



Munich Personal RePEc Archive

Financial stabilization systems, economic growth of developing countries and EU's STABEX

Aiello, Francesco

University of Calabria, Department of Economics and Statistics

2002

Online at <https://mpra.ub.uni-muenchen.de/38099/>
MPRA Paper No. 38099, posted 14 Apr 2012 15:25 UTC

Financial Stabilization Systems, Economic Growth of Developing Countries and EU's STABEX.

by Francesco Aiello

University of Calabria
Department of Economics
I-87036 Rende (CS), Italy
E-mail: f.aiello@unical.it
URL www.ecopol.unical.it/aielloe.html

1. Introduction

Understanding the impact of instability of export receipts on the economic growth of developing countries has been an important area of research in development economics for a long time. A substantial body of literature has documented a wide range of empirical regularities according to which export earnings instability (EEI) penalizes LDCs' economic performance. According to this view, EEI alters the path of economic progress by increasing the uncertainty of financial resources needed to purchase capital goods¹. This, in turn, reduces the overall level of efficiency of a country because the formation of capital is distorted by bad investments planning (Commission of the EC 1981, 1997)².

At the same time, similar empirical results imply that there are a number of reasons why more attention to some aspects of LDCs' exports instability can be still useful. In fact, if the outcomes on EEI problem are utilized as a ground for the adoption of stabilizing policies of LDCs' export proceeds, then the question about the effectiveness of these instruments remains unsolved. In addition, the evaluating exercise of the relevance of financial compensating systems has further analytical value at the time when is in progress a liberalization process in commodity world market, at the end of which competition will be exacerbated and LDCs fear to be more and more marginalized.

The paper is organized as follows. After an investigation of the impact of EEI on LDCs' economic growth, I briefly present the nature of the policy via which the European Union has attempted to stabilize the export earnings of the developing countries belonging to the Lomé Convention (henceforth ACPs)³. I then describe the stabilizing effect of EU's STABEX system and document its impact on the economic growth of the beneficiary countries. Finally, I will present some prospects for the future of the scheme.

¹ For an overview of this literature, see, e.g., Maizels (1992), Love J. (1987) and Araujo-Bonjean et al. (1999).

² A similar opinion is expressed by World Bank in its 1983 report, FAO (1996, p. 25) and UNCTAD (1999) and it is much more understandable when the economies are small and heavily dependent on agricultural commodity exports (Mac Bean 1966, Lancieri 1978).

³ The ACPs are the following: Angola, Antigua & Barbuda, Bahamas, Barbados, Belize, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Djibouti, Dominica, Dominican Republic, Equatorial Guinea, Ethiopia, Fiji, Gabon, Gambia, Ghana, Grenada, Guinea, Guinea Bissau, Guyana, Haiti, Ivory Coast, Jamaica, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Papua New Guinea, Rwanda, Saint Christopher and Nevis, Sao Tomè & Prince, Senegal, Seychelles, Sierra Leone, Solomon, Somalia, St Lucia, St Vincent, Sudan, Suriname, Swaziland, Tanzania, Togo, Tonga, Trinidad & Tobago, Tuvalu, Uganda, Vanuatu, Western Samoa, Zaire, Zambia and Zimbabwe.

2. The effects of export earnings instability on LDCs' economic growth.

The aim of this section is to evaluate whether export earnings instability exerts a causal impact on the economic growth of LDCs. This is a core issue in the entire study, because if countries appear to be penalized by instability of their exports, then the adoption of financial compensating systems can also be justified on an analytical grounds.

The following cross country regression represents the first step of the empirical analysis:

$$y_i = \alpha + \beta X_i + \theta INST_i + \varepsilon_i \quad [1]$$

where y_i is the average annual growth rates of real per capita GDP⁴ in the i -th country, X_i is a set of variables which describes the growth in *steady state*, $INST_i$ is an index of exports instability, while ε_i is the white noise error term.

Estimations of equ. [1] show evidence of the impact of EEI on the global economic growth, even if no information is given on the way this link occurs. In order to provide an indirect answer to this question, it could be useful to determine the impact of EEI on one of the key variables for economic growth: the total factor productivity. In this part of the work, I refer to the vast recent literature on growth which clearly shows that cross-country differences in the levels and growth rates of per capita income are not due to the accumulation of inputs, but are mostly determined by the differences in the level and growth of total factor productivity (TFP)⁵.

So, if the objective were to capture the impact of EEI on the investments opportunity of a country, I should also consider a variant of equ. [1], where the dependent variable is the growth rate of TFP. The TFP has been calculated by adopting the approach followed in many other papers (Hall and Jones, 1998 and 1999; McGrattan and Schmitz 1998, Klenow and Rodriguez-Clare, 1997). In particular, I start by assuming that the neoclassical aggregate production function has the same form across countries, is a Cobb-Douglas with constant returns to scale and is augmented to include human capital as well, as in Mankiw, Romer and Weil (1992):

$$Y_i = (K_i)^\alpha (A_i L_i h_i)^{1-\alpha} \quad [2]$$

The level of output for country i (Y_i) is determined by the stock of physical capital (K_i), by a measure of technology A_i (or «labor augmenting measure of productivity»), by the number of labor units employed (L_i) multiplied by the individual amount of human capital available (h_i). It is assumed that technical progress is *labor augmenting*. The determination of human capital is based on a *earnings function* estimated by Mincer (1974), $h_i = e^{\gamma S_i}$, where S_i denotes the average years of schooling and γ is the rate of return for each year of schooling⁶.

The output function [2] can be expressed in terms of output per worker, dividing both members by L_i :

⁴ For each country the growth rate of real per capita GDP (y) has been calculated by running a linear ($y=\alpha+\beta T+\varepsilon$) and a log linear [$\ln(y)=\alpha+\beta T+\varepsilon$] trend function. The choice is in favor of the model which better fitted data and the estimated coefficient β^* is the measure of the annual growth rate of y . The other growth rates used throughout the paper have been computed in the same way.

⁵ See, i.e., Hall and Jones (1999), Easterly and Levine (1999), Harrigan (1999), King and Levine (1994).

⁶ The function of human capital is in the form $h_i=e^{\phi(S_i)}$, where $\phi(S_i)$ represents the efficiency of labor with S_i years of education respect to one without education, $\phi(S_i)=0$, and $\phi'(S_i)$ is the rate of return of schooling. Our function $\phi(S_i)=\gamma S_i$ is piecewise linear as, among others, in Hall and Jones (1999), Beck, Levine and Loayza (1999). A peculiarity of this functional form, which is very useful for calculation, is that $\phi(S_i)=S_i \phi'(S_i)$.

$$\frac{Y_i}{L_i} = \left(\frac{K_i}{L_i} \right)^\alpha (A_i e^{\gamma S_i})^{1-\alpha} \quad [3]$$

Now, I take logs of [3] and time derivatives to get the growth rate of Total Factor Productivity, \dot{A}_i :

$$\dot{A}_i = [\dot{y}_i - \alpha \dot{k}_i - \gamma(1-\alpha)\dot{S}_i](1-\alpha)^{-1} \quad [4]$$

where \dot{y}_i , \dot{k}_i and \dot{S}_i are the growth rates of the output per worker, of the physical capital-worker ratio and of the average years of education, respectively. I assume a capital share $\alpha=0.3$ and $\gamma=13.4$ for the first 4 years of schooling and 10.1% for periods of education ranging from 4 to 8 years.⁷

Following much empirical literature on growth accounting (Barro and Sala i Martin 1995; Hall and Jones, 1998, 1999; Beck, Levine and Loayza, 1999), I use the perpetual inventory method for calculating the time series of the stock of physical capital needed to apply eq. [4]. The measure of capital stock is based on the dynamic relation

$$K_{t+1} = (1-\delta)K_t + I_t \quad [5]$$

where K_t is the stock of physical capital at time t , δ is the depreciation rate and I_t represents the gross investment incurred during period t . The depreciation rate is assumed to be of 6%, as in Hall and Jones (1999). If δ and I_t are known, then the application of [5] will require an estimation for capital in the first year (K_0). In this growth accounting exercise K_0 is given by the formula $K_0=I_0/(n+g+\delta)$, where n is the growth rate of the labor force and g is the rate of technical progress, which can be approximated to the growth rate labor output (Mankiw, Romer and Weil 1992). 1975 is the first year to be considered.

As regards the conditioning variables on the structural differences across countries inserted in regressions, the choice has been made to control for convergence (the logarithm of the initial per capita income), to capture the differences in human capital stock (initial level of education), in macroeconomic stability (government size), in the degree of openness (exports plus imports as percentage of GDP), in external conditions (growth of terms of trade), in public distortions to market (black market premium), in the share of private investment to GDP and, lastly, to take into account the differences in the instability of export earnings.

In order to deal with the problems of endogeneity and reverse causation, estimations were made with the method of instrumental variables, where lagged variables enter as instruments for the ratios “exports *plus* import to GDP” “investments to GDP” and “budget deficit to GDP” and for the log of (1+black market premium). Lagged variables are the average values over the five years (1970-74) preceding the starting period of the analysis. The indicator of differences in human capital availability, expressed as the initial secondary school enrolment rate, and the growth of terms of trade, expressed by the ratio of price index of exports over the price index of imports, enter in the regression as their own instruments, because of their exogeneity. Finally, the index of exports instability used in the growth equations is the coefficient of variation adjusted by the factor $\sqrt{1-\bar{R}^2}$, where \bar{R}^2 is the corrected coefficient of determination of the deterministic trend function (linear, log-linear)⁸ that best fits the actual export

⁷ These average values of γ are those obtained by Psacharopoulos (1994) for the sub-Saharan countries and for the world as a whole, respectively. They are also used in Hall and Jones (1999), McGrattan and Schmitz (1998) and Beck, Levine and Loayza (1999). In my computations, these two different rates split the ACPs category into two sub-groups: the Africans countries, to which the rate 13.4% has been used, and the Caribbean and Pacific countries to which the world average rate (10.1%) has been applied.

⁸ Because of the high correlation over the period 1975-1998 (0,94 for ACPs and 0,91 for LDCs other than ACPs) between the value of the presented index of instability (see values in table 5) and the one determined using a mixed deterministic-stochastic trend function [$\ln(y)=\alpha+\beta T + \delta y_{-1} + \epsilon$], I prefer to use the deterministic relation since it allows us make comparisons with other studies (i.e. Aiello 1999a, 1999b; and Herrmann, Burger and Smit 1993). Comparable results about the relationship

revenues (Cuddy and Della Valle 1978)⁹. The index of instability enters in regressions as its own instrument, because I refer to small exporting developing countries which are price-takers and whose exports instability mostly derives, as a consequence, from exogenous factors, such as the instability of export prices, the changes in foreign demand and the variability caused by unforeseen domestic events (i.e., change in climate).

It is worth to notice that the specification of the model, besides usual conditioning variables present in growth equations *à la* Barro, contains all the components of vulnerability, expressed as the risk of being harmed by unforeseen external shocks. In fact, as Guillaumont (1999b) has sharply presented in a recent paper, the economic vulnerability of a small and exports depending country is determined by the exposure to the shocks (proxied in our model by the indicator of openness), by the size of the shocks (our index of exports instability) and by the policies adopted to minimize the impact of the shocks, which in this study consist in the financial stabilization scheme inserted in the Lomé Convention (cfr. *infra*)

From the point of view of the expectations about the signs of the coefficients, the estimation of Θ is the central objective of the investigation. If we refer to the literature on this subject, Θ may be either positive or negative. However, given the sample of countries examined and the criticism to the optimistic view on EEI, one would expect Θ to be negative. Indeed, papers which claim that EEI is positively linked to the economic growth of a country have been the object of so much methodological debate which casts doubts on the validity of the interpretation of their results¹⁰. This is why many authors and international institutions nowadays argue that export earnings stability is a prerequisite for economic growth. Moreover, bearing on mind that the sample under investigation made up of beneficiaries of compensatory financing schemes, it is likely that these states are penalized by the instability of their exports. Furthermore, this is expected to be especially verified for ACPs, because if we control for aid tied to EEI, then the ACP group is much more homogeneous than the sample of other LDCs (cfr. *infra*)

Regression results are presented in tables 1 and 2, where in each data presentation, columns 1 and 2 show estimates obtained for a sample of 108 developing countries, while columns 3-4 and 5-6 report the findings of regression run separately for the group of 60 ACPs and for the group of 48 LDCs other than ACPs, respectively. I consider a base model and a variant of it that includes the variables related to trade (the growth of exports, the degree of openness, the growth of terms of trade and the index of EEI). This is to test if and to what extent the growth of developing economies has been dependent on trade over the period examined.

Like in many other papers, I find a conditional convergence process for the entire group of LDCs, even if the convergence coefficient differs sharply across the two selected groups of countries. Indeed, what emerges clearly from estimations is that, after controlling for the impact of the structural determinants of the steady state of each country, ACPs growth faster than the other LDCs: in the complete variant of the growth equations (columns 4 and 6 in table 1), the coefficient on the logarithm of initial per capita income is -0.0181 for ACPs and -0.012 for LDCs non ACPs. These outcomes imply, *ceteris paribus*, that within ACP group convergence occurs at the rate of 2.22 percent per year, whereas in the group of other LDCs the convergence rate is 1.37 percent per annum¹¹.

between different trend functions are also in Guillaumont (1999). Finally, Augmented Dickey-Fuller, Phillips-Perron tests reject non-stationary hypothesis for the weighted average export earnings time series of ACPs and other LDCs, where weights are the shares of each country with respect to the total export of the group.

⁹ The computation of the index of instability differs from the previous applications (Cuddy and Della Valle, 1978; Herrmann, Burger and Smit, 1993; Di Costanzo, 1993, Herrmann and Weiss, 1995) because I accept the validity of the comment by Duggan (1979) on Cuddy –Della Valle's article, in which the author points out how the autocorrelation of the errors modifies the values of the index I_x . To eliminate the effects on the least-squares estimators of autocorrelation, I use the Cochrane-Orcutt iterative process and assume that the disturbance term follows an AR(1) scheme.

¹⁰ See, i.e., Lam (1980), Savvides (1984), Mac Bean and Nguyen (1987), Lim (1991) and Gyimah-Brempong (1991).

¹¹ For comparison, growth regressions by Barro and Sala-i-Martin (1995) indicate that countries converged at the rate of 3% per year over 1965-1985. Other papers (Beck, Levine and Loayza 1999, Lensink, Bo and Sterken 1999, Guillaumont, Guillaumont and Varoudakis, 1999; Bosworth, Collins and Chen, 1995) provide more recent empirical evidence which confirm that countries experience conditional convergence paths. Finally, Gylfason, (1997) finds analogous outcomes to mine when he runs separate

As for the signs and significance of the other conditioning variables, the regressions show, the positive effect on growth of human capital availability and investments and the negative impact of public deficit size and of market distortions proxied by the black market premium.

Interestingly, the coefficient of the initial openness indicator, the ratio exports plus imports to GDP, is always significant and shows how LDCs growth over 1975-1998 has been strongly and positively influenced by the degree of openness recorded in mid-seventies. Then, it emerges, as in Proudman et al (1997), that countries with more openness converge faster towards their steady state equilibrium and, how data in tables 1 and 2 show, between the two groups of countries there is a difference, because of the higher significance and size of the concerned coefficient in the ACP regressions. Furthermore, all estimations confirm the positive effect on growth exercised by the improvement of the terms of trade.

As for the main purpose of this section, tables 1 and 2 reveal that the coefficient associated with the index of instability is negative and statistically significant. This suggests that EEI exerts a remarkable and negative impact on the growth of real per capita GDP and on growth productivity, that is to say the more unstable the export earnings of LDC, the lower their economic and TFP growth¹². Estimations differentiate between developing countries belonging or not to the Lomé Convention. In fact, if we refer to the growth of per capita GDP (table 1), the estimated coefficient of INSTA will be negative and always significant at the 5% level in the regressions of ACPs, whereas it records a degree of significance at the level of 10% when regressions refer to other LDCs. The magnitude of the impact is also different, since the parameter δ in ACPs' estimations is always greater, in absolute

regressions for the low income countries, such as the majority of ACPs, and for the groups of medium and high income countries.

¹²These results are coherent with the ones obtained, among others, in Aiello (1999b) where, under the framework of a neoclassical production function in line with the tradition of Feder (1983), all the estimations obtained by regressing the growth rate of GDP net of exports on the growth rates of gross fixed capital formation, of employment and of exports and on two indices of EEI, provide a robust negative impact of exports instability on ACP economic growth over 1975-1995. On the other hand, and consistently with all other cross-country based papers, these outcomes are not undermined by the ones recently obtained by Sinha (1999), who applying modern time series econometrics techniques on nine Asian countries, concludes that EEI is negatively linked to growth in five out of nine economies, while for the remaining cases the relationship is even positive. Indeed, it seems that final regression reported in that paper does not allow researchers to draw general conclusion, because of the low level of statistical significance observed in the growth equations for the coefficient of the index of instability (logarithm of the absolute value of the deviations of exports from its five-years moving average).

terms, than the one of LDCs¹³. Analogous conclusions can be drawn when one compares the two groups of countries considering regressions on growth productivity. A further and original result is obtainable when comparisons are made within the same sample of countries looking to global economic and productivity growth regressions. Evidence shows that, whatever the model and the sample of country, the negative impact of EEI is more significant and stronger in productivity equations. This appears to be a clear indication that variability registered in export receipts by developing countries impedes their growth by lowering the level of efficiency with which inputs are employed.

To sum up, from my perspective, the main conclusion from this econometric evaluation favors policies which guarantee the stabilization of world export markets because, if such policies operates and are effective, the stability improves the growth of total factor productivity and exerts, as a consequence, positive effects on the global growth of the concerned developing countries.

¹³These results can be explained by the higher exports instability and the more substantial dependence on exports in ACPs than in other LDCs. Indeed during the period examined, the index of national export receipts is 35.14 for ACPs (see table 5) and 17.8 for other 40 developing countries. Similar results emerge when different aggregation of products (STABEX eligible products, agricultural products) are considered (CERDI et al., 1998).

Table 1 Economic growth and LDCs' export earnings instability (1975-1998).

Variables	ALL SAMPLE		ACPs		Other LDCs	
	Base model	Augmented Model	Base Model	Augmented Model	Base Model	Augmented Model
Constant	9.21 (3.31)	8.34 (3.87)	12.5 (2.76)	11.7 (2.54)	9.81 (3.01)	8.31 (2.78)
Log (Initial per capita income)	-0.011 (-3.24)	-0.014 (-2.78)	-0.017 (-2.56)	-0.0181 (-2.41)	-0.011 (-3.13)	-0.012 (-2.87)
Schooling	0.044 (3.01)	0.045 (2.87)	0.023 (2.67)	0.021 (2.45)	0.034 (2.48)	0.0294 (2.34)
Investments to GDP	0.043 (1.58)	0.037 (1.571)	0.025 (1.45)	0.023 (1.47)	0.041 (1.66)	0.043 (1.76)
Budget Deficit/GDP	-1.34 (1.76)	-1.21 (1.65)	-1.33 (1.83)	-1.3 (1.78)	-1.25 (1.47)	-1.12 (1.54)
Log (1+Black Market Premium)	-0.17 (1.97)	-0.16 (1.95)	-0.2 (2.15)	-0.21 (2.02)	-0.15 (1.87)	-0.16 (1.63)
[(Exports + Imports)/GDP]		0.76 (1.95)		0.65 (2.12)		0.71 (2.08)
Term of Trade		0.14 (2.65)		0.132 (2.23)		0.145 (2.54)
Index of EEI		-0.28 (2.22)		-0.34 (2.32)		-0.15 (1.78)
R ² adj.	0.42	0.46	0.38	0.41	0.46	0.46
Obs.	108	108	60	60	48	48
LM test	2.21	2.78	2.35	2.82	1.89	1.89

Source: own computation on data from World Bank (World Development Indicators 1999), Penn-World Tables 5.6 and FAO.

t-values are corrected for heteroscedasticity by White's (1980) method.

Table 2 TFT growth and LDCs' export earnings instability (1975-1998).

Variables	ALL SAMPLE		ACPs		Other LDCs	
	Base model	Augmented Model	Base Model	Augmented Model	Base Model	Augmented Model
Constant	15.3 (2.76)	14.34 (2.79)	21..5 (2.21)	23.9 (2.14)	19.2 (2.41)	18.72 (2.34)
Log (Initial per capita income)	-0.009 (-2.45)	-0.01 (-2.13)	-0,012 (-2,12)	-0.0131 (-1.96)	-0.0098 (-2.74)	-0.011 (-2.7)
Schooling	0.02 (1.67)	0.025 (1.65)	0.009 (1.91)	0.012 (2.05)	0.021 (2.12)	0.02 (2.14)
Investments to GDP	0.033 (1.69)	0.029 (1.78)	0.02 (1.49)	0.019 (1.21)	0.034 (1.76)	0.038 (1.82)
Budget Deficit/GDP	-1.1 (1.86)	-1.18 (1.75)	-1.01 (2.03)	-0.98 (1.96)	-1.14 (1.77)	-1.09 (1.94)
Log (1+Black Market Premium)	-0.156 (1.95)	-0.14 (1.9)	-0.195 (2.03)	-0.18 (1.98)	-0.145 (1.91)	-0.14 (1.71)
[(Exports + Imports)/GDP]		0.36 (1.35)		0.53 (1.93)		0.61 (2.13)
Term of Trade		0.12 (2.1)		0.101 (1.98)		0.11 (2.04)
Index of EEI		-0.31 (2.54)		-0.41 (2.38)		-0.22 (1.91)
R ² adj.	0.32	0.37	0.32	0.36	0.39	0.41
Obs.	108	108	60	60	48	48

LM test

2.91

2.78

3.11

3.01

1.95

2.01

Source: see table 1.

3 Basic rules of STABEX and reasons for stabilizing ACPs' export earnings.

The previous section provides strong empirical evidence to sustain the position of low income countries, which fear of the degree of economic vulnerability and are claiming more attention and protection from this concern. Indeed, I have showed that export instability seriously damages the growth of a small economy and this result necessarily enters as one of the factors defining the vulnerability of a country with respect to structural shocks¹⁴. The negative relationship between EEI and economic growth appeared to be more significant for the group of ACPs which are being heavily dependent on few primary commodity exports much more vulnerable than other LDCs. In the same way, these arguments support the choices made by the European Union, when it decided to adopt a policy specifically aimed at stabilizing the export earning instability of the developing countries belonging to the Lomé Convention. The established scheme is the STABEX (French acronym for STABilisation des recettes d'Exportation), which is the bulk of the development policy pursued by the EU and is aimed at improving the degree of resilience to external shocks of ACP economies.

STABEX has operated since 1975 as one of the policies (preferential treatments, export quota, supply controls, production diversification, etc) adopted by the EU for sustaining the export growth of the 70 ACPs. In detail, it aims to assist ACP commodity exporting countries when they experience a fall in export proceeds in selected agricultural sectors. The basic idea behind this compensatory facility is to settle payments in favor to ACP governments in order to compensate the shortfalls incurred in their exports and therefore re-establish the earnings which would have been received under normal market conditions. In addition, transfers are settled without taking into account the causes of exports instability. This means that prices and volumes are the ones freely determined by world market forces and no attention is given to understanding to what extent EEI is due to the variability of commodity export prices, or to the changes in the quantity traded. The main matter is the stabilization of export proceeds because in a scenario of strong dependence on international market, stable intakes of foreign currencies are crucial in determining the balance of payments, the level of external debt, the solidity of public budget and the effectiveness of investment internally planned in LDCs. In other words, STABEX is an instrument for minimizing ex-post the financial risk for ACPs deriving from losses in commodity exports.

Table 3 STABEX: operations and objectives

Main Objective	To remedy the harmful effects of exports instability and to safeguard the purchasing power of ACP states which suffer badly from drops in export proceeds. (Art. 186.1)
	Transfers are paid for stabilize the exports of 49 selected commodities. Art.187, Antonelli 1995, Grilli 1993, Hermmann et al. 1993
Trade flows	As a rule, compensation can be claimed for exports from each ACP to EU. (Art. 189.3). When most (60-70%) of ACP's export revenues do not come from trade with UE the subject of stabilisation can be also the exports to world market. Compensation is also possible for intra-ACP trade. (Art. 189.2)
Qualifying criteria	The scheme is activated if: a) the exports of an eligible product represent at least 5.5% of total exports from an ACP to all destination (<i>dependence threshold</i>). Actually the full dependence threshold is applied only for 12 ACPs, because the others are all considered to be least-developed and/or landlocked and/or islands. (Art. 196, 330, 333, 336). b) the exports to the EU market (or to all destinations, in specific cases) of any STABEX-product are at least 6% below the reference level (<i>fluctuation threshold</i>). The reference level is equal to the average export earnings of the six calendar years prior to the one of application, excluding the two years with the highest and lowest figures (Art. 197.2). c) instability does not depend on the operating of commercial policies which discriminate against EU.

¹⁴ This is coherent with the conclusions drawn by the Committee of Development Policy of UN, when it proposes to determine an Economic Vulnerability Indicator (EVI) as a weighted average of instability and concentration of exports, changes in agricultural output, population size and of the share of manufacturing to GDP. A longer discussion and many other details regarding conceptual clarifications and methods to calculate an international comparable indicator of economic vulnerability are in Guillaumont (1999) and Committee of Development Policy (1999).

The main provision of STABEX indicates that it is aimed at reducing the instability and risks faced by the commodity-export-dependent ACP states only when the shortfall of proceeds is substantial and generally regards the exports to EU market of eligible products¹⁵. Exceptions allow compensation claims considering the flow trade of an individual commodity to all destination (Table 3).

When it was implemented, STABEX was considered innovative because of its micro-based rules¹⁶. The main specificity of the scheme was to be targeted on selected agricultural products, which are relevant to the export structure of each ACP. The commodity-by-commodity approach holds in successive conventions and it is given, among other things, by the fact that transfers are gross in the sense that they are calculated considering only what happens in the sector concerned. This means that the scheme does not permit compensations for reductions and increases of receipts from exports which can be recorded at the level of a single country in different sectors.

However, if, on one hand, it is unquestionable that the first instrumental goal of STABEX is to stabilize the exports time series of triggering sectors (EU 1997, Aiello 1999a), on the other hand one has also to remember that this mere statistical effect is not sufficient to establish a sounder economic structure in each ACP economy. The final result depends upon how far the stabilization of export earnings is transmitted to stabilization of farmers income. The latter is the real ultimate objective of STABEX which has both a short and medium-long run valence and requires that payments must be transferred quickly at level of sector in order to refund farmers and, when required, to be strictly utilized for removing domestic cause of instability. These arguments help to understand how an international financing scheme apparently addressed only to cope with unstable exports of single commodities can have an impact on macro-variables, such as national exports and economic growth of a country. The implicit rationale of STABEX is based on the following virtuous circle: when EU-ACPs channel funds towards commodities whose exports are unstable but important for the concerned country and these financial resources are used in the sector which suffers the shortfall of revenue, then STABEX contributes to reduce the total EEI and, *ceteris paribus*, to raise the national economic growth in the long run.

If the mechanics, main objectives and spirit of STABEX have remained fundamentally the same over time (see table 3), Lomé IV introduces certain innovations that emphasize the sectoral perspective of the program. By establishing that transfers must be utilized in the triggering sectors and paid directly to the farmers, one of these new rules (art. 186§2 of Lomé IV) tries to stabilize mostly economic agents income, whereas previous conventions generally stated that compensation should maintain high the financial flows in favor to the sector. In order to achieve this objective, the use of funds must be monitored and this is why that payment allocations reflect the conditions fixed in a framework of mutual obligations (FMO), which is negotiated by EU Commission and each ACP state¹⁷. The FMO was the means the EU used to redirect, at the beginning of nineties, its orientation in STABEX, stipulating further controls and restrictions on the possible uses of transfers¹⁸.

¹⁵ STABEX covers the following products: cocoa beans, cocoa husks, shells and skins and other waste, cocoa paste, cocoa butter, cocoa powder, raw or roasted coffee, extracts, essences and concentrates of coffee, groundnuts in shell or shelled, groundnuts oil, cotton not carded or combed, cotton linters, coconuts, copra, coconut oil, palm oil, palm kernel oil, palm nuts and kernels, leather of bovine animals, sheep and lamb skin leather, goat and kid skin leather, wood in the rough and squared wood, sawn wood, fresh bananas, dried bananas, tea, vanilla, cloves, wool not carded or combed, fine animal hair of angora goat mohair, gum arabic, pyrethrum, saps and extracts of pyrethrum, essential oils, sesame seed, cashew nuts and kernels, pepper, shrimps and prawns, squid, octopus and cuttlefish, cotton seed, oil cake, rubber, peas, beans, lentils, nutmeg and mace, sheanuts, shea nut oil and mangoes (art. 187.1 of Lomé IV).

¹⁶ Since 1963 the International Monetary Fund established the Compensatory Financial Facility aimed at providing support to countries whose balance of payments suffers from drops of export earnings. Different from STABEX, the IMF-CFF deals with instability of national exports and not with drops of single commodity export proceeds. An overall discussion and evaluation of IMF-CFF is, among others, in Lim (1991) and Herrmann, Burger and Smit (1993).

¹⁷ For further details of the scheme see EC Commission (1984; 1997).

¹⁸ Before Lomé IV, the EU Commission has always allowed ACPs to decide freely how to allocate STABEX funds, even if the exercise of this discretionary power has had to be in conformity with the regulations layed down under the Convention. These regulations stipulated that STABEX transfers be invested preferably in the sector concerned, or more generally in other

4 The effectiveness of STABEX.

A brief overview of STABEX payments made during the period 1975-1998 is presented in tables 4 and 5. These transfers were 4.354 Millions ECUs and they were received by 52 out of 70 ACPs. Their distribution was concentrated both in terms of country and product. Almost 68% of the total transfer was in fact obtained by 10 beneficiary countries (Ivory Coast, Cameroon, Senegal, Ethiopia, Sudan Papua New Guinea, Kenya, Uganda, Ghana, Rwanda). The first five alone received more than 53% of the total. At the opposite end, there are 30 ACPs which individually received less than 1% of the total STABEX payments and which together account for less than 11% (table 4). Data in table 5 shows that the distribution of STABEX compensations by product has been even more concentrated: between 1975 and 1998 only two products (cacao and coffee) obtained more than 54% of total STABEX funds. This share rises to more than 80% when groundnut, cotton, and wood are added, whilst with copra, sisal and palm products is almost 90%.

The high degree of concentration of STABEX funds is stressed, when the compensations of the major products in each of the 10 major beneficiary countries are considered. It is possible to show that transfers are generated by the export earnings performance of a limited number of product (coffee, cocoa, groundnut, cotton, copra) exported by only 10 of the 70 ACPs. For instance, transfers settled for coffee in 7 ACPs (Cameroon, Ivory Coast, Ethiopia, Papua New Guinea, Kenya, Uganda and Rwanda) are more than 85% of the total compensation obtained for coffee over 1975-1998. Furthermore, Cameroon and Ghana's cocoa exports receive about 68% of the total payments transferred to the cocoa sector (by adding Ivory Coast's cocoa exports this percentage is more than 81%). Papua New Guinea's palm product exports receive most (76%) of the total transfers provided to the palm sector and more than 84% of the compensations received by the wood sector were allocated to the Ivory Coast wood exports.

As mentioned before (section 3), Stabex was established to foster the economic growth of ACPs by reducing the instability of their export earnings. So, it is worth to assessing the effectiveness of the scheme firstly by evaluating Stabex stabilizing effect on ACPs' export receipts time series and then by capturing the relationship between this effect and the economic growth of the beneficiary countries. In order to evaluate the stabilizing effect of the scheme, I consider the Cuddy Della Valle's index used in regressions of real GDP per capita and productivity growth (tables 1 and 2), by using the expression $X_{t,s} = X_t + ST_{t-1}$, in which it is assumed that the payments were made one year after the year of application. Therefore, at time t the export receipts with STABEX ($X_{t,s}$) sums the actual export values (X_t) and the compensation related to the export earnings in year $t-1$ that the EU Commission settled at time t ¹⁹. Following this approach, STABEX is effective when the index of instability referred to the time series "exports plus transfers" is less than the value of the index computed only on the export earnings.

Table 6 offers details of the Stabex impact over the period 1975-1998. During the examined period of time, the instability of ACP export earnings amounts to 35.14, a value that is higher than the one (26.40) calculated for the period 1975-1987 involving 48 ACPs (Herrmann, Burger and Smit, 1993) and the one (33.53) of 51 ACPs registered over 1973-1993 (Aiello, 1999a). These comparisons allow us to discern how the EEI of ACPs has grown over time, and, as a consequence, one would expect an equal increase in the effectiveness of EU's Stabex program. On the contrary, STABEX stabilizing effect on the instability of ACPs' export earnings is very low and accounts only for

sectors of the country where this could be justified on the grounds of diversification. In particular, from 1975 to 1985, the years of application of the first and second Lomé Convention, the final use of funds was not subject to any stringent controls. In Lomé I, ACPs on request from the Commission had to communicate the final destination of the allocated funds. Other than this, during Lomé II ACPs were expected to inform the Commission on their most likely use and destination before obtaining the transfers. In Lomé III ACPs had to provide the Commission with «substantial» indications on projects financed by STABEX funds giving the motivations for diverting the funds from their original destination into a different sector.

¹⁹The rationale behind this assumption is based on the fact that the EU Commission must take a decision concerning all transfers by 31 July of the year following the year of application (art. 207 of Lomé IV). In addition, both in 1975-1979 and 1988-1992 the Commission paid compensation within 9-10 months after the year of application (Di Costanzo 1993; Lim, 1991). Longer delays occurred during nineties the reasons of which are briefly discussed into section 5.

Table 4 Stabex transfers. Breakdown by country (1975-1998)

Countries	Amounts in ECU				Total (1975-1998)		
	Lomè I	Lomè II	Lomè III	Lomè IV	Absolute	cum.	
	(1975-79)	(1980-84)	(1985-89)	(1990-98)	Values	%	%
1 Ivory Coast	15000000	93417020	365260445	248560279	722237744	16,59	16,59
2 Cameroon	4064981	29590291	198764270	241126952	473546494	10,88	27,46
3 Senegal	65106389	90583330	106953091	58380260	321023070	7,37	34,84
4 Ethiopia	14420049	11299624	98605603	187474474	311799750	7,16	42,00
5 Sudan	41776364	40695259	63929391	135938271	282339285	6,48	48,48
6 Papua New Guinea	0	50690742	110005548	79070800	239767090	5,51	53,99
7 Kenya	0	44865565	70896331	79071767	194833663	4,47	58,46
8 Uganda	20595453	0	0	140398404	160993857	3,70	62,16
9 Ghana	5176408	85470931	0	43941587	134588926	3,09	65,25
10 Rwanda	608802	9330694	61905411	48108777	119953684	2,76	68,01
11 Burundi	1485655	13811299	44496384	57835114	117628452	2,70	70,71
12 Tanzania	20701549	20864338	8908060	59454399	109928346	2,52	73,23
13 Togo	3626614	28834025	25546506	31289106	89296251	2,05	75,29
14 Madagascar	5747547	9988785	4506173	68726731	88969236	2,04	77,33
15 Solomon Isl.	2173387	4335074	31268105	50030448	87807014	2,02	79,35
16 Central African Rep.	7829555	5196750	31223639	22303524	66553468	1,53	80,87
17 Chad	7336196	6640136	40388374	10969958	65334664	1,50	82,37
18 St Lucia	0	1618999	0	60747143	62366142	1,43	83,81
19 St Vincent & Gren.	0	913286	0	59476297	60389583	1,39	85,19
20 Dominica	2892944	3534837	1208418	38327037	45963236	1,06	86,25
21 Malawi	0	4934458	21704751	18927658	45566867	1,05	87,30
22 Benin	20366720	4645443	17717889	1478805	44208857	1,02	88,31
23 Gambia	7514754	18154311	13715509	3720108	43104682	0,99	89,30
24 Mali	9780903	10701239	20272966	941986	41697094	0,96	90,26
25 Zimbabwe	0	0	0	37715634	37715634	0,87	91,13
26 Burkina Faso	7261902	1046734	7317540	19096173	34722349	0,80	91,92
28 Vanuatu	1430863	8931767	19291375	3743527	33397532	0,77	92,69
29 Niger	22653960	0	6610427	0	29264387	0,67	93,36
30 Comoros	2326446	6574673	9563715	9105437	27570271	0,63	94,00
31 Sierra Leone	0	14351129	0	11880301	26231430	0,60	94,60
32 Western Somoa	2837453	6488960	11122242	5772509	26221164	0,60	95,20
33 Mozambique	0	0	21451157	3549775	25000932	0,57	95,77
27 Haiti	0	0	11063418	11325464	22388882	0,51	96,29
34 Grenada	0	3963333	2530362	12976628	19470323	0,45	96,74
35 Guinea Bissau	11288257	3649211	2881708	1362164	19181340	0,44	97,18
36 Equatorial Guinea	0	0	9830661	8272188	18102849	0,42	97,59
37 Mauritania	0	0	0	15510857	15510857	0,36	97,95
38 Sao Tomè & Prince	0	7603763	1626901	2849620	12080284	0,28	98,23
39 Tonga	1207990	4011141	4332023	2388599	11939753	0,27	98,50
40 Gabon	6703311	0	3127959	0	9831270	0,23	98,73
41 Leshoto	0	1290959	4364313	3251332	8906604	0,20	98,93
42 Swaziland	0	8189318	0	0	8189318	0,19	99,12
43 Congo	7361677	0	0	0	7361677	0,17	99,29
44 Kiribati	2283419	1598972	2458565	906909	7247865	0,17	99,45
45 Somalia	1932145	3580556	543312	0	6056013	0,14	99,59
46 Fiji	2114974	3000921	263918	0	5379813	0,12	99,72
47 Jamaica	0	4295408	0	0	4295408	0,10	99,81
48 Cape Verde	1206564	526961	0	1847583	3581108	0,08	99,90
49 Mauritius Isl.	0	0	2950299	0	2950299	0,07	99,96
50 Djibouti	691851	0	0	0	691851	0,02	99,98
51 Tuvalu	174729	141635	139081	37421	492866	0,01	99,99
52 Belize	342364	0	0	0	342364	0,01	100,00
Total	328022175	669361877	1458745840	1897892006	4354021898	100	

Source: "Report on the operation of STABEX", Commission of the European Communities, Brussels, various issues.

Table 5 STABEX transfers. Breakdown by product (1975-1998).

Products	Amount in Euro				Total (1975-1998)		
	Lomè I (1975-79)	Lomè II (1980-84)	Lomè III (1985-89)	Lomè IV (1990-98)	Absolute values	%	% cum.
1 Coffe	14494289	246582657	589494410	935726396	1786297752	41,03	41,03
2 Cocoa	1521161	148836782	203098818	249204248	602661009	13,84	54,87
3 Groundnut	139360279	133258043	168023123	63943644	504585089	11,59	66,46
4 Cotton	43359441	36534333	84649754	153806608	318350136	7,31	73,77
5 Wood/Timber	39992067	390631	106806372	126529514	273718584	6,29	80,06
6 Copra	10571240	31625346	101336328	20586158	164119072	3,77	83,82
7 Sisal	20577410	9068448	3472194	123073409	156191461	3,59	87,41
8 Palm (oil, kernel oil, nuts and ken	7800126	3913661	77727124	17979797	107420708	2,47	89,88
9 Oil cake	17594585	16789736	20848292	41012815	96245428	2,21	92,09
10 Bananas	5813366	14220660	1697755	53493056	75224837	1,73	93,82
11 Tea	8376330	2250103	45905104	9220708	65752245	1,51	95,33
12 Gum arabic	848489	0	0	44208100	45056589	1,03	96,36
13 Vanilla	2903720	5159394	2540479	14696929	25300522	0,58	96,94
14 Beans	0	4996671	19604719	100787	24702177	0,57	97,51
15 Cloves	2303517	851095	11639394	4877982	19671988	0,45	97,96
16 Shrimps, prawns and squid	0	710289	388231	15980076	17078596	0,39	98,35
17 Cashew nuts	0	4903831	7619419	1788782	14312032	0,33	98,68
18 Raw hides and skins	9093834	913011	2471441	1399443	13877729	0,32	99,00
19 Sesame seed	2632923	3150900	955047	4759175	11498045	0,26	99,27
20 Karité	0	1937603	5821886	3251332	11010821	0,25	99,52
21 Nutmeg and mace	0	637851	0	6632211	7270062	0,17	99,69
22 Wool, mohair	0	1290959	4364313	994638	6649910	0,15	99,84
23 Essential Oils	170596	1339873	0	2483909	3994378	0,09	99,93
24 Pyrethrum	608802	0	281637	1837893	2728332	0,06	99,99
25 Rubber				304396	304396	0,01	100
	328022175	669361877	1458745840	1897892006	4354021898	100	

Source: "Report on the operation of STABEX", Commission of the European Communities, Brussels, various issues.

1.72% over 1975-1998, which is even less than the values, 2.33% and 2.69% determined for the periods 1975-1987 (Herrmann, Burger and Smit, 1993) and 1973-1993 (Aiello, 1999a), respectively.

If on one hand the aggregate and average effects of Stabex are weak, on the other hand there is a large cross-country variation in the results. Indeed, STABEX is effective in 39 out of 52 cases and the highest (5,82%) and the lowest (0,42%) stabilizing effects occur for Vanuatu and Congo, respectively. On the other hand, in 13 countries Stabex payments determine an increase of the national export earnings instability and the highest destabilizing impact occurs for Grenada (5,7%) (Table 6).

Some other general results emerging from the analysis reflect the fact that a group of small isles (St Lucia, St. Vincent, Tonga, Tuvalu, Vanuatu, Jamaica, Fiji) registers a substantial reduction of their national export earnings due to Stabex compensations. If we compare these findings with the ones obtained in Aiello (1999a), where it was shown that the impact of STABEX on the EEI of these countries was weak over 1975-1993, then it will be possible to conclude that the scheme has become more effective more recently. One policy implication of this argument is that, when it is jointly considered with the low amount of payments received by these states and with their strong dependence on primary exports, it emphasizes the key role of the scheme for the sustainability of their economic growth and support their position in the current international talks about the maintenance and the giving strengthening of Stabex.

Besides the analysis of the impact on the variability of export earnings, an overall evaluation of Stabex requires further investigation to verify if it has really stimulated ACP economic growth. Indeed, it is especially difficult to claim the full efficiency of the compensation scheme if we look at the effect of stabilisation export earnings on its own. This is because a stabilizing effect on export time series over a number of years does not necessarily lead to a stabilisation in the income of producers operating in the sector and thus does not necessarily stimulate an increase in the overall level of efficiency in the country concerned. Therefore, following the procedure used in Aiello (1999b), the link between Stabex stabilizing effect and ACP growth has been tested by re-estimating the equation of real GDP per capita and productivity growth in which the following two variables have been added:

- D is a *dummy* variable, which is equal to one for those ACPs, whose export earnings instability has been reduced as a result of Stabex and to zero for those ACPs which experienced an increase of exports variability;
- ST is the log of the value of payments (as percentage of GDP) received by each ACP state.

In the case of the *dummy* variable D, one would expect that, *ceteris paribus*, the impact of Stabex on the growth of ACPs would be greater (lesser) for those states that have experienced a reduction (increase) of their export earnings instability. However, the *dummy* variable D is expected to be associated with (to have) a positive coefficient. Similar arguments hold for the variable ST: all things being equal, the greater the amount of compensation, the better is the economic performance of the country concerned.

Table 7 shows the results obtained when D and ST are added in the list of explanatory variables in the equations of growth. The first result is that the sign and the statistical significance of the coefficients associated with the variables other than D and ST are similar to those shown in tables 1 and 2. This suggests that the regressors D and ST do not introduce multicollinearity into the models. More interestingly for the specific purposes of regressions, the estimates show how the Stabex stabilizing effect does not exert any effect on ACPs global economic growth, because of the very low level of significance registered by the coefficient of the *dummy* D. Same outcome emerges by the regression of productivity growth. The picture is no better when the exercise is repeated using the variable ST, whose coefficients are close to zero and not significant. Therefore, this analysis provides new empirical evidence to support the view that Stabex has not been very effective, where effectiveness is taken to mean the capacity of the scheme to promote, in same way, the economic growth of ACPs.

Table 6
Stabex impact on ACPs' Export Earnings Instability (1975-1998)

Countries	Instability without STABEX (1)	Instability with STABEX (2)	Stabilizing Effect [(2-1)]	Countries	Instability without STABEX (1)	Instability with STABEX (2)	Stabilizing Effect [(2-1)/1]*100
Belize	102,4	100,7	-1,66	Malawi	32,1	31,2	-2,80
Benin	87,3	85,7	-1,83	Mali	19,2	18,7	-2,60
Burkina Faso	34,9	34,2	-2,01	Mauritania	34,5	35,3	2,32
Burundi	14,1	13,8	-2,13	Mauritius	25,3	25,8	1,98
Cameroon	29,1	27,9	-4,12	Mozambique	27,8	28,01	0,76
Cape Verde	25,1	24,5	-2,39	Niger	42,1	43,3	2,85
Chad	43,9	43,3	-1,37	P.N. Guinea	14,6	13,9	-4,79
Comoros	21,5	21,01	-2,28	CAR	53,1	52,4	-1,32
Congo	47,1	46,9	-0,42	Rwanda	38,9	37,8	-2,83
Ivory Coast	24,9	23,5	-5,62	West. Samoa	33,2	34,1	2,71
Dominica	49,1	47,86	-2,53	St. Vincent	29,4	27,1	-7,82
Ethiopia	21,4	20,8	-2,80	St Lucia	39,1	37,3	-4,60
Fiji	27,2	26,03	-4,30	Saò Tomé & P.	24,2	23,9	-1,24
Gabon	29,9	28,6	-4,35	Senegal	28,3	27,2	-3,89
Gambia	23,6	23	-2,54	Sierra Leone	12,3	12,03	-2,20
Ghana	18,7	16	-14,44	Somalia	42,2	40,8	-3,32
Jamaica	26,1	25	-4,21	Sudan	25,4	26,3	3,54
Djibouti	34,1	34,5	1,17	Swaziland	31,9	33,1	3,76
Grenada	19,3	20,4	5,70	Tanzania	43,2	44,3	2,55
Guinea Bissau	22,4	22,62	0,98	Togo	54,3	51,6	-4,97
Guinea Equatorial	27,4	27	-1,46	Tonga	27,4	26,1	-4,74
Is. Solomon	27,1	26,8	-1,11	Tuvalu	89,1	87,5	-1,80
Kenya	15,1	15,8	4,64	Uganda	23,6	23,3	-1,27
Kiribati	26,4	26,01	-1,48	Vanuatu	44,7	42,1	-5,82
Lesotho	40,1	41,2	2,74	Zimbabwe	42,1	41,8	-0,71
Madagascar	45,6	43,9	-3,73	Haiti	65,7	64,1	-2,44
All ACPs	29,1	28,7	-1,37				
Arithmetic mean	35,14	34,54	-1,72				
Median	29,25	27,95					
Stand. Dev.	18,35	18,04					

Source: own computations on data from FAO "Agristat Database" and EU Commission publications.

Table 7 STABEX and growth of ACP (1975-1998)

Variables	Economic Growth	Economic Growth	TFP Growth	TFP Growth
Constant	10.7 (2.35)	9.8 (2.02)	23.1 (2.11)	20.7 (2.02)
Log (Initial per capita income)	-0.019 (-2.4)	-0.018 (-2.33)	-0.0132 (-1.95)	-0.013 (-1.9)
Schooling	0.018 (2.46)	0.0183 (2.21)	0.0142 (2.046)	0.0142 (1.96)
Investments to GDP	0.021 (1.56)	0.02 (1.66)	0.017 (1.19)	0.017 (1.32)
Budget Deficit/GDP	-1.61 (1.77)	-1.63 (1.87)	-0.93 (1.97)	-0.967 (1.92)
Log (1+Black Market Premium)	-0.202 (2.13)	-0.205 (1.97)	-0.17 (1.98)	-0.165 (1.99)
[(Exports + Imports)/GDP]	0.78 (2.09)	0.72 (2.11)	0.528 (1.927)	0.51 (1.91)
Term of Trade	0.13 (2.21)	0.12 (2.01)	0.106 (1.99)	0.104 (1.98)
Index of EEI	-0.335 (2.32)	-0.33 (2.31)	-0.38 (2.21)	-0.37 (2.21)
<i>Dummy D</i>	0.012 (1.12)		0.016 (1.22)	
ST		0.032 (0.98)		0.021 (1.04)
R ² adj	0.435	0.42	0.38	0.365
Obs.	52	52	52	52
LM test	3.21	3.12	3.45	3.22

Source: see table 1.

t-values are corrected for heteroscedasticity by White's (1980) method

5. Why Stabex failed.

The previous section described Stabex's lack of success in stabilising the export receipts of ACPs and how the scheme has failed to have a positive effect on their economic growth. These results become even more apparent when an attempt is made to determine the impact of the scheme on the growth of total factor productivity, which, in turn, is an important source of growth.

This section will try to find some of the reasons which may have contributed to this and examine certain of the functional mechanisms of the compensation scheme. The aim of this final part of the work is not just to provide elements for evaluation in order to account for what has happened in the past, but also to reflect on the possible political and economic implications which can derive from a study of the workings of the scheme. This rests on the assumption that the current negotiations between the EU and the ACP will culminate in the signing of a new Lomé Convention.

As specified in section 3 the instrumental objective of the scheme is to guarantee the stability of foreign currency earnings in the triggering sectors, which are relevant to the export structure of each country. For this reason it appears important to devote more detailed attention to micro-biased specifics of STABEX, which are crucial for its correct functioning. In particular, the aspects which are considered here are the composition of the basket of goods which benefit from transfers and the use of the transfers in the specific sector for which they had been claimed.

Ceteris paribus, one would expect that the greater the number of products covered by the scheme the greater the observable effect at the level of total exports and, therefore, the stronger the impact on growth in the economy of the beneficiaries. On the other hand, the logic underlying the aim of stabilizing earnings from exports of each product requires that compensations are transferred immediately to the sector concerned in order to allow producers both to reorganize production and improve their investment planning (see section 3).

One of the most controversial and debated aspects of STABEX is its product coverage. The list of eligible products has been extended over time from 29 in Lomé I to 49 in Lomé IV. The aim of the EU-ACP agreement is to provide financial support to the exports of traditional commodities, in particular tropical tree crops, upon which many ACPs, as exporters, and the EU countries, as importers, depend. In fact, the STABEX-products still represent a large proportion of the total exports of many ACPs which are the predominant suppliers to the EU market. It would appear, however, that this basket of products could put ACP countries at a disadvantage. In fact, it could be a disincentive to diversification: it is in the interest of ACPs to achieve certain levels of production and exports in the selected sectors to satisfy the qualifying criteria of STABEX and then claim compensation. Yet it is unclear what the economic justification is for excluding various products (sugar, meat and tobacco) from the stabilisation scheme which are crucial for many countries (Zimbabwe, Malawi, Mauritius, Guyana, Fiji, Jamaica, Swaziland, Botswana). This choice can certainly not be justified on the grounds that certain products (meat and sugar) are included in preferential commercial agreements because the preferential policies are not concerned with export instability and, even if this were not the case, it would be impossible to understand the inclusion of bananas to which Lomé granted a specific protocol. The paradox surrounding the exclusion of these products can be highlighted by recalling the guiding principle for the formation of the STABEX basket of goods, which was «to take account of employment, of the deterioration of the terms of trade between the EU and ACPs, on the level of development in the latter as well as the difficulties of isolation faced by less developed ACP states» (Art. 17, Lomé I). Evidently, political reasons concerning the protection of the EU domestic producer have outweighed the economic factors which should have inspired the choice of products to be included in the scheme. Today for various reasons the protection arguments inside the Community have lost ground and this fact may make it now politically feasible to extend the range of goods under STABEX.

As regards the eligible products, there is another element to be considered, which has often been misinterpreted. Why does STABEX take into consideration only primary materials from the agricultural sector but totally reject mineral commodities? Compensation payments are made in order to «overcome one of the main obstacles to the stability, profitability and sustained growth of the economies of ACPs ... *through stabilising the export earnings* of products on which their economies are dependent and which are affected by fluctuation in price or quantity or both these factors» (Art. 186.1, Lomé IV). This implies that the causes of instability are completely disregarded: the only thing that is considered is the stabilisation of export earnings. Therefore, it is hard to defend

the selection of only agricultural products simply by saying that their export earnings instability depends to a greater extent on factors linked to domestic conditions of production, whereas in the case of the mining products the causes of variability are linked to fluctuations on the demand side²⁰. One consequence of the fact that the basket of goods covered by the system is tilted in favor of certain tropical agricultural products is the way STABEX payments are distributed on a country and/or product level (see tables 4 and 5). As it functions at the moment it is of doubtful utility to privilege the biggest and the richest ACPs and doubts increase when one considers that from Lomé IV the STABEX payments are grants. Moreover the inclusion of only certain products accentuates the asymmetry in the treatment of ACPs under the Lomé Convention, because no account is taken of the position of some of the poorest countries (i.e., Zaire, Sierra Leone, Zambia, Zimbabwe) which export mineral products (copper, rutile, bauxite, phosphates). Nevertheless, there is no mention in any official publication of the Commission of the difficulties connected with the setting up of a compensation system including all products, which would lead to reduction in those disparities in treatment between and within ACPs that have been evident up to the present. The new scheme should take into account these arguments in order to give security to all countries against the harmful effects of external shocks occurred in every sector which makes up a substantial part of national export earnings.

Another characteristic of STABEX that requires discussion is the utilisation of transfers in the beneficiary countries. The extreme flexibility in allocating compensations (see note 18) has been accompanied by a large measure of discretion in the management of the funds by ACP governments. It is reasonable to consider that from the point of view of individual ACPs the lack of constraints in the regulations did not represent a problem, since, given the currency shortages, the balance of payments and debt problems, the object of governments is to increase the intake of foreign currency, whatever the source. Operating in this way, however, the donors can be considered equally responsible for the process which generates an incorrect perception of the variability in export earnings in that each ACP links the wide variation in revenues from exports, with the transfers which result from it. In other words, the ACPs see STABEX as an additional aid window, not as a stabilisation device. It is quite clear that this works as a disincentive to imposing policies aimed at removing the domestic causes of instability and this must be very ought to be taken into account in future Lomé negotiations.

Furthermore, these arguments could be used to explain the low impact of STABEX on economic growth in ACPs, because the possibility of diverting funds into sectors other than those which experienced a drop in revenue introduces further distorting elements in the economy. This is why the agents who operate directly with foreign markets not only observe no stabilisation of their incomes, but when the sector targeting of compensation is not fully effective²¹, they are also jeopardised by an increase of the relative price of non tradable goods²².

On the contrary, had ACP governments been obliged to utilise the funds in the triggering sectors, then it would have been possible to set up a virtuous circle which starting from the stabilisation of revenues of producers would have facilitated the rationalisation of decision making at the micro level and as a result would have enabled the country to achieve in the long run higher economic growth rates. Through the framework of mutual obligations, Lomé IV has seriously attempted to direct transfers into the triggering sectors, surely improving allocation compared to preceding conventions. On the other hand the procedures for signing obligations are too rigid, cumbersome and time consuming and this has deprived farmers of any stabilising effect on their income.

²⁰ It should be recalled that in 1980 the EU introduced a scheme, SYSMIN, that was aimed at the production of certain mineral products (copper, phosphates, manganese, bauxite, aluminum and tin). The substantial difference with STABEX is that SYSMIN payments are used to compensate for losses of production capacity in the ACPs.

²¹The use of transfers outside the triggering sectors constitutes the rule rather than the exception followed by ACP governments in the management of STABEX funds (ERO, 1995, Hewitt A., 1983, 1993; Kappel, 1996; Lim D., 1991)

²² For a more detailed discussion on this point see Collier et al. (1999) and CERDI et al. (1998).

References

- Aiello, F., (1999a), "The stabilisation of LDCs' export earnings. The impact of EU STABEX programme", *International Review of Applied Economics*, Vol. 13, n. 1, pp. 71-85
- Aiello, F., (1999b), "Effects of STABEX on ACPs' economic growth: further evidence", *Applied Economics*, Vol. 31, n. 9, pp. 1033-1042.
- Antonelli, G., (1995), "La Politica di Sviluppo della CEE nei Confronti dei paesi ACP: Origine ed Evoluzione", in: Antonelli G. and Basile E. (Eds.), *L'Aiuto Pubblico allo Sviluppo*, Franco Angeli, Milan.
- Araujo Bonjean, C., Combes, J.L. and Combes Motel, P., (1999), "The economic consequences of export instability in developing countries", *mimeo*, CERDI-CNRS, University of Auvergne, France.
- Barro, R. and Sala y Martin, X., (1995), *Economic Growth*, McGraw-Hill, New-York.
- Beck, T., Levine, R. and Loayza, N., (1999), "Finance and the sources of growth", *Policy Research Working Paper*, 2057, The World Bank, Washington DC.
- Bosworth, B., Collins, S. M., and Chen, Y., (1995), "Accounting for differences in economic growth", Paper presented at the conference on Structural Adjustment Policies in the 1990s: Experience and Prospects, Institute of Developing Economies, Tokyo, Japan.
- Collier, P., Guillaumont, P., Guillaumont-Jeanneney, S. and Gunning, J.W., (1999), "Reforming Stabex", *World Economy*, July, pp. 669-682.
- Commission of the EC, (1981), *Comprehensive report of the export earnings stabilisation system established by the Lomé Convention for the year 1975 to 1979*. SK(81), 1104, Brussels.
- Commission of the EC, (1984), *Commodities and STABEX*. DE 49, X/174/1984, Brussels.
- Commission of the EC, (1985), *STABEX Users' Guide. Third ACP-EEC Convention*, Brussels.
- Commission of the EC, (1997), "Le STABEX system and export revenues in ACP countries" DE 93, Development, Brussels.
- Committee of Development Policy, (1999), "Report on the first session", Economic and Social Council, United Nation, New York.
- CERDI, CSAE and Free University of Amsterdam, (1998) "Overall evaluation of Stabex. Summary", Paper prepared on request of the EU Commission, Clermont Ferrand, France.
- Cuddy J. and Della Valle P.A., (1978), Measuring the Instability of Time Series Data, *Oxford Bulletin of Economics and Statistics*, 40, 1, pp. 79-84.
- Di Costanzo S., (1993), *L'impact du STABEX sur la filière café/cacao*, Master thesis in Development Economics. University of Paris I "Pantheon Sorbonne", U.E.R. Economique 07.
- Duggan J.E., (1979), On Measuring the Instability of Time Series Data *Oxford Bulletin of Economics and Statistics*, 41, 4, pp. 239-246;
- Easterly, W. and Levine. R., (1999), "It's not factor accumulation: stylized facts and growth models", *mimeo*, Policy Research Group, The World Bank, Washington DC.
- ERO (1995), "Trend and issues in EU development co-operation and the use of Lomé financial financial resources", First draft of information packs, Brussels.
- Feder, G., (1983), "On exports and economic growth", *Journal of Development Economics*, vol. 12, pp. 59-73.
- FAO (1996), *Report of a Meeting of Experts on agricultural price instability*, Commodity and Trade Division, ESCP/N°2, 10-11 June, (Rome).
- Grilli E., (1993), *The European Community and the Developing countries* (Cambridge, University Press Cambridge).
- Guillaumont P., (1987), From export instability effects to international stabilisation policies. *World Development*, 15(5), 633-643.
- Guillaumont P., (1999), "On the economic vulnerability of low income countries" *mimeo*, CERDI-CNRS, University of Auvergne, France.
- Guillaumont, P., Guillaumont-Jeanneney, S. and Varoudakis, A., (1999) "Economic policy reform and economic growth prospects in emerging African economies", *Technical Papers CD/DOC(99)2*, OECD, Paris;
- Gyimah-Brempong, K., (1991), "Export instability and economic growth in Sub-Saharan Africa", *Economic Development and Cultural Change*, vol. 34, n. 4., pp. 815-828.
- Gylfason, T., (1997), "Exports, inflation and growth", *IMF Working Papers*, WP/97/119, International Monetary Fund, Washington DC.
- Harrigan, J., (1999), Estimation of cross-country differences in industry production functions, *Journal of International Economics*.

- Herrmann R. and Weiss D., (1995), A Welfare Analysis of the EC-ACP Sugar Protocol, *The Journal of Development Studies*, 31, 6, pp. 918-941.
- Hewitt, A.P., (1983), Stabex: an evaluation of the economic impact over the first five years, *World Development*, 11, pp. 1005-1027.
- Hewitt A.P., (1993), "Commodity market instability and compensatory financing: why STABEX failed", in Nissanke and Hewitt, (eds by) *Economic crisis in developing countries*, Pinter Publishers, London.
- Hall, R.E. and Jones, C. I., (1998), "Fundamental determinants of output per worker across countries", *mimeo*, Stanford University.
- Hall, R.E. and Jones, C. I., (1999), "Why do some countries produce so much more output per worker than others?", *Quarterly Journal of Economics*, Vol. 114, n. 1, pp. 83-116.
- Kappel, R., (1996), Industrial developments, employment and development co-operation in Africa, *African Development Perspectives Yearbook*, n. 4.
- Klenow, P., Rodrigue-Clare, A., (1997), "The neoclassical revival in growth economics: has it gone too far?" *NBER Macroeconomics Annual 1997*, Vol. 12, pp. 73-103.
- King, R.G. and Levine, R., (1994), "Capital fundamentalism, economic development and economic growth", *Carnegie-Rochester Conference Series on Public Policy*, vol. 40, pp.259-292.
- Lam N.V., (1980), Export Instability, Expansion and Market Concentration, *Journal of Development Economics*, 7, 1, pp. 99-115.
- Lancieri, E., (1978), Export instability and economic development: a reappraisal" *Banca Nazionale del Lavoro Quarterly Review*, vol. 125, pp. 135-152.
- Lensink, R., Bo, H. and Sterken, E., (1999), "Does uncertainty affect economic growth? An Empirical Analysis", *Mimeo*, Faculty of Economics, University of Groningen (D).
- Lim D., (1991), *Export Instability and Compensatory Financing* (London, Routledge).
- Love, J., (1987) "Export instability in less developed countries: consequences and causes" *The Journal of Economics*, vol. 14, n. 2, pp. 1-80;
- MacBean, A., (1966), *Export instability and economic development*, George Allen & Unwin, London.
- MacBean, A. and Nguyen, D.T., (1987), "Export instability and growth performance, in Geenaway, D., (ed. by), *Economic Development and International Trade*, Macmillan, London.
- Mankiw, G., Romer, D. and Weill D., (1992), "A contribution to the empirics of economic growth", *Quarterly Journal of Economics*, vol. 107, n. 2, pp- 407-437.
- Maizels, A., (1992), *Commodities in Crisis*, Clarendon Press, Oxford.
- McGrattan, E. and Schmitz, J., (1998), "Explaining cross-country income differences", *Staff Report 250*, Federal Reserve Bank of Minneapolis.
- Mincer, J., (1974), *Schooling, experience and earnings*, Columbia University Press, New York.
- Prodman, J., Redding, S. and Bianchi, M., (1997) "Is international openness associated with faster economic growth?", *mimeo*, Bank of England, London.
- Psacharopoulos, G., (1994), "Return to investment in education: a global update", *World Development*, vol. 22, n. 9, pp. 1325-1343.
- Savvides, A., (1984), "Export instability and economic growth: some new evidence", *Economic Development and Cultural Change*, vol. 32, pp. 607-614.
- Sinha, D., (1999), "Export instability, investment and economic growth in Asian countries: a time series analysis", *Center Discussion Paper*, n. 799, Economic Growth Center, Yale University.