

FEASIBLE UTOPIA: CUTTING POVERTY RATE IN HALF USING BASIC INCOME GRANTS IN REGIONS AND CITIES OF COTE D'IVOIREAKA, François Bedia

Abstract. Despite the good economic environment and growth performance of African countries, their poverty and inequality rate still high. How to cut poverty rate in half in a short term perspective is investigated here. A universal basic income grant (BIG) has been found as a tool to reach this objective and we simulate the distributional impact of a BIG in Cote d'Ivoire. How the BIG is financed is also investigated. We analyze the effects of a universal basic income grant on households. The simulations are performed using the Côte d'Ivoire's 1998 household survey data composed of 4,200 households. The results suggest that the unconditional basic income grant appears as a powerful tool to reduce drastically the overall as well as disaggregated level of poverty incidence, depth and severity, and also inequality, and increase welfare.

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

Keywords: Basic income grant, BIG, Fiscal policy; Poverty; Inequality; Welfare; Simulated, Cote d'Ivoire

1. Introduction

In Aka and Guisan(2017) we analyze the positive effects that Basic Income Grant would have, on cutting poverty rates, in Côte d'Ivoire and other Western African countries as well as the financial sources. Here we analyze this questions for regions and cities of Côte d'Ivoire.

In the case of Cote 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 free trade agreements and trade liberalization, import and export taxes cannot be increased as barriers to trade must fall. Therefore alternative as a value added tax (VAT) financing approach could provide the only reasonable scenario (Aka, 2016), but other alternatives exist.

In the following, section 2 of the paper presents the methodology and the data used in this study while section 3 presents the statistical results and policy experiments, and section 4 gives a brief conclusion. Finally an Appendix includes data.

2. Methodology, Areas and data

We present here the procedure to implement simulations on the micro impacts of different level of BIG, and the households' survey data used.

In a first step we use expenditure vectors constructed from the household survey data (ENV98 survey). We simulate the impact of the BIG on the income expenditure vector and then derive the distributional indexes.

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 inequality and welfare

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]¹.

Inequalities have important implications for welfare. To measure social welfare, various indexes are used in the literature including Atkinson, S-Gini, Theil, but one of the most used is the Atkinson (1987) index¹, which is used in this study. In fact, if the value of Atkinson's measure increases, it indicates a larger decrease in social welfare (decadence) due to inequality in the distribution. But If the value of Atkinson's measure decreases, it indicates a larger increase in social welfare due to equality in the distribution.

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.

¹ 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 p indicates the weight given to the gap from the mean of living standards. It is an ethic parameter indicating aversion to inequality.

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 index².

Estimating areas income distribution

To better capture the impact of the simulations 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. These classifications will help to study poverty and inequality impacts at a much disaggregated level.

The data

We use the data from the ENV98 household survey conducted in 1998 for Côte d'Ivoire which 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 period (Aka, 2016).

3. 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 month³ (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 2008 (Table A3), giving this amount even to half of population will lead to CFAF2,828,448 million representing 29% of

² Given y_i , the income for individuals of a population, the FGT index is: $P(z; \alpha) = \int_0^1 g(p, z)^\alpha dp$; where $\alpha \geq 0$ (see Ravallion 1996). When $\alpha=0$, the FGT index

indicates the proportion P_0 of poor person whose expenditure level is under the poverty line, and it measures the incidence of poverty. When $\alpha=1$, the index indicates the poverty gap index also known as depth or intensity of poverty i.e. the mean of the gap between poor people's living standard and the poverty line. When $\alpha=2$ the index is the poverty severity index, which is sensitive to the distribution of living standard among the poor.

The FGT indexes are decomposable, and this help looking at the contributions of different groups of households to global poverty. The contribution of each socio economic group to global poverty is given by: $C_j = K_j P_{x_j} / P_\alpha$; where P_{x_j} is the poverty index for group j , K_j the proportion of the population in group j . The Atkinson and the Generalized Entropy inequality index are also decomposable in within group and between group inequalities. In effect, the knowledge of groups' contributions in total index could be useful for formulating more precise economic policy towards most vulnerable groups.

³ National Institute of Statistics determines poverty line as FCFA22,417 per month, INS, ENV2015.

GDP, which appears again not possible. Therefore, it is necessary to simulate the amount compatible with the possibilities of the country's public finances.

It has been shown (Aka, 2016) that 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. 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.

But it is worth nothing that in the case of CIV the amount of pro-poor spending is already included in the government budget and represents 9.1% of 2015 GDP. This amount is increasing and represents almost 10% of GDP in 2016.

Here we thus simulate the increase of VAT by 5%⁴ far from the potential increase just to reach the required total amount of the total BIG, combined with the use of the half part of the pro-poor spending in the year 2015 budget (representing Simulation 1). This combination is financially equivalent to use the total amount of 2015 pro-poor spending (10% of GDP, computed as 14% of GDP in France, Bresson, 2014) for individual BIG allocation around CFAF7,500 (about US\$15 USD) per month.

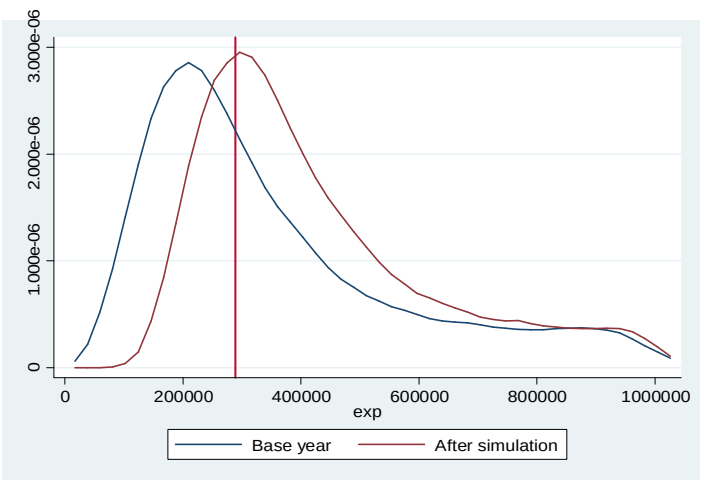
Next in an attempt to reach the objective of a poverty rate reduction by half we simulate an individual grant of CFAF10,000 (about US\$20 USD) per month (representing simulation 2), almost the same amount as the Brazilian *Bolsa Familia* cash transfer.

Following the allocation of an unconditional basic income grant of CFAF7,500 per month to all the population (simulation 1), the overall poverty decreases by **35%** from 38.7% to 25.18% (Table 1 and Graph 1). From simulation 2, poverty decreases by **39%** from 38.7% to 23% (Table 1 and Graph 2).

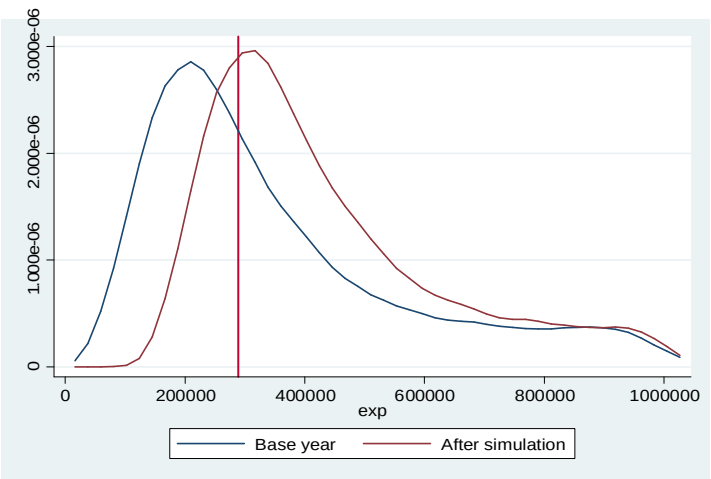
The vertical bar on the graphs indicates the poverty line. As the surface between the curves and the left hand side of the poverty line bar represents the proportion of poor population, the shift of the curves to the right hand side indicates reduction in poverty.

⁴ 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.

Graph 1: Density curves (Sim 1)



Graph 1: Density curves (Sim 2)



This poverty reduction is also observed at the disaggregated level (Table 1). In effect, from simulation 1, poverty rate decreases in Abidjan by 54% and by 58% from simulation 2. In all the five strata, poverty incidence decreases substantially, while the depth and severity of poverty drop by more than half from base year situation.

Table 1: Poverty in the five strata

	Indexes	Base year	After BIG Simulation 1	Variation sim 1 (%)	After BIG Simulation 2	Variation sim 2 (%)
P0	1-Abidjan	.3003	.1381	-54	.1252	-58
	2-Other_cities	.3642	.1954	-46	.1737	-52
	3-Forest West	.3778	.2587	-32	.2495	-34
	4-Forest East	.4594	.3203	-30	.3089	-33
	5-Savannah	.4157	.3184	-23	.2944	-29
	All	.3874	.2518	-35	.2346	-39
P1	1-Abidjan	.0913	.0207	-77	.0160	-82
	2-Other_cities	.1250	.0382	-69	.0321	-74
	3-Forest West	.1480	.0597	-60	.0520	-65
	4-Forest East	.1653	.0758	-54	.0677	-59
	5-Savannah	.1741	.0801	-54	.0715	-59
	All	.1445	.0569	-61	.0497	-66
P2	1-Abidjan	.0366	.0042	-88	.0030	-92
	2-Other_cities	.0570	.0107	-81	.0083	-85
	3-Forest West	.0728	.0178	-75	.0144	-80
	4-Forest East	.0782	.0237	-70	.0200	-74
	5-Savannah	.0910	.0278	-69	.0235	-74
	All	.0698	.0176	-75	.0145	-79

Source: Authors' calculations⁵

At the much disaggregated level in the ten regions of the country, poverty **decreases** by more than 25% in all regions following the BIG simulations. The highest poverty incidence (Odienné) decreases sharply by 27% in simulation 1 and 31% following simulation 2 (Table 2).

⁵ P₀: proportion of poor person whose expenditure level is under the poverty line, and it measures the incidence of poverty.

P₁: 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.

P₂: the poverty severity index, which is sensitive to the distribution of living standard among the poor.

Table 2: Poverty in the ten regions

	Indexes	Base year	After BIG Simulation 1	Variation sim 1 (%)	After BIG Simulation 2	Variation sim 2 (%)
	1- ABIDJAN	.3650	.2050	-44	.1971	-46
	2- DALOA	.3690	.2379	-36	.2247	-39
	3- KORHOGO	.3717	.2649	-29	.2504	-33
	4- BOUAKE	.3622	.2434	-33	.2033	-44
P0	5- ABENGOUROU	.4791	.3149	-34	.3126	-35
	6- MAN	.4430	.3095	-30	.2890	-35
	7- YAMOUSSOKRO	.3867	.2855	-26	.2588	-33
	8- BONDOUKOU	.4989	.3511	-30	.3089	-38
	9- SAN-PEDRO	.3395	.1605	-53	.1510	-56
	10- ODIENNE	.5057	.3674	-27	.3497	-31
	1- ABIDJAN	.1221	.0443	-64	.0383	-69
	2- DALOA	.1385	.0527	-62	.0458	-67
	3- KORHOGO	.1482	.0602	-59	.0526	-64
	4- BOUAKE	.1331	.0493	-63	.0423	-68
P1	5- ABENGOUROU	.1793	.0855	-52	.0774	-57
	6- MAN	.1850	.0772	-58	.0681	-63
	7- YAMOUSSOKRO	.1484	.0589	-60	.0509	-66
	8- BONDOUKOU	.1779	.0682	-62	.0586	-67
	9- SAN-PEDRO	.1008	.0337	-67	.0290	-71
	10- ODIENNE	.2232	.1066	-52	.0963	-57
	1- ABIDJAN	.0548	.0126	-77	.0102	-81
	2- DALOA	.0660	.0158	-76	.0129	-80
	3- KORHOGO	.0722	.0180	-75	.0147	-80
	4- BOUAKE	.0635	.0154	-76	.01272	-80
P2	5- ABENGOUROU	.0915	.0315	-66	.0273	-70
	6- MAN	.0950	.0257	-73	.0214	-77
	7- YAMOUSSOKRO	.0716	.0175	-76	.0142	-80
	8- BONDOUKOU	.0832	.0209	-75	.0173	-79
	9- SAN-PEDRO	.0441	.0093	-79	.0074	-83
	10- ODIENNE	.1249	.0390	-69	.0331	-73

Source: Authors' calculations

Overall even if the level still high, the Gini coefficients (Table 3) indicate a decrease in inequality (4.2%) following simulation 1 and 4.6% following simulation 2. The disaggregated inequality by region (Table 3) indicates a decrease in all the 5 regions following the 2 simulations.

Table 3: Inequality in the five strata

Indexes	Region	Base year	After BIG Simulation 1	Variation sim 1 (%)	After BIG Simulation 2	Variation sim 2 (%)
GINI	1-Abidjan	.8729	.8497	-2.7%	.8472	-2.9%
	2-Other_cities	.8224	.7974	-3.1%	.7947	-3.4%
	3-Forest West	.5663	.5265	-7.0%	.5224	-7.8%
	4-Forest East	.6290	.5931	-5.7%	.5893	-6.3%
	5-Savannah	.5667	.5192	-8.4%	.5144	-9.2%
	All	.7698	.7376	-4.2%	.7341	-4.6%
Atkinson A(1)	1-Abidjan	0.8314	0.7991	-3.9%	0.7958	-4.3%
	2-Other_cities	0.77909	0.7367	-5.4%	0.7325	-6.0%
	3-Forest West	0.4751	0.3974	-16.4%	0.3904	-17.8%
	4-Forest East	0.5413	0.4753	-12.2%	0.4691	-13.3%
	5-Savannah	0.4619	0.3778	-18.2%	0.3704	-19.8%
	All	0.7073	0.6544	-7.5%	0.6493	-8.2%

Source: Authors' calculations

Poverty reduction is much more diversified at the city and small area level (Table 4 in Appendix 1). The poverty incidence (P0) decreases with the 2 simulations, and depending on areas, the depth, or intensity (P1) and severity (P2), of poverty also decreases in all areas following the simulations. Poverty distribution among the areas shows sharp decrease of poverty level for all cities after the simulations (see Table 4).

Regarding welfare, we can observe (bottom panel of Table 3) that the value of Atkinson's measure decreases in all the five strata (simulation 1 and 2), indicating an increase in social welfare due to the decrease of inequality in the distribution.

4. Conclusion

This paper shows that poverty could be drastically reduce in Côte d'Ivoire using a Basic Income Grant policy. The simulations performed indicate significant impact on the overall as well as disaggregated level of poverty incidence depth and severity and inequality reduction and thus increasing welfare. On the controversial financing question, the financing system proposed here (blend of VAT and pro-poor spending) indicates that this policy is feasible in Cote d'Ivoire.

The BIG would be particularly effective firstly in reducing considerably poverty and inequality and increasing financial inclusion of the population, and secondly in

ultimately eliminating poverty towards the new sustainable development goals (SDGs). This economic policy could transform the current rapid economic growth in Cote d'Ivoire into a real and tangible social development. As stated in previous work (Aka 2016) the BIG could represent a powerful policy of changing the Ivorian society, and the building block of financial, economic and social inclusion through prosperity sharing in Côte d'Ivoire. Only the political will and courage are needed for implementation of this achievable challenge.

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Appendix ⁶:

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.

Table 4.1. Poverty In Cities Small Areas of Côte d'Ivoire: P0

Sub Population	Base Year	After BIG Sim 1	Variation Sim 1 (%)	After BIG Sim 2	Variation Sim 2 (%)
1-Abobo	0.2291	0.0980	-57.2%	0.0917	-60.0%
2-Adjame	0.4399	0.2214	-49.7%	0.2014	-54.2%
3-Attécoubé	0.2156	0.1198	-44.4%	0.1198	-44.4%
4-Cocody	0.2157	0.0469	-78.3%	0.0000	-100.0%
5-Koumassi	0.2774	0.0774	-72.1%	0.0572	-79.4%
6-Marcory	0.0864	0.0177	-79.5%	0.0177	-79.5%
7-Port-Bouet	0.4290	0.2618	-39.0%	0.2572	-40.0%
8-Treichville	0.1000	0.0500	-50.0%	0.0500	-50.0%
9-Yopougon	0.2474	0.1094	-55.8%	0.0889	-64.1%
10-Anyama	0.2000	0.1000	-50.0%	0.1000	-50.0%
11-Bingerville	0.7000	0.4500	-35.7%	0.4500	-35.7%
12-Tiassalale	0.2500	0.2000	-20.0%	0.2000	-20.0%
13-Dabou	0.2500	0.1000	-60.0%	0.1000	-60.0%
14-Daloa	0.6330	0.2112	-66.6%	0.2063	-67.4%
15-Gagnoa	0.2500	0.1085	-56.6%	0.0669	-73.2%
16-Issia	0.3500	0.1500	-57.1%	0.1000	-71.4%
17-Boundiali	0.2000	0.1000	-50.0%	0.1000	-50.0%
18-Korhogo	0.3076	0.2084	-32.2%	0.2033	-33.9%
19-Beoumi	0.2500	0.1500	-40.0%	0.1500	-40.0%

⁶ Defined by: $\frac{GINI}{2} \int_0^1 (p - L(p)) dp$. The Gini coefficient is not properly decomposable into within and by between-group inequality and thus will be used at the aggregate level of the study.

For disaggregated study of inequality, we will use the Generalized Entropy (GE) inequality index which is additively decomposable by subgroup. The Generalized Entropy inequality indices are also an alternative to the usual Gini index. The Generalized Entropy class of inequality indices is given by:

$$GE(a) = \frac{1}{a(a-1)} \sum_{i=1}^n f_i \left(\frac{y_i}{\mu} \right)^a - 1; \quad a = 0, a \approx 1, \quad \text{where } \mu \text{ is the mean income.}$$

$$GE(1) = \sum_{i=1}^n f_i \left(\frac{y_i}{\mu} \right) \left[\log \left(\frac{y_i}{\mu} \right) \right]; \quad GE(0) = \sum_{i=1}^n f_i \left[\log \left(\frac{y_i}{\mu} \right) \right]. \text{ Each } GE(a) \text{ index can be additively}$$

decomposed as $GE(a) = GE_w(a) + GE_b(a)$, where $GE_w(a)$ is Within-group Inequality and $GE_b(a)$ is

Between-Group Inequality. $GE_w(a) = \sum_{k=1}^{K=K} [v_k^{(1-a)}] [s_k^a] GE_k(a)$, where $v_k = N_k / N$ is the number of

persons in subgroup k divided by the total number of persons (subgroup population share), and s_k is the share of total income held by k 's members (subgroup income share). $GE_k(a)$, inequality for subgroup k , is calculated as if the subgroup were a separate population, and $GE_b(a)$ is derived assuming every person within a given subgroup k received k 's mean income μ_k .

20-Bouake	0.3823	0.2143	-44.0%	0.1614	-57.8%
21-Dabakala	0.4000	0.4000	0.0%	0.3000	-25.0%
22-Sakassou	0.4000	0.2000	-50.0%	0.2000	-50.0%
23-Abengourou	0.4000	0.2500	-37.5%	0.2000	-50.0%
24-Bangolo	0.5500	0.3000	-45.5%	0.3000	-45.5%
25-Danane	0.3500	0.3000	-14.3%	0.2500	-28.6%
26-Man	0.4220	0.2832	-32.9%	0.2388	-43.4%
27-Toulepleu	0.5000	0.1000	-80.0%	0.1000	-80.0%
28-Yamoussokro	0.3753	0.2753	-26.6%	0.2505	-33.2%
29-Tiebissou	0.5000	0.3500	-30.0%	0.3500	-30.0%
30-Bouna	0.2500	0.2000	-20.0%	0.1500	-40.0%
31-Sans_Pedro	0.2147	0.0902	-58.0%	0.0451	-79.0%
32-Soubre	0.2000	0.1000	-50.0%	0.1000	-50.0%
33-Odienne	0.5500	0.2000	-63.6%	0.2000	-63.6%
34-Bongouanou	0.3000	0.2000	-33.3%	0.2000	-33.3%
35-Dimbokro	0.3000	0.1500	-50.0%	0.0500	-83.3%
36-Bocanda	0.4500	0.2000	-55.6%	0.2000	-55.6%
37-Oume	0.2500	0.0000	-100.0%	0.0000	-100.0%
38-Sinfra	0.3500	0.2500	-28.6%	0.2500	-28.6%
39-Zuenoola	0.1500	0.0500	-66.7%	0.0500	-66.7%
40-Bonoua	0.4000	0.1000	-75.0%	0.1000	-75.0%
41-Grand-Bassam	0.2000	0.0000	-100.0%	0.0000	-100.0%
42-Divo	0.2735	0.1265	-53.8%	0.0948	-65.3%
43-Lakota	0.3000	0.1500	-50.0%	0.1500	-50.0%
44-Akoupe	0.3000	0.1000	-66.7%	0.1000	-66.7%
45-Agboville	0.2500	0.2500	0.0%	0.2500	0.0%
46-Begata	0.6500	0.4500	-30.8%	0.4500	-30.8%
47-Boboniessoke	0.5000	0.4000	-20.0%	0.4000	-20.0%
48-Kribleguie	0.4500	0.2500	-44.4%	0.2500	-44.4%
49-Loboguiguia	0.4500	0.4500	0.0%	0.4500	0.0%
50-Domangbeu	0.8000	0.6500	-18.8%	0.6500	-18.8%
51-Guemenedou	0.1500	0.0500	-66.7%	0.0500	-66.7%
52-Dignago	0.3500	0.2000	-42.9%	0.2000	-42.9%
53-Dragno Gagnoa	0.4000	0.2500	-37.5%	0.2500	-37.5%
54-Aboka	0.4000	0.2500	-37.5%	0.2000	-50.0%
55-Guibouo	0.4000	0.3500	-12.5%	0.3500	-12.5%
56-Krizabouo	0.2500	0.0500	-80.0%	0.0500	-80.0%
57-Vaou	0.3000	0.2500	-16.7%	0.2000	-33.3%
58-Danzerville	0.4500	0.4500	0.0%	0.4000	-11.1%
59-Vrouo 1	0.4500	0.3500	-22.2%	0.3500	-22.2%
60-Diourouzon	0.7000	0.7000	0.0%	0.6000	-14.3%
61-Danipleu	0.2000	0.2000	0.0%	0.2000	0.0%
62-Blapleu	0.5000	0.4500	-10.0%	0.4500	-10.0%
63-Bieutouo	0.3500	0.3500	0.0%	0.3000	-14.3%
64-Blody	0.7000	0.6000	-14.3%	0.5500	-21.4%
65-Guessabo-Guere	0.6000	0.4500	-25.0%	0.4500	-25.0%
67-Beoue	0.1500	0.1000	-33.3%	0.1000	-33.3%
68-Douele	0.2500	0.2000	-20.0%	0.2000	-20.0%
69-Petit-Gbepleu	0.1500	0.1000	-33.3%	0.1000	-33.3%
70-Semien	0.2500	0.2500	0.0%	0.2500	0.0%
71-Sogb_Zone Centrale	0.2500	0.0500	-80.0%	0.0500	-80.0%
72-Kpote	0.3000	0.1000	-66.7%	0.1000	-66.7%
73-Balokouya	0.3500	0.1000	-71.4%	0.1000	-71.4%
74-Zegreboue	0.3000	0.3000	0.0%	0.3000	0.0%
75-Trahaglounkro	0.3000	0.2000	-33.3%	0.2000	-33.3%
76-Gbletia	0.1000	0.1000	0.0%	0.1000	0.0%
77-Gnogboyo	0.4000	0.2000	-50.0%	0.2000	-50.0%
78-V1_Palmindustrrie Ottawa	0.4500	0.1500	-66.7%	0.1500	-66.7%
79-Idioke	0.6000	0.4500	-25.0%	0.4500	-25.0%

80-Diegonefla	0.3000	0.2500	-16.7%	0.2500	-16.7%
81-Kouamefla	0.3000	0.1000	-66.7%	0.0500	-83.3%
82-Attinguie	0.4000	0.1500	-62.5%	0.1000	-75.0%
83-Palmindustrie Anguededou V2	0.3500	0.2500	-28.6%	0.2000	-42.9%
84-Tiebissou	0.3500	0.2500	-28.6%	0.2500	-28.6%
85-Botinde	0.6000	0.4000	-33.3%	0.4000	-33.3%
86-Akoure	0.5500	0.5000	-9.1%	0.3500	-36.4%
87-Debrimou	0.4500	0.3000	-33.3%	0.3000	-33.3%
88-Yassap B	0.4000	0.3500	-12.5%	0.3500	-12.5%
89-Kouassi Beniekro	0.4500	0.3500	-22.2%	0.3500	-22.2%
90-Ahuassou Allangouanou	0.2500	0.0000	-100.0%	0.0000	-100.0%
91-Heredougou	0.7000	0.5000	-28.6%	0.5000	-28.6%
92-N'guessankro	0.5000	0.3500	-30.0%	0.3500	-30.0%
93-Missoumihan 1	0.2000	0.1500	-25.0%	0.1500	-25.0%
94-Nema	0.6500	0.5000	-23.1%	0.5000	-23.1%
95-Assuotianon	0.3500	0.3000	-14.3%	0.3000	-14.3%
96-Kotobi	0.4000	0.3500	-12.5%	0.3500	-12.5%
97-Brou_Apkaoussou	0.3500	0.3000	-14.3%	0.2000	-42.9%
98-Ngohinou	0.4000	0.2500	-37.5%	0.2500	-37.5%
99-Angouakro	0.6000	0.2500	-58.3%	0.2000	-66.7%
100-Attanou	0.4500	0.3500	-22.2%	0.3500	-22.2%
101-Zaguieta	0.6000	0.5500	-8.3%	0.4500	-25.0%
102-Liadjenoufla 2	0.2500	0.2500	0.0%	0.2500	0.0%
103-Biakro Tiekorodougou	0.5500	0.5500	0.0%	0.4500	-18.2%
104-Porabenafla	0.2000	0.2000	0.0%	0.2000	0.0%
105-Toumanguie	0.5000	0.4000	-20.0%	0.3500	-30.0%
106-Dadiesso	0.5500	0.3000	-45.5%	0.3000	-45.5%
107-Akounougbe	0.6000	0.4000	-33.3%	0.4000	-33.3%
108-Grand-Bassam	0.5000	0.3500	-30.0%	0.3500	-30.0%
109-Dogozo	0.2000	0.1000	-50.0%	0.1000	-50.0%
110-Petit Bouake Sodepalm	0.5000	0.4000	-20.0%	0.3500	-30.0%
111-Palmindustrie V2	0.5500	0.4000	-27.3%	0.4000	-27.3%
112-Hermankono	0.4500	0.4500	0.0%	0.4000	-11.1%
113-Zego	0.3000	0.3000	0.0%	0.3000	0.0%
114-Tadjedou	0.4000	0.2500	-37.5%	0.2500	-37.5%
115-Asseudji	0.6000	0.4000	-33.3%	0.3500	-41.7%
116-Becouefin	0.5000	0.2500	-50.0%	0.2500	-50.0%
117-Diangobo	0.2000	0.2000	0.0%	0.2000	0.0%
118-Ehouguie	0.4500	0.3500	-22.2%	0.3000	-33.3%
119-Ake_Douanier	0.5000	0.4500	-10.0%	0.4500	-10.0%
120-Ouelle	0.4000	0.3500	-12.5%	0.3500	-12.5%
121-Yakasse Attobrou	0.4500	0.2000	-55.6%	0.2000	-55.6%
122-Ziasso	0.2000	0.1000	-50.0%	0.1000	-50.0%
123-Kofiple	0.3500	0.3500	0.0%	0.3000	-14.3%
124-Kong	0.4500	0.3000	-33.3%	0.3000	-33.3%
125-Marha	0.3500	0.2500	-28.6%	0.2000	-42.9%
126-Kafagavogo	0.4500	0.3000	-33.3%	0.3000	-33.3%
127-Ngandana	0.6000	0.5500	-8.3%	0.5500	-8.3%
128-Seyelihouo	0.4500	0.3500	-22.2%	0.3000	-33.3%
129-Foro	0.3500	0.3000	-14.3%	0.3000	-14.3%
130-Abayansi	0.4500	0.4000	-11.1%	0.4000	-11.1%
131-Duekoue	0.4000	0.2000	-50.0%	0.1500	-62.5%
132-Bourebo	0.3500	0.3000	-14.3%	0.3000	-14.3%
133-Tchimou Assekro	0.2500	0.1500	-40.0%	0.1500	-40.0%
134-Komballasso	0.2000	0.1500	-25.0%	0.1500	-25.0%
135-Diaradougou	0.4000	0.2500	-37.5%	0.2500	-37.5%
136-Tortiya	0.5000	0.2500	-50.0%	0.2500	-50.0%
137-Mandeke Kponkouakoukro	0.4000	0.4000	0.0%	0.3500	-12.5%
138-Kandopleu	0.5500	0.4000	-27.3%	0.3500	-36.4%

139-Niamkey Konankro	0.2500	0.2500	0.0%	0.2000	-20.0%
140-Koimoi Dibikro	0.2500	0.2000	-20.0%	0.2000	-20.0%
141-Kossou	0.4000	0.2000	-50.0%	0.2000	-50.0%
142-Min_Kouadiokro	0.2500	0.2500	0.0%	0.2000	-20.0%
143-Dimandougou	0.5500	0.4500	-18.2%	0.3500	-36.4%
144-Maahui	0.6500	0.4000	-38.5%	0.4000	-38.5%
145-Djorkeredougou	0.6000	0.4500	-25.0%	0.4500	-25.0%
146-Kinandouo	0.5000	0.4000	-20.0%	0.4000	-20.0%
147-Bougoussou	0.5500	0.5500	0.0%	0.5500	0.0%
148-Kadiasso	0.7000	0.7000	0.0%	0.7000	0.0%
149-Zebenin	0.7000	0.7000	0.0%	0.7000	0.0%
150-Aouma Boukro	0.5500	0.5000	-9.1%	0.3500	-36.4%
151-Dorifla	0.3000	0.2000	-33.3%	0.2000	-33.3%
152-Gouehizra	0.3500	0.3000	-14.3%	0.2500	-28.6%
153-Sononzo	0.5500	0.5000	-9.1%	0.5000	-9.1%
154-Sanakoro	0.3500	0.3500	0.0%	0.3000	-14.3%
155-Silakoro	0.3500	0.2500	-28.6%	0.2500	-28.6%
156-Dasso	0.6500	0.5000	-23.1%	0.5000	-23.1%
157-Monzona	0.4500	0.4000	-11.1%	0.4000	-11.1%
158-Kassere	0.5500	0.4000	-27.3%	0.4000	-27.3%
159-Sinematiali	0.3000	0.2500	-16.7%	0.2500	-16.7%
160-Sipilou	0.5000	0.3000	-40.0%	0.3000	-40.0%
161-Seguela	0.4500	0.4500	0.0%	0.3500	-22.2%

Source: Authors' calculations

Table 4.2. Poverty In Cities Small Areas of Côte d'Ivoire: P1

Sub Population	Base Year	After Big Sim 1	Variation Sim 1 (%)	After Big Sim 2	Variation Sim 2 (%)
1-Abobo	0.0701	0.0151	-78.5	0.0118	-83.2
2-Adjame	0.1373	0.0316	-77.0	0.0240	-82.5
3-Attecoube	0.0702	0.0164	-76.6	0.0123	-82.5
4-Cocody	0.0468	0.0005	-99.0	0.0000	-100.0
5-Koumassi	0.0648	0.0140	-78.4	0.0114	-82.3
6-Marcory	0.0145	0.0008	-94.5	0.0002	-98.7
7-Port-Bouet	0.1662	0.0433	-74.0	0.0344	-79.3
8-Treichville	0.0256	0.0035	-86.5	0.0017	-93.2
9-Yopougon	0.0705	0.0140	-80.1	0.0106	-85.0
10-Anyama	0.0517	0.0147	-71.6	0.0114	-78.0
11-Bingerville	0.2569	0.0888	-65.4	0.0739	-71.2
12-Tiassalale	0.1147	0.0513	-55.3	0.0447	-61.1
13-Dabou	0.0737	0.0193	-73.8	0.0160	-78.3
14-Daloa	0.1468	0.0201	-86.3	0.0132	-91.0
15-Gagnoa	0.0670	0.0144	-78.6	0.0117	-82.5
16-Issia	0.0928	0.0213	-77.0	0.0167	-82.1
17-Boundiali	0.0761	0.0185	-75.7	0.0152	-80.0
18-Korhogo	0.1332	0.0484	-63.7	0.0416	-68.8
19-Beoumi	0.0705	0.0164	-76.8	0.0114	-83.9
20-Bouake	0.1255	0.0389	-69.0	0.0323	-74.2
21-Dabakala	0.1911	0.0715	-62.6	0.0607	-68.2
22-Sakassou	0.1144	0.0299	-73.9	0.0232	-79.7
23-Abengourou	0.1290	0.0281	-78.2	0.0211	-83.7
24-Bangolo	0.2174	0.0812	-62.6	0.0712	-67.2
25-Danane	0.1642	0.0645	-60.7	0.0560	-65.9
26-Man	0.1673	0.0577	-65.5	0.0489	-70.8
27-Toulepleu	0.1169	0.0085	-92.7	0.0052	-95.6
28-Yamoussokro	0.1788	0.0756	-57.7	0.0670	-62.5
29-Tiebissou	0.1948	0.0691	-64.5	0.0575	-70.5
30-Bouna	0.0883	0.0155	-82.5	0.0099	-88.7
31-Sans_Pedro	0.0539	0.0068	-87.3	0.0048	-91.2

32-Soubre	0.0583	0.0109	-81.3	0.0076	-87.0
33-Odienne	0.1377	0.0271	-80.3	0.0205	-85.1
34-Bongouanou	0.1078	0.0316	-70.7	0.0250	-76.9
35-Dimbokro	0.0761	0.0044	-94.3	0.0001	-99.9
36-Bocanda	0.1541	0.0563	-63.5	0.0496	-67.8
37-Oume	0.0483	0.0000	-100.0	0.0000	-100.0
38-Sinfra	0.1150	0.0243	-78.9	0.0160	-86.1
39-Zuenoola	0.0490	0.0187	-61.9	0.0170	-65.3
40-Bonoua	0.1164	0.0277	-76.2	0.0243	-79.1
41-Grand-Bassam	0.0360	0.0000	-100.0	0.0000	-100.0
42-Divo	0.0773	0.0125	-83.8	0.0088	-88.6
43-Lakota	0.1112	0.0444	-60.1	0.0394	-64.6
44-Akoupe	0.0932	0.0184	-80.2	0.0151	-83.8
45-Agboville	0.1171	0.0423	-63.9	0.0340	-71.0
46-Begata	0.2710	0.1208	-55.4	0.1073	-60.4
47-Boboniessoke	0.2440	0.1199	-50.8	0.1079	-55.8
48-Kribleguhe	0.1799	0.0694	-61.4	0.0619	-65.6
49-Loboguiguia	0.2208	0.0988	-55.3	0.0852	-61.4
50-Domangbeu	0.3987	0.2079	-47.9	0.1884	-52.8
51-Guemenedou	0.0303	0.0115	-62.0	0.0100	-67.0
52-Dignago	0.1400	0.0565	-59.7	0.0504	-64.0
53-Dragno Gagnoa	0.1702	0.0681	-60.0	0.0606	-64.4
54-Aboka	0.1382	0.0409	-70.4	0.0339	-75.4
55-Guibouo	0.1721	0.0687	-60.1	0.0581	-66.2
56-Krizabouo	0.0465	0.0135	-71.0	0.0120	-74.2
57-Vaou	0.1254	0.0500	-60.1	0.0426	-66.1
58-Danzerville	0.2006	0.0786	-60.8	0.0663	-67.0
59-Vrouo 1	0.2133	0.0925	-56.6	0.0820	-61.6
60-Diourouzon	0.3671	0.1774	-51.7	0.1582	-56.9
61-Danipleu	0.1127	0.0585	-48.1	0.0524	-53.5
62-Blapleu	0.2684	0.1332	-50.4	0.1197	-55.4
63-Bieutouo	0.1844	0.0895	-51.5	0.0801	-56.6
64-Blody	0.2833	0.1039	-63.3	0.0865	-69.5
65-Guessabo-Guere	0.2159	0.0646	-70.1	0.0510	-76.4
67-Beoue	0.0583	0.0290	-50.2	0.0260	-55.4
68-Douele	0.0939	0.0337	-64.2	0.0276	-70.6
69-Petit-Gbepleu	0.0682	0.0397	-41.8	0.0367	-46.2
70-Semien	0.1491	0.0814	-45.4	0.0738	-50.5
71-Sogb_Zone Centrale	0.0557	0.0135	-75.8	0.0120	-78.5
72-Kpote	0.0723	0.0288	-60.2	0.0258	-64.4
73-Balokouya	0.0705	0.0131	-81.4	0.0101	-85.7
74-Zegreboue	0.1327	0.0513	-61.3	0.0423	-68.1
75-Trahaglounkro	0.1165	0.0430	-63.1	0.0370	-68.2
76-Gbletia	0.0421	0.0150	-64.5	0.0119	-71.6
77-Gnogboyo	0.1348	0.0390	-71.1	0.0330	-75.5
78-V1_Palminindustrie Ottawa	0.1284	0.0382	-70.2	0.0337	-73.7
79-Idioke	0.2515	0.1064	-57.7	0.0928	-63.1
80-Diegonefla	0.1523	0.0740	-51.4	0.0665	-56.3
81-Kouamefla	0.0448	0.0085	-81.0	0.0065	-85.4
82-Attinguie	0.1189	0.0168	-85.9	0.0131	-89.0
83-Palminindustrie Anguededou V2	0.1166	0.0462	-60.4	0.0406	-65.1
84-Tiebisso	0.1328	0.0667	-49.8	0.0603	-54.6
85-Botinde	0.2153	0.1115	-48.2	0.1012	-53.0
86-Akoure	0.2060	0.0831	-59.6	0.0717	-65.2
87-Debrimou	0.1726	0.0898	-48.0	0.0821	-52.4
88-Yassap B	0.1593	0.0675	-57.6	0.0585	-63.2
89-Kouassi Beniekro	0.1954	0.0972	-50.2	0.0883	-54.8
90-Ahuassou Allangouanou	0.0315	0.0000	-100.0	0.0000	-100.0
91-Heredougou	0.2723	0.1453	-46.6	0.1325	-51.4

92-N'guessankro	0.2395	0.1326	-44.6	0.1236	-48.4
93-Missoumihan 1	0.0703	0.0275	-60.9	0.0237	-66.3
94-Nema	0.2658	0.1322	-50.3	0.1193	-55.1
95-Assuotianon	0.1988	0.1239	-37.7	0.1162	-41.5
96-Kotobi	0.1779	0.0935	-47.4	0.0845	-52.5
97-Brou_Apkaoussou	0.1287	0.0498	-61.3	0.0442	-65.7
98-Ngohinou	0.1115	0.0470	-57.8	0.0406	-63.6
99-Angouakro	0.1695	0.0778	-54.1	0.0725	-57.2
100-Attanou	0.1606	0.0609	-62.1	0.0520	-67.6
101-Zaguieta	0.2141	0.0807	-62.3	0.0676	-68.4
102-Liadjenoufla 2	0.1446	0.0869	-39.9	0.0805	-44.3
103-Biakro Tiekorodougou	0.2083	0.0815	-60.9	0.0686	-67.1
104-Porabenafla	0.0935	0.0474	-49.3	0.0423	-54.8
105-Toumanguie	0.1882	0.0853	-54.7	0.0763	-59.5
106-Dadiesso	0.1822	0.0860	-52.8	0.0783	-57.0
107-Akounougbe	0.2042	0.0940	-54.0	0.0838	-59.0
108-Grand-Bassam	0.1818	0.0729	-59.9	0.0640	-64.8
109-Dogozo	0.0407	0.0123	-69.7	0.0098	-76.0
110-Petit Bouake Sodepalm	0.1763	0.0700	-60.3	0.0610	-65.4
111-Palmindustrie V2	0.2147	0.0928	-56.8	0.0825	-61.6
112-Hermankono	0.1997	0.0959	-52.0	0.0846	-57.6
113-Zego	0.1699	0.1007	-40.7	0.0931	-45.2
114-Tadjedou	0.1288	0.0606	-52.9	0.0542	-57.9
115-Asseudji	0.1803	0.0667	-63.0	0.0566	-68.6
116-Becouefin	0.1270	0.0388	-69.4	0.0324	-74.5
117-Diangobo	0.1175	0.0714	-39.3	0.0662	-43.6
118-Ehouguie	0.1825	0.0920	-49.6	0.0831	-54.5
119-Ake_Douanier	0.2654	0.1566	-41.0	0.1451	-45.3
120-Ouelle	0.2123	0.1208	-43.1	0.1119	-47.3
121-Yakasse Attobrou	0.1231	0.0568	-53.8	0.0517	-58.0
122-Ziasso	0.0592	0.0230	-61.2	0.0204	-65.5
123-Kofiple	0.1916	0.1033	-46.1	0.0935	-51.2
124-Kong	0.1572	0.0633	-59.7	0.0549	-65.1
125-Marha	0.1350	0.0601	-55.5	0.0542	-59.9
126-Kafagavogo	0.1352	0.0371	-72.5	0.0287	-78.8
127-Ngandana	0.2777	0.1328	-52.2	0.1174	-57.7
128-Seyelihouo	0.2010	0.0901	-55.2	0.0814	-59.5
129-Foro	0.1612	0.0793	-50.8	0.0709	-56.0
130-Abayansi	0.2002	0.0942	-53.0	0.0830	-58.6
131-Duekoue	0.1251	0.0336	-73.1	0.0280	-77.6
132-Bourebo	0.1751	0.0968	-44.7	0.0884	-49.5
133-Tchimou Assekro	0.0790	0.0217	-72.5	0.0175	-77.9
134-Komballasso	0.0722	0.0265	-63.3	0.0223	-69.1
135-Diaradougou	0.1591	0.0685	-57.0	0.0614	-61.4
136-Tortiya	0.1478	0.0552	-62.6	0.0482	-67.4
137-Mandeki Kponkouakoukro	0.2003	0.0993	-50.4	0.0886	-55.8
138-Kandopleu	0.2264	0.1003	-55.7	0.0894	-60.5
139-Niamkey Konankro	0.1204	0.0573	-52.4	0.0508	-57.8
140-Koimoi Dibikro	0.0864	0.0353	-59.1	0.0297	-65.6
141-Kossou	0.0897	0.0198	-77.9	0.0142	-84.2
142-Min_Kouadiokro	0.1326	0.0695	-47.6	0.0632	-52.3
143-Dimandougou	0.2320	0.1108	-52.3	0.0992	-57.3
144-Maahui	0.2098	0.0801	-61.8	0.0689	-67.2
145-Djorkeredougou	0.2494	0.1129	-54.7	0.1003	-59.8
146-Kinandouo	0.2481	0.1431	-42.3	0.1319	-46.8
147-Bougoussou	0.2969	0.1580	-46.8	0.1426	-52.0
148-Kadiasso	0.4387	0.2620	-40.3	0.2424	-44.7
149-Zebenin	0.4233	0.2466	-41.7	0.2270	-46.4
150-Aouma Boukro	0.2336	0.0965	-58.7	0.0842	-64.0

151-Dorifla	0.1343	0.0642	-52.2	0.0586	-56.4
152-Gouehizra	0.1485	0.0656	-55.8	0.0586	-60.6
153-Sononzo	0.2747	0.1394	-49.3	0.1254	-54.4
154-Sanakoro	0.1997	0.1113	-44.2	0.1016	-49.1
155-Silakoro	0.1636	0.0851	-48.0	0.0781	-52.3
156-Dasso	0.3477	0.2003	-42.4	0.1863	-46.4
157-Monzona	0.2232	0.1162	-47.9	0.1050	-53.0
158-Kassere	0.1906	0.0760	-60.1	0.0648	-66.0
159-Sinematiali	0.1144	0.0497	-56.6	0.0427	-62.7
160-Sipilou	0.1845	0.0830	-55.0	0.0746	-59.6
161-Seguela	0.2416	0.1070	-55.7	0.0951	-60.6

Table 4.3. Poverty In Cities Small Areas of Côte d'Ivoire: P2.

Sub Population	Base Year	After Big Sim 1	Variation Sim 1 (%)	After Big Sim 2	Variation Sim 2 (%)
1-Abobo	0.0278	0.0033	-88.2	0.0023	-91.5
2-Adjame	0.0552	0.0059	-89.3	0.0040	-92.8
3-Attécoubé	0.0290	0.0027	-90.5	0.0017	-94.0
4-Cocody	0.0116	0.0000	-100.0	0.0000	-100.0
5-Koumassi	0.0244	0.0037	-84.9	0.0028	-88.5
6-Marcory	0.0036	0.0000	-99.0	0.0000	-99.9
7-Port-Bouet	0.0726	0.0095	-86.9	0.0068	-90.6
8-Treichville	0.0082	0.0002	-97.0	0.0001	-99.2
9-Yopougon	0.0266	0.0026	-90.3	0.0017	-93.4
10-Anyama	0.0214	0.0031	-85.7	0.0022	-89.7
11-Bingerville	0.1242	0.0245	-80.3	0.0191	-84.6
12-Tiassalé	0.0647	0.0158	-75.5	0.0127	-80.4
13-Dabou	0.0288	0.0039	-86.4	0.0027	-90.5
14-Daloa	0.0464	0.0028	-93.9	0.0017	-96.3
15-Gagnoa	0.0256	0.0031	-88.0	0.0022	-91.4
16-Issia	0.0364	0.0053	-85.5	0.0040	-88.9
17-Boundiali	0.0314	0.0037	-88.3	0.0026	-91.9
18-Korhogo	0.0663	0.0131	-80.2	0.0102	-84.7
19-Beoumi	0.0263	0.0021	-92.0	0.0012	-95.5
20-Bouaké	0.0583	0.0113	-80.6	0.0090	-84.6
21-Dabakala	0.0970	0.0184	-81.0	0.0141	-85.5
22-Sakassou	0.0448	0.0058	-87.1	0.0040	-91.1
23-Abengourou	0.0490	0.0043	-91.3	0.0026	-94.6
24-Bangolo	0.1092	0.0242	-77.8	0.0191	-82.5
25-Danane	0.0870	0.0196	-77.5	0.0156	-82.1
26-Man	0.0807	0.0163	-79.8	0.0128	-84.2
27-Toulepleu	0.0328	0.0009	-97.3	0.0004	-98.7
28-Yamoussoukro	0.1010	0.0261	-74.2	0.0213	-78.9
29-Tiéssissou	0.0929	0.0162	-82.5	0.0120	-87.1
30-Boua	0.0323	0.0018	-94.5	0.0009	-97.1
31-Sans_Pedro	0.0168	0.0009	-94.8	0.0005	-97.0
32-Soubre	0.0207	0.0013	-93.8	0.0007	-96.8
33-Odienné	0.0513	0.0058	-88.7	0.0042	-91.8
34-Bongouanou	0.0461	0.0061	-86.7	0.0042	-90.8
35-Dimbokro	0.0218	0.0001	-99.4	0.0000	-100.0
36-Bocanda	0.0742	0.0165	-77.8	0.0130	-82.5
37-Oumé	0.0103	0.0000	-100.0	0.0000	-100.0
38-Sinfra	0.0422	0.0026	-93.7	0.0013	-96.9
39-Zuenoula	0.0265	0.0070	-73.7	0.0058	-78.2
40-Bonoua	0.0467	0.0083	-82.3	0.0066	-86.0
41-Grand-Bassam	0.0076	0.0000	-100.0	0.0000	-100.0
42-Divo	0.0262	0.0017	-93.4	0.0010	-96.0
43-Lakota	0.0588	0.0141	-76.0	0.0113	-80.8
44-Akoupe	0.0359	0.0056	-84.5	0.0045	-87.6
45-Agboville	0.0567	0.0090	-84.1	0.0065	-88.6

46-Begata	0.1435	0.0397	-72.3	0.0329	-77.1
47-Boboniessoke	0.1390	0.0419	-69.9	0.0350	-74.8
48-Kribleguhe	0.0858	0.0204	-76.2	0.0165	-80.8
49-Loboguiguia	0.1134	0.0268	-76.4	0.0212	-81.3
50-Domangbeu	0.2330	0.0705	-69.8	0.0585	-74.9
51-Guemenedou	0.0128	0.0026	-79.4	0.0020	-84.5
52-Dignago	0.0676	0.0165	-75.7	0.0132	-80.4
53-Dragno Gagnoa	0.0856	0.0223	-73.9	0.0185	-78.4
54-Aboka	0.0604	0.0136	-77.5	0.0113	-81.2
55-Guibouo	0.0839	0.0195	-76.7	0.0157	-81.3
56-Krizabouo	0.0166	0.0036	-78.1	0.0029	-82.7
57-Vaou	0.0598	0.0131	-78.1	0.0103	-82.7
58-Danzerville	0.0989	0.0232	-76.5	0.0189	-80.9
59-Vrouo 1	0.1090	0.0263	-75.8	0.0211	-80.6
60-Diourouzon	0.2151	0.0675	-68.6	0.0574	-73.3
61-Danipleu	0.0701	0.0237	-66.2	0.0203	-71.0
62-Blapleu	0.1533	0.0445	-71.0	0.0369	-75.9
63-Bieutouo	0.1037	0.0294	-71.6	0.0243	-76.5
64-Blody	0.1287	0.0254	-80.2	0.0197	-84.7
65-Guessabo-Guere	0.0882	0.0135	-84.7	0.0100	-88.6
67-Beoue	0.0323	0.0091	-71.9	0.0074	-77.0
68-Douele	0.0404	0.0068	-83.3	0.0049	-87.8
69-Petit-Gbepieu	0.0464	0.0175	-62.3	0.0152	-67.2
70-Semien	0.0930	0.0305	-67.2	0.0259	-72.2
71-Sogh_Zone Centrale	0.0205	0.0036	-82.2	0.0029	-86.0
72-Kpote	0.0336	0.0083	-75.3	0.0066	-80.2
73-Balokouya	0.0216	0.0019	-91.0	0.0012	-94.2
74-Zegreboue	0.0597	0.0098	-83.6	0.0070	-88.3
75-Trahaglounkro	0.0523	0.0102	-80.5	0.0078	-85.1
76-Gbletia	0.0188	0.0034	-82.2	0.0025	-86.5
77-Gnogboyo	0.0539	0.0092	-83.0	0.0070	-87.0
78-V1_Palminindustrie Ottawa	0.0522	0.0117	-77.6	0.0095	-81.8
79-Idioke	0.1285	0.0324	-74.8	0.0264	-79.5
80-Diegonefla	0.0887	0.0280	-68.4	0.0238	-73.2
81-Kouamefla	0.0139	0.0013	-90.6	0.0009	-93.8
82-Attinguie	0.0418	0.0043	-89.8	0.0033	-92.1
83-Palminindustrie Anguededou V2	0.0491	0.0129	-73.8	0.0107	-78.3
84-Tiebissou	0.0642	0.0189	-70.6	0.0156	-75.7
85-Botinde	0.1103	0.0365	-66.9	0.0310	-71.9
86-Akoure	0.0873	0.0212	-75.7	0.0173	-80.2
87-Debrimou	0.0888	0.0289	-67.4	0.0245	-72.4
88-Yassap B	0.0668	0.0146	-78.1	0.0114	-82.9
89-Kouassi Beniekro	0.0954	0.0289	-69.7	0.0241	-74.7
90-Ahuassou Allangouanou	0.0050	0.0000	-100.0	0.0000	-100.0
91-Heredougou	0.1472	0.0523	-64.5	0.0452	-69.3
92-N'guessankro	0.1405	0.0558	-60.3	0.0492	-65.0
93-Missoumihan 1	0.0278	0.0058	-79.1	0.0045	-83.9
94-Nema	0.1388	0.0485	-65.1	0.0420	-69.7
95-Assuotianon	0.1293	0.0556	-57.0	0.0494	-61.8
96-Kotobi	0.0945	0.0325	-65.6	0.0279	-70.4
97-Brou_Apkoussou	0.0555	0.0147	-73.5	0.0123	-77.9
98-Nghinou	0.0460	0.0106	-76.9	0.0084	-81.8
99-Angouakro	0.0837	0.0306	-63.4	0.0267	-68.0
100-Attanou	0.0669	0.0166	-75.2	0.0137	-79.5
101-Zaguieta	0.0842	0.0169	-80.0	0.0131	-84.5
102-Liadjenoufla 2	0.0883	0.0349	-60.5	0.0306	-65.3
103-Biakro Tiekorodougou	0.0865	0.0196	-77.3	0.0158	-81.7
104-Porabenafla	0.0490	0.0165	-66.3	0.0142	-71.0
105-Toumanguie	0.0892	0.0263	-70.5	0.0222	-75.1

106-Dadiesso	0.0874	0.0273	-68.8	0.0231	-73.6
107-Akounougbe	0.0936	0.0269	-71.2	0.0224	-76.1
108-Grand-Bassam	0.0768	0.0190	-75.3	0.0155	-79.8
109-Dogozo	0.0130	0.0017	-86.6	0.0012	-90.9
110-Petit Bouake Sodepalm	0.0752	0.0197	-73.8	0.0163	-78.3
111-Palminindustrie V2	0.0994	0.0294	-70.4	0.0249	-74.9
112-Hermankono	0.0938	0.0256	-72.7	0.0210	-77.6
113-Zego	0.1009	0.0385	-61.9	0.0335	-66.8
114-Tadjedou	0.0632	0.0210	-66.8	0.0180	-71.5
115-Asseudji	0.0718	0.0168	-76.7	0.0136	-81.1
116-Becouefin	0.0481	0.0109	-77.4	0.0091	-81.2
117-Diangobo	0.0696	0.0260	-62.6	0.0225	-67.7
118-Ehouguie	0.0938	0.0315	-66.4	0.0270	-71.2
119-Ake_Douanier	0.1571	0.0604	-61.5	0.0527	-66.5
120-Ouelle	0.1228	0.0461	-62.4	0.0402	-67.3
121-Yakasse Attobrou	0.0557	0.0169	-69.7	0.0141	-74.7
122-Ziasso	0.0240	0.0062	-74.1	0.0051	-78.8
123-Kofiple	0.1129	0.0384	-66.0	0.0329	-70.8
124-Kong	0.0721	0.0188	-73.9	0.0155	-78.5
125-Marha	0.0707	0.0217	-69.3	0.0185	-73.8
126-Kafagavogo	0.0472	0.0053	-88.8	0.0035	-92.7
127-Ngandana	0.1443	0.0415	-71.3	0.0344	-76.1
128-Seyelihouo	0.1037	0.0308	-70.3	0.0260	-74.9
129-Foro	0.0852	0.0253	-70.3	0.0211	-75.3
130-Abayansi	0.1004	0.0269	-73.3	0.0219	-78.2
131-Duekoue	0.0487	0.0102	-79.1	0.0084	-82.7
132-Bourebo	0.1046	0.0364	-65.1	0.0313	-70.1
133-Tchimou Assekro	0.0289	0.0045	-84.4	0.0034	-88.2
134-Komballasso	0.0307	0.0065	-78.7	0.0052	-83.2
135-Diaradougou	0.0827	0.0263	-68.2	0.0227	-72.6
136-Tortiya	0.0637	0.0149	-76.7	0.0120	-81.2
137-Mandeki Kponkouakoukro	0.1092	0.0336	-69.3	0.0283	-74.1
138-Kandopleu	0.1119	0.0306	-72.7	0.0253	-77.4
139-Niamkey Konankro	0.0633	0.0184	-70.9	0.0154	-75.6
140-Koimoi Dibikro	0.0415	0.0110	-73.6	0.0091	-78.0
141-Kossou	0.0279	0.0025	-90.9	0.0016	-94.3
142-Min_Kouadiokro	0.0779	0.0268	-65.5	0.0231	-70.3
143-Dimandougou	0.1266	0.0415	-67.3	0.0356	-71.9
144-Maahui	0.0933	0.0220	-76.4	0.0178	-80.9
145-Djorkeredougou	0.1249	0.0349	-72.0	0.0290	-76.8
146-Kinandouo	0.1527	0.0548	-64.1	0.0471	-69.2
147-Bougoussou	0.1770	0.0621	-64.9	0.0537	-69.7
148-Kadiasso	0.2844	0.1075	-62.2	0.0934	-67.2
149-Zebenin	0.2673	0.0982	-63.3	0.0849	-68.2
150-Aouma Boukro	0.1139	0.0310	-72.8	0.0259	-77.2
151-Dorifla	0.0744	0.0252	-66.1	0.0217	-70.8
152-Gouehizra	0.0758	0.0225	-70.3	0.0191	-74.9
153-Sononzo	0.1567	0.0528	-66.3	0.0454	-71.0
154-Sanakoro	0.1255	0.0470	-62.5	0.0410	-67.3
155-Silakoro	0.0944	0.0332	-64.8	0.0286	-69.7
156-Dasso	0.2236	0.0872	-61.0	0.0763	-65.9
157-Monzona	0.1302	0.0453	-65.2	0.0391	-70.0
158-Kassere	0.0880	0.0223	-74.6	0.0184	-79.1
159-Sinematiali	0.0537	0.0126	-76.5	0.0100	-81.3
160-Sipilou	0.0924	0.0274	-70.3	0.0230	-75.1
161-Seguela	0.1408	0.0365	-74.1	0.0298	-78.8

