293
1979	229	510	407	137	492	447	816	285
1980	213	490	475	134	644	387	609	212
1981	212	544	321	160	587	490	1016	159
1982	214	555	378	169	553	671	759	199
1983	233	483	438	174	582	470	862	299
1984	216	500	371	160	931	444	983	310
1985	270	499	347	158	1054	779	789	303
1986	296	599	390	154	838	675	1285	369
1987	248	504	449	211	687	672	1260	222
1988	278	518	768	180	783	657	1065	358
1989	487	486	725	216	822	543	1270	350
1990	420	510	1061	201	768	609	1268	398
1991	412	654	967	175	705	571	963	302
1992	430	628	1078	155	636	513	947	315
1993	422	706	1117	143	568	502	736	139
1994	361	631	2291	269	646	526	901	176
1995	359	638	1564	154	700	357	832	247
1996	378	557	1274	247	652	334	767	198
1997	321	547	645	182	626	487	617	176
1998	298	595	1459	142	516	431	737	187
1999	309	599	662	79	533	280	800	102
2000	397	322	568	137	466	335	689	110
2001	454	673	326	104	580	429	703	75
2002	342	697	1714	94	660	468	685	79
2003	394	726	331	200	749	640	609	66
2004	474	779	191	91	722	659	1286	79
2005	412	825	107	77	860	621	822	97
2006	460	1041	281	98	1001	627	994	91
2007	497	999	182	125	1068	579	917	126
2008	634	989	626	128	968	605	1061	319
2009	688	1109	2392	145	1025	479	1038	528
2010	705	1093	869	128	1124	765	952	410
2011	673	959	1379	114	1249	627	1026	518
2012	511	1159	2636	79	1001	902	1080	241
2013	648	1021	1241	103	1369	764	973	222

Source: World Development Indicators, 2015