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Laboratoire d'Analyse des Politiques Publiques (LAPP)

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**FISCAL REFORMS AND INCOME INEQUALITIES
IN SENEGAL AND BURKINA FASO :
A COMPARATIVE STUDY**

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Introduction

The West african economic and monetary union created in 1994 had for main objective the reinforcement of the competitiveness of the member states by harmonizing their economic legislations. In 1995 indirect tax harmonization were adopted by a refitting of the nominal and effective protections of the community firms. The countries decided to strengthen their fiscal systems for a better interior resource mobilization, notably by the indirect taxes, the enlargement of the fiscal bases and the decrease of tax rates. Therefore Senegal and Burkina adopted the reforms instituted within the union. The regulation of exchanges within the union institutes a transient preferential tariff regime between countries of the union and precise the way it must be financed. A total exemption is established for some local products, of the traditional handicraft, and for some industrial products. Thus, countries out of the union pay, since 2000, tax duties defined according to a common external tariff based on a categorization of products. They also pay permanent and temporary taxes.

About the categorization, the exchanged goods are distributed in four groups from zero to three Social goods; First necessity goods, raw materials, equipment, specific inputs ; Input and intermediate products ; Consumption goods and other products. But the fiscal reforms are policies that influence consumer and producers prices and challenge the initial distribution of living standard that existed between populations. These fiscal reforms consist to the choice of a VAT rate of 18% notably on goods whose initial rate didn't exceed 10% in most countries, in the same way, the rates of some goods were near or equal to 20%.

We aim to check if the tax harmonisations undertaken in the union are advantageous for the populations Senegal and Burkina. We analyze the effects of the indirect taxation on the distribution of income. For that we will distribute the population according to quintiles' of incomes and measure the contributions of the various groups of populations to the tax. By comparing these shares before and after the reforms, we will check if there is a modification of the relative contributions of the groups. In addition we measure the progressivity of the tax systems before and after reforms. Then we will evaluate horizontal and vertical equity of new taxation. Taxation will be regarded as horizontally equitable if it equally treats the individuals who have the same living

standard. It respects the principle of vertical equity if it reduces the gaps between individuals whose living standards were different before the reform. Finally we will draw the implications from the results from the point of view of economic policies. We will be mainly interested by the opportunity of a differentiating the tax rates according to types' of goods in the two countries.

1. Fiscal and socioeconomic characteristics

In this section, we compare the populations of the two countries and show that they have enough similar socioeconomic aspects. The fiscal harmonisations within the international structures make that the fiscal systems tend to have some common points. The main element of the fiscal reforms to Burkina was the adoption of a VAT system in 1994 in place of businesses taxes. The imports of products of the 2nd and 3rd category (inputs and some intermediate products ...) must support it in the entrance. The collected VAT is deductible. It concerns all people who achieve an economic activity other than salaried employee.

The operations entering in the field of application of the VAT are: imports; activities of production, of construction, renovation, and the general trade and services. The tax rate is a unique one of 18%. Exonerations apply to sectors of agriculture, breeding and fishing, of the insurance and reinsurance, to the medical cares, railway transports, social habitat construction, education, non transformed foodstuffs, bread and pastry, to drug, books and newspapers, to spectacles, to the medical instrument, to manures, to the agricultural instruments and finally to exports.

The excise duties concern products as tobacco, the low range products (17%), high range products (27%), the alcoholised drinks (25%) and non alcoholised (10%), coffees tea and cola intended to the local consumption (10%). The field of application of the excises is quite similar than those of the Waemu other countries except coffees, teas and cola. In the same way, the oil products and vehicles are submitted to the specific taxes in the whole countries of the union.

In Senegal, the VAT is concerned by the economic activity except some agricultural activities and the salaried activities according to the Labour regulation. It exists since 1980 and presents features of a modern tax, which are the neutrality for

the firms and the existence of a declarative system for some taxpayers. Its field of applicability is large and extended to the whole of service benefits (except the banking activities and insurances).

The Senegalese VAT distinguished two rates according to products: 10% for imports and some goods and services and 20% for all business subject to the VAT and no liable of another rate as well as the oil products. The principle of compensation between invoiced VAT and deductible VAT is applied. If certain activities and products remained exonerated of the tax (agriculture, fishing, transports, health...), goods and services were submitted to a reduced rate of 10%.

The list of goods and services liable to the reduced rate was important: this one is applied to current consumption goods, to certain investment goods, to inputs and cereals, notably to materials of construction.... Since the reform of the VAT, some goods that were exonerated previously (harbour contraptions ...) or liable to the reduced rate became subjected to the normal rate.

The basis of imposition of the VAT in Senegal has not been deeply changed on occasion of harmonization. But, the unification of rates generated a reclassifying of goods and services concerned by the unique rate and the exonerated operations. The taxable base of the reduced rate represented about 50% of the interior base, and 70% of the base of the custom duties (stamp taxes and surtaxes, adjustment on sugar and rice...). The passage of goods and services from the reduced rate to the unique rate is a main factor of growth of fiscal revenues.

Goods and services submitted to the reduced rate were divided between inputs, foodstuffs, and final consumption goods. The sector of the construction was as also subject to the reduced rate.

The reform of the VAT in the Waemu comes with a tariff disarmament and certain imported food prices benefited of some tariff reductions (the food oils notably). Some goods and services that were exonerated of VAT in Senegal become liable to it, they are the non-essential foodstuffs, activities linked to leisure and their inputs.

Concerning the tariff really applied, in addition of custom duties, products coming from other countries than those of Waemu are subject to several

supplementary taxes: the statistical royalties of the Waemu whose level is 1%, the communal tax for solidarity whose level is 1%, and the one of the Ecowas whose level is 0,5%. There is also the levy to the profit of the Senegalese Advice of Shippers of 0,2%. The base of all these taxes and supplementary levies is the custom value.

In Senegal, excises concern the following products: cigarettes (15%) , high level quality and other tobacco products liable of the tax (30%); the alcoholised drinks (30%) and the sparkling drinks (2.75%); products of perfume and cosmetic (10%); coffee and tea (3,8%); the walnut of cola (30%); the refined plant oils (15%), butters, creams of milk and other containing butter or cream (12%), the other fat materials (5%), except the oils of all kinds of peanut.

Concerning the global data on the expenditure, in Burkina, a household spends in average 751361 FCFA per year. On the basis of an average tail of 7,6 people by household, the expenditure of an individual is of about 99 000 FCFA. Purchases of goods and services constitute the two third of the total expenditure, being an amount of 552103 FCFA by household and per year. The selfconsumption is 26,5% of the total expenditure that is to say 199 258 FCFA by household and per year. About its structure, more than half of the household's expenditures are affected to food products (52,2%) followed by expenditures for the lodging, water, electricity and the other fuels, representing 15,1% of the total expenditure. Transfers and expenditures on clothing are in the same order (respectively 37021 francs and 35740 francs per year). Expenditures dedicated to leisure and the spectacle have their parts lower than 1%.

If one considers the structure of the average monetary expenditure of households, one notes that expenditures are essentially oriented toward the food products. They almost represent half of it (47,2%). Come then expenditures on transport (12,6%) and those of " lodging water electricity and other fuels".

- Food expenditures : Most the food products are not taxed in the two countries. In Burkina, the annual food expenditure is 392 282 FCFA by household in average. Group of Breads, Cereals, Tubers and vegetables represent 62,7% of these expenditures by household and per year. In this subgroup the part affected to the cereals is important. The millet and the sorghum are cereal products for which expenditures are relatively

greater (respectively 24,7% and 16,0%). They are the basic national food products. Expenditures concerning drinking and tobaccos are of about 3% and are taxed.

- Non food expenditures: Among these, the rent distinguishes itself with an average level of 51237 FCFA by household or 6,7% of the total expenditure.

Households almost spend as much for wood as the subgroup of "fuel", lubricant and insurance " (22 822 FCFA per year). The big expenditures are especially on purchases of rolling material, expenditures in transports and the expenditure in soap.

In Senegal, the average expenditure per capita and per year is 132 295 francs and households dedicate a percentage of 53% to their food consumption.

The group lodging, water, electricity and other fuels detains the most part important of non food expenditures, with 20,3% of the budget.

The clothing comes in third position with an average expenditure per capita and by year of 8,1%.

- The average expenditures of households according to the occupation of the HH

In Burkina, the average expenditure of households varies between 537 000 FCFA and 2 300 000 FCFAS within the households in the private sectors. Only the food-producing farmers spend in average, below the national average. In terms of inequality, one sees that 21,5% of expenditures are done by 11% of households whose chief is salaried in the public, the private or the informal sector, against the 44,6% of 62% of households whose head works in food-producing.

In Senegal, households whose head is an employer or non-agricultural independent have expenditure greater than the amount of the other groups and they essentially evolve in the informal sector.

In Burkina, feeding constitutes the most important part (66,2%) in the selfconsumption of households, especially based on harvest in rural areas. The group of "lodging, water electricity and other fuels" come in second position (32,6%). In Senegal, the distribution of selfconsumption shows the importance of feeding, tobacco and drinks. The group of lodgings comes in second position followed by articles of clothing and shoes. The structure reveals a distribution similar with the one in Burkina.

2. Fiscal reforms and equity in the literature

In the literature on fiscal reforms, questions of the arbitration between rates of taxation, the equity of reforms and the fiscal evasion by the selfconsumption and the informal sector are studied. The common result in the empiric literature is that the application of differentiated rates is desirable instead unique rate. This leads to questions about the efficiency of reforms undertaken within the Waemu, since rates are uniform there.

Among the first analyses for the less developed countries, are the works of Ahmad and Stern (1984, 87, 91) for India and Pakistan. There also, the differentiated rates are better and they cannot be replaced by a unique rate of VAT only if this latter is accompanied by regimes of exonerations or exemption for the agricultural goods and the social services.

Engel and al. (1999) showed that the indirect taxation is regressive in Chile where the rate of VAT is unique with few exemptions. Hossain (1995) showed that the unique rate VAT applied to the Bangladesh in 1991 affected the poor populations more heavily and exonerations were not sufficient to transform the indirect tax system to a progressive one.

The indirect taxation can positively affect the levels of welfare if it reduces prices of goods. The methodological approaches of the impact fiscal reforms are various and are enriched with developments of new statistical tools. While using instruments of optimal control, applied to a macroeconomic model, Henry and al. (1987) studied the transmission mechanisms of reforms consisting in a reduction of the indirect tax, through a decrease of the inflation and an increase of the disposable incomes.

Duclos (1994) proposed a general class of horizontal iniquity indices that permits to correct biases of the evaluation of inequality indices. This method is applied to the British fiscal system to measure contributions of different measures of equity.

Davidson and al. (1995) were also interested by the study of sampling asymptotical distributions of functions of estimators, from different samples. They developed a statistical model that permits the measure of tax progressivity and the

horizontal iniquity thus. These methods are applied to microeconomic data of Canada to appreciate the fiscal impacts. Duclos and al. (1996) analyzed the decomposition of the variations of linear inequality indices, into indices of progressivity and iniquity, this latter were evaluated by the size of the reordering. The asymptotic properties of the indices permitted them to apply the method to data on Canada.

The equity dimension of fiscal policies can also be evaluated by non parametric estimations. Thus, with a CGE model applied in Vietnam and calibrated on survey data of 1995, Chan and Ghosh (2000) showed the impact of fiscal reforms on the global welfare of households and groups of households. Redistributive impacts of the indirect taxation have also been studied by Creedy (2001) in Australia while decomposing them in effects into reordering, horizontal iniquity and vertical equity. The growth of the first two effects was explained by the difference in the consumption structures of households who have the same total expenditure level. He showed the major role played by the reordering component on structures before and after taxations.

The fiscal reforms are also means for poverty alleviation. Bibi and Duclos. (2004) studied the link between reforms on the indirect tax and households' poverty in Tunisia. The minimization of the poverty indicator under budgetary constraint of government permitted them to analyze cost – benefit ratios of the growth of taxes on consumption goods. Their results prove, after different tests of robustness, that poverty could be reduced in this country by an increase of subsidies on the hard wheat and the reduction of at least those on sugar.

Another African country was studied in the setting of the AERC, that is to say Cameroon. The distribution of the fiscal pressure of taxes on consumption goods is analyzed by Atemnkeng and Atabongawung (2004). They use the method of concentration curves of tax and incomes as well as the extended Gini index. They show that the system of taxation was progressive before reforms of 1994 undertaken within the Central African economic and monetary union and also the VAT reform of 1999. The system became even more progressive after reforms. Concerning the redistribution, the replacement of the business taxes of 1983 by that of 1996 improved the welfare levels, and this was not the case for the VAT of 1996.

The determination of the desirable reforms on indirect tax in Mexico also was studied by Duclos and al. (2004). They used some graphic methods to see if variations of tax rates affect positively levels of welfare. Critical values of poverty estimators and ratios of economic efficiency, as well as their statistical properties, permitted them to characterize the effects of socially desirable reforms of the VAT in this country.

Rodriguez and al. (2004), developed, by a non parametric approach, partial orderings of the horizontal iniquity linked to the distributions of after tax incomes. They also adopt a cardinal method to analyze the total effect of the taxation system on the welfare, explained by redistribution of incomes. The consequences of a component of the redistribution, independent to the horizontal iniquity, are compared to the loss of welfare due to this latter.

Lambert and Ramos (1997) evaluated fiscal reform consequences in Spain. They used a global index of measure of horizontal iniquity by estimating the inequality after taxes, generated among populations of individuals who were equal before tax. The horizontal iniquity of the reform corresponds to the loss of vertical equity and this one is measured through the variation of average inequality between groups of equal individuals. The definition of groups of equal individuals rests on the identification of those who are close in predetermined bandwidth intervals of incomes. Their measures permit to measure the gain of global welfare that would come of the elimination of the iniquity.

3. The model

The horizontal equity supposes that individuals or equal households are treated by the tax on the same way. The procedure that we use to measure the magnitude of the horizontal iniquity (IH) has as beginning point a local measure of the IH developed by Duclos and Lambert (1997). This new index of measure is linked to the index Blackorby and Donaldson. It is decomposed into two elements, the first one measures the distributive characteristics of a reference tax system where iniquity is eliminated. The other element takes the iniquity as a fraction of the mean after tax income. Thus it permits to seize the dispersion of scattering of after tax living standards among equal before taxation. That is the approach by the cost of inequality described by Kay and

King (1984). When this local measure is aggregated into a global index, using a weighting that ensures that the importance given to a local iniquity doesn't depend on the living standard, this global index permits to measure the gain of per capita income coming from the elimination of the HI without loss of social welfare.

We present here the different variable that we use and the functional relations that link them.

X = Vector of gross income

N = Vector of net income

$E = (1, 1, \dots, 1)$.

$W(X)$ = The welfare function

ξ = Equally distributed income giving, the same welfare than X : $W(\xi E) = W(X)$

μ = Mean income

$C = \mu - \xi$ = Cost of mean income inequality

$I = \frac{C}{\mu}$ = Inequality index

Ω_X = Group of individuals whose gross income is X

μ_X = Mean of gross income in Ω_X

ξ_X = Equally distributed income giving, the same welfare as X in Ω_X

μ_N = Mean of net income

ξ_N = Equally distributed income giving, the same welfare as N

μ_X^a = Means of after tax income in the Ω_X group

ξ_X^a = Equally distributed income giving, the same welfare than N in Ω_X

$H_X = \mu_X^a - \xi_X^a$ = Amount of per capita income that it is necessary to give for elimination of HI inside Ω_X without loss of welfare. It is the local measure of the horizontal iniquity.

$H = \sum_X p_X H_X$ = Global index of the horizontal iniquity

p_X = Proportion of the total population having the income X

$T_{wn}(X) = T_{wn}(X) = X - \xi^a_X$ = Uniform tax that individuals would want to pay to eliminate the HI without loss of welfare in Ω_X . This tax will restore the horizontal equity and doesn't affect the welfare.

We use the two following theorems :

Theorem 1 : H is the per-capita income gain that would come from substitution of the actual tax system by $T_{wn}(X)$.

One can express the global index H as fraction of the after tax mean income. We then have : $H_1 = H / \mu_N$.

H_1 is the cost of the iniquity expressed as a fraction of μ_N .

Theorem 2 : Let Π and Π_{wn} be the Blackorby-Donaldson progressivity indices for the actual tax system and for T_{wn} respectively then: $\Pi = \theta \cdot \Pi_{wn} - H_1$ where θ is the ratio of after tax T_{wn} mean income and the mean μ_N ($\theta \leq 1$). Π is the proportion of after tax income that authorities would pay to replace the actual system by a uniform tax that gives the same welfare. It is positive if the taxation is progressive. These two theorems permit us to estimate the horizontal iniquity and its monetary costs, as well as losses or gains of redistribution.

4. Statistical estimation

An estimation procedure by the method of Gaussian kernel permits the statistical application. For the measure of inequality and iniquity, one replaces X (p) by a utility function $U_\varepsilon(y)$, $\varepsilon \geq 0$ such that :

$$U_\varepsilon(y) = \begin{cases} \frac{1}{1-\varepsilon} y^{1-\varepsilon} & \text{si } \varepsilon \neq 1 \\ \ln(y) & \text{si } \varepsilon = 1 \end{cases} \quad (1)$$

ε is called the parameter of relative aversion to risk. The expression of U is explained by the fact that W must be homothetic: the ratio of social marginal utility ($\partial W / \partial X(p)$) of

two individuals stay constant if living standards vary at the same proportion. For availability of this property, it is the utility function must be of is this form.

For the gross and net incomes, the social welfare functions are:

$$W_X(\varepsilon) = \int_0^1 U_\varepsilon(X(p))dp \text{ and } W_N(\varepsilon) = \int_0^1 U_\varepsilon(N(p))dp \quad (2)$$

These expressions are explained by the fact that one uses the discrete variables whose values will be calculated from survey data. The individual whose rank is k has X_k as income and the level $U(X_k)$ as utility. To calculate ξ_X , the constant income that, once assigned to all individuals of the population, would maintain the same level of welfare than the initial distribution, one can notice that:

$$W_X = \int_0^1 U_\varepsilon(\xi_X)dp = U_\varepsilon(\xi_X) \quad (3)$$

Using the inverse of the utility function we have therefore: $\xi_X = U_\varepsilon^{-1}(W_X(\varepsilon))$ (4)

We get the value of ξ_N while using W_N . For the evaluation of the same value in Ω_X , one uses an optimal bandwidth of income intervals corresponding to the h value $h^* = 0,9An^{-0.2}$ where n is the size of the population and A is the following value: $A = \min\{\text{standard deviation} ; \text{interquartile interval} / 1,34\}^1$.

In this group, the estimator $\hat{\xi}_X^a$ of ξ_X^a is calculated by the relation :

$$U_\varepsilon(\hat{\xi}_X^a) = \int_{\Omega_X} U_\varepsilon(N)\hat{f}(N/X)dN \quad (5)$$

To estimate μ_X^a , one has: $\hat{\mu}_X^a = \int_{\Omega_X} N\hat{f}(N/X)dN$, what gives: $\hat{H}_X = \hat{\mu}_X^a - \hat{\xi}_X^a$ (6)

The global index of iniquity itself is deduced by integration:

¹ This value of the bandwidth is obtained by minimising the expected mean square error (Silverman, 1986)

$$\hat{H}_x = \int \hat{H}_x \hat{f}(X) dX \quad (7)$$

In this last expression, $\hat{f}(X)$ is the estimator of the gross income density.

The main computations are done by using the software DAD 4.3 (Distributive Analysis - Distributive Analysis) created out for needs of the Mimap programs and PEP by Duclos, Araar and Fortin, of Laval University.

5. Effects of the fiscal reform

5.1 The distribution of taxes

Effects of the indirect taxation on the distribution of incomes are apprehended through the distribution of the population according to quintile of incomes and the measure groups' contributions to the taxes. While comparing these parts before and after reforms, one notes that there is a modification of the relative contributions of groups. The contributions are independent and its value for every quintile corresponds to the part of its taxes on its total expenditures. For the fact that parts of households of Senegal are almost always superior to those of households in Burkina, one can advance the idea that it is explained by weakness of the fiscal pressure in Burkina relatively to Senegal's.

Households in Senegal paid relatively more taxes than those of Burkina. The main reasons are that the parts of selfconsumption are important in this country. By the same way, the fact that the poorest groups principally consume low or null tax rate goods, would permit to explain the increasing part of taxes according to the level of income, in the two countries. It would be also interesting to measure the part of the informal sector in expenditures in order to have an idea on the redistribution due to fiscal evasion.

After reforms, the growing trends of taxes, according to the levels of incomes are confirmed, but one notes a light improvement of amounts paid by groups. Parts reflect some macroeconomic aspects of the two countries because indirect tax parts are less high in Burkina than in Senegal, this latter passing, with Ivory Coast, the average in Waemu. One finally notes that the most underprivileged groups pay

relatively less indirect taxes because of exonerations and to the selfconsumption. So the new applied taxes improve the redistributive character of taxes in the two countries.

5.2 The Redistributive Effects

The horizontal iniquity is measured by the amount that an authority would pay to eliminate the inequality. Measured by monetary way, the cost of the horizontal iniquity can be compared to the reduction of the cost of inequality due to the vertical redistribution of a taxation system. One can determine therefore if the monetary growth of the fall of inequality exerted by a governmental policy is worth the monetary cost of the horizontal iniquity that this reform can generate. Π is the net performance of the system that is decomposed into the progressivity index of Blackorby and Donaldson and in an index of horizontal iniquity. It gives the percentage of variation of the equality generated by the passage from a before-tax income distribution to an after-taxes distribution. The index H_1 represents the horizontal iniquity. It is also interpreted as the reduction of the vertical equity of the system, if this latter is measured by the Blackorby and Donaldson progressivity index.

Table : Performance and tax progressivity indices and intervals of confidence to 95%

| Parameter | | 0.25 | | | |
|-----------|----------------|-------------------------|----------|-------------------------|----------------------|
| Countries | Periods | Π | θ | Π_{v_0} | H_1 |
| SENEGAL | Before reforms | 3,62 [3.59; 3.65] | 89,09 | 6,34 [6.32; 6.36] | 2,03 [1.98; 2.1] |
| | After reforms | 7,08 [7.06; 7.11] | 91,2 | 10,5 [10.49; 10.6] | 2,5 [2.46; 2.6] |
| BURKINA | Before reforms | 16,63 [16.59; 16.65] | 92,73 | 18,17 [18.15; 18.2] | 0,22 [0.21; 0.25] |
| | After reforms | 27,13 [27.1; 27.18] | 93,8 | 30,16 [30.15; 30.19] | 1,16 [1.09; 1.19] |

| Parameter | | 0.75 | | | |
|-----------|----------------|----------------------------|----------|----------------------------|----------------------|
| Countries | Periods | Π | θ | $\Pi_{v\omega}$ | H_1 |
| SENEGAL | Before reforms | 7,43 [7.42; 7.46] | 90,1 | 11,2 [11.19; 11.27] | 2,67 [2.65; 2.69] |
| | After reforms | 9,02 [9.0; 9.1] | 92,06 | 13,8 [13.69; 13.81] | 3,69 [3.64; 3.72] |
| BURKINA | Before reforms | 29,27 [29.25; 29.31] | 93,19 | 33,21 [33.19; 33.25] | 1,68 [1.64; 1.71] |
| | After reforms | 32,08 [31.9; 32.1] | 94,6 | 36,1 [36.09; 36.14] | 2,07 [1.89; 2.1] |

Source: Calculations from EPII (1998), and ESAMI (1995).

Π_{wn} is the amount per-capita that a decision maker with an aversion to the inequality ε , would want to pay for converting the present tax to the $T_{wn}(X)$. The calculations done don't take into account the part presumed important, of goods from the informal sector escaping to the taxation in the two countries. Data of ESAM survey and EPII don't present parts of these goods, but selfconsumption expenditures that are available, have been excluded from the evaluation of paid taxes. The tables show that performances of tax systems have been improved, with an appreciable growth of the equality in the two countries, particularly for Burkina. The excess fiscal revenues of the taxation are more important after the reform, either for Senegal as for the Burkina.

Thus, compared to the uniform tax, the senegalese system would generate 5,65% more of before tax income (gains measured by $\theta\Pi_{wn}$) and 9,58% after tax. For system of Burkina gains are 16,85% and 28,29% after tax.

With the parameter of 0.75, the gains are 10,01 and 12,71% for Senegal and 30,95 and 34,15% for Burkina. The index Π grows for the two countries, between in the two periods. The horizontal iniquity reduces the redistributive performance of taxes in Senegal to 2,03% and 2,5%. In Burkina, this loss is 0,22 and 1, 16%. In the same way, sums to pay for the passage to the proportional tax are more important in Burkina than

in Senegal, this means that the passage from the present system to the T_{wn} system is more expensive there. The maintenance of the actual system is more recommended in Burkina than its replacement. The supplementary incomes collected by the state as the absence of iniquity are weaker in Burkina (H_1) and the iniquity doesn't have a great effect in the two countries.

Conclusion

Senegal and Burkina adopted fiscal reforms within the Waemu that institutes a common tariff regime distinguishing the essential social goods, from those of first necessity; basic raw materials, equipment goods of and inputs as well as goods, products on which it applies differentiated rates. The union also proceeded to a harmonization of the VAT. It is therefore useful to know if these reforms of the indirect taxation of countries are not made to the detriment of the equity and the influence of the tax on behaviours of economic agents. The study of the redistributive impact of this new fiscal system is also interesting because the important parts the indirect taxes represent in the fiscal revenues of member States of the union.

Our objective is to measure for Senegal and Burkina Faso, country members of the union, the efficiency of these fiscal reforms and their effects on the redistribution of incomes and welfare of populations. The fiscal systems of the two countries, defined within the integration structures, tend to look alike; this gives interest to the comparative study of the two countries.

Effects of the indirect taxation on the distribution of incomes have been apprehended by the distribution of the population into quintiles of incomes and the measure of different groups' contributions to the tax. We noted, while comparing these parts before and after reforms, that there is a modification of the relative contributions of groups, favourable to the poor households. Households of Burkina paid relatively less taxes than those of Senegal, country whose fiscal pressure is one of the most important in the Waemu. The progressive character of the reform has been shown by the increasing part of taxes, with quintiles of incomes.

About the equity, the amounts that the two States would gain in supplementary incomes are weak enough, especially after reform, what indicates that the horizontal equity was relatively well respected by the fiscal harmonization. But here also, performances of Burkina are better than those of Senegal.

Finally, advantages of the standardization of the VAT in the two countries reside in the reduction of costs of tax collection and the administrative procedure simplification that it begets. Taxes were more progressive after the reform but real phenomena linked to the fiscal evasion and the weakness of administrative capacity can attenuate redistributive effects of the systems. The government's objective is not necessarily to maximize a social welfare function and some social behaviours can also reduce the positive effects of tax reforms, as the corruption, the existence of lobbies....

The two States, since they gained from these reforms, should improve their capacities of collection to give back the taxes efficient and should also privilege efficient utilizations of the gains of revenues by the productive investments. On the social side the non taxation of products essentially consumed by households of low income is a great advantage. In a more profound analysis, it would be interesting to see what are types of products that contribute the reduction of living standards inequalities, and in this case governments would win by reducing the rates of taxation that are applied on them.

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