NOVEMBER 1996

RESEARCH PAPER FIFTY-ONE

CONSEQUENCES AND LIMITATIONS OF RECENT FISCAL POLICY IN CÔTE D'IVOIRE

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Consequences and limitations of recent fiscal policy in Côte d'Ivoire

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AERC Research Paper 51
African Economic Research Consortium, Nairobi
November 1996

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Published by: The African Economic Research Consortium
P.O. Box 62882
Nairobi, Kenya

Printed by: The Regal Press Kenya, Ltd.
P.O. Box 46116
Nairobi, Kenya

ISBN 9966-900-86-1

Contents

List of tables
Definition of variables

I	The problem	1
II	Fiscal framework of Côte d'Ivoire and adjustment programmes	4
III	A model of the fiscal deficit of Côte d'Ivoire	7
IV	Growth model and fiscal variables in Côte d'Ivoire	10
V	Empirical results	19
VI	Concluding remarks	28

Appendix: Comparative results of the two rival specifications 29
Notes 30
References 32

List of tables

1.	Evolution of tax rates since 1970	2
2.	Fiscal deficit and growth records of Côte d'Ivoire during the 1980s	3
3.	The determinants of fiscal deficit	8
4.	Baseline solution (1980-1989)	21
5.	Simulation 1: -15% Ig	22
6.	Simulation 2: -15% G	22
7.	Simulation 3: -15% Ig	22
8.	Simulation 4a: -15% Ig+15% G	23
	Simulation 4b: -15% G	23
9.	Simulation 5: -15% TXD	24
10.	Simulation 6: -15% TXE	24
11.	Simulation 7: -15% TXE	25
12.	Simulation 8: -15% TXD+20% TXI	25
13.	Simulation 9: -15%Ig+15%G-15%TXE-15%TXD	26
14.	Simulation 10: +15%Ig-15%TXE-30%TXD+15%TXI+15%RIGX	27
15.	Simulation 11: +15%Ig-15%g-15%TXE-30%TXD-15%TXE+15%RIGX	27

Definition of the variables

G	=	Government current spending
Ig	=	Government investment spending
Cp	=	Private consumption
Y	=	Gross domestic product (actual output)
Yp	=	Potential output
U	=	Capacity utilization = Y/Yp
RIg	=	Returns on public investment (non-tax revenue)
TR	=	Tax revenue
Te	=	Taxes on the external sector
Td	=	Taxes on domestic activities
EX	=	Exports
IM	=	Imports
Sf	=	Net foreign capital flow
Pd	=	Price differential

I. The problem

This paper is structured as follows: First, we outline the problem of fiscal policy and growth in Côte d'Ivoire. Second, we describe the critical economic and fiscal sequence of events in the country from 1970 to 1989. This lets us build up a comprehensive model that allows a discussion of the current fiscal policy of Côte d'Ivoire in connection with growth.

Since the early 1980s, facing an unprecedented and lasting economic and financial crisis, Côte d'Ivoire has been conducting a wide range of policy reforms. These reforms have been organized within successive structural adjustment programmes (SAP) supported by the IMF, the World Bank and more recently the *Caisse Centrale de Coopération Economique* (CCCE).[1] A major component of these programmes is fiscal adjustment. The interest in fiscal policy for Côte d'Ivoire relates to the fact that the country belongs to a monetary union, the franc zone, which weakens the traditional monetary policy instruments, namely foreign exchange, monetary base and domestic credit, interest rates, etc. (M'Bet and Niamkey, 1990; Riddell, 1989; Pegatiennan, 1988a/b; P. and S. Guillaumont, 1988; The World Bank, 1987). It has been argued that in such a context fiscal policy and relative prices policy are the main domestic instruments for short-term and medium-term structural adjustment (De Melo and Devarajan,1987; The World Bank, 1987.

In the case of Côte d'Ivoire it is also known that the main sources of financing of fiscal operations over the 1970s were export earnings and external loans. The latter started to dry up by the early 1980s, while the narrowness of the domestic financial markets and the rules of the franc zone and the *Union Monétaire Ouest Africaine* (UMOA) could not allow a shift toward more domestic financing. Given the constraints on the financing of fiscal operations (from internal as well as external sources) faced by the government at the begining of the 1980s, the only means of fiscal adjustment was a sharp reduction of the fiscal deficit. The government then faced the problem of designing a policy for the reduction of the fiscal deficit that could preserve a minimum growth level. Such a policy would have to comprise measures that are likely to compress public expenditures and/or raise tax and other public revenues.

Tax revenues were raised through tax rate manipulations and the extension of some existing taxes. The outcome of these measures has been a sizeable increase in tax revenues and more fluctuation in the tax burden. The tax burden, which was relatively stable during the 1970s, started to fluctuate after 1980 as shown in Table 1.

Table 1: Evolution of tax rate since 1970

	1970	1973	1976	1979	1980	1981	1982	1984	1986	1987	1988
t/Y	15.5	16	16.3	16.5	24.7	25.5	25.4	20	23	24.5	20.6

Sources: *Presidence de la Republique-CGTX, 1990; Direction de la statistique et de la comptabilité nationale* and *BCEAO, statistiques economiques et monetaires.*[2]

The compression of public spending can be observed in the sharp decline in investments and the relative stability of current spending after 1981. Public investment, for instance, dropped by an annual average rate of 15% from 1983 to 1989, although it picked up in 1988 (16.7%) and 1989 (30.7%).

As we can see, the new fiscal policy of Côte d'Ivoire is a contractionary one. Its main objective seems to be a sharp reduction of the fiscal deficit. The preference for contractionary fiscal policies is based on three theoretical beliefs:

1. It is thought that an expansionary policy in the context of an external funds scarcity and a tight monetary policy leads to an increase in fiscal deficit and tax burden.

2. The rise in public spending is generally associated with a "crowding-out" effect on the private sector.

3. An expansionary fiscal policy is seen as fueling the external imbalances.

Taking these three theoretical positions together, expansionary fiscal policy is seen as the major obstacle to structural adjustment in Côte d'Ivoire and countries with similar policies. Therefore, the suggestion to reduce the fiscal deficit was made by the international development agencies (IMF and World Bank). However, the suggestion was made without reviewing the different measures available for such a policy and without discussing their appropriateness with respect to growth.

Our concern in this research is precisely to discuss the effectiveness of the measures adopted for fiscal adjustment in Côte d'Ivoire regarding its fiscal profile over the past two decades and the determinants of its fiscal deficit. We intend to investigate the impact of public investment cuts and tax rate manipulations on the fiscal deficit (FD) in the short and medium term. We also look at other instruments available to the government for the reduction of its fiscal deficit. Indeed, though a reduction of the fiscal deficit is not contested as such, the problem of how to make it efficient at the minimum cost in terms of growth in developing countries is still controversial. A full description of fiscal deficit is necessary to the design of an appropriate pattern of fiscal adjustment.

The investigation of the relation between fiscal deficit and growth in Côte d'Ivoire is a relevant issue since the main achievment in the reduction of the deficit coincides with poor growth performance over the past ten years. Table 2 shows this trend.

Table 2: Fiscal deficit and growth records of Côte d'Ivoire during the 1980s

	1981	1982	1983	1984	1985	1986	1987	1988
FD	211.4	218.7	206	235	75	103	132	108
GDP	1866	2047	2175	2474	2778	2712	2709	2542

Source: BCEAO, *Statistiques Economiques et Monétaires*, and IMF, 1989.

From the table, we note that fiscal deficit compression does not result in noticeable growth of GDP. This is particularly remarkable in the years 1986 and 1987 during which the deficit was falling while the GDP was very stable. This relationship probably means that deficit compression is unable to restore GDP growth. Another interesting point to be considered is the treatment of fiscal variables along the adjustment process supported by the World Bank and the IMF. From an approach that considered fiscal variables from the standpoint of only stabilization during the first adjustment programmes implemented in Côte d'Ivoire (from 1981-1986), a growing concern for growth appeared after 1986. This has pushed the whole adjustment process on the track of sustained growth.[3] In this new context fiscal adjustment, although still based on deficit reduction, now includes references to growth.

It is clear that there is a connection between the fiscal deficit and growth that is still to be elucidated. But the relation between fiscal adjustment and growth also concerns the mode of reduction of the deficit, since there is a range of variables that affect the deficit in Côte d'Ivoire and which can be used for its reduction. Each variable affects growth records in a different manner. It is worth investigating the impact of any deficit reduction package on growth in order to be in the position to discuss appropriate fiscal reform policies in Côte d'Ivoire. To do so, we first model the fiscal deficit and follow this with empirical tests to determine the relevant fiscal variables over the past 20 years (1970-1989). Then, a growth model, integrating the fiscal variables, is built up. A wide discussion of the current fiscal adjustment pattern of Côte d'Ivoire and alternative options is examined.

We begin by presenting the main features of the fiscal framework of Côte d'Ivoire and the economic reform programmes implemented in the country since the early 1980s.

II. Fiscal framework of Côte d'Ivoire and adjustment programmes

The Ivorian fiscal system

The Ivorian fiscal system is complex on both the spending side and the revenue side.[4] On the spending side, the budget actually consists of three separate budgets: *Budget General de Fonctionnement* (BGF), for the functioning of the administration; *Budget Special d'Investissement et d'Equipement* (BSIE), for equipment and investment; *Budgets des EPN* (BEPNs), for public autonomous agencies and special accounts. Transfers are frequent among the budgets, particularly between BGF and either of the other two.

The complexity of the fiscal framework of Côte d'Ivoire is worsened by inappropriate administrative structures. Indeed, not only are there three budgets, but each is monitored by a different ministry. The Ministry of Economy and Finance is in charge of the expenditure side of BGF. The Ministry of Economy and Finance and the Ministry of Planning are both responsible for the expenditures of BSIE, and the Ministry of Economy and Finance and the line ministries (subject to the sector of interest) are in charge of the expenditures of BEPNs. The Ministry of Economy and Finance and the Treasury are responsible for the collection of most of the resources and the expenditure side of the special accounts. This responsibility pattern creates great confusion in the records of fiscal operations and their control, making efficient planning and checking of budgetary expenditures very difficult, despite the existence of a committee of financial coordination (CCE) that is supposed to centralize all the financial interventions of the government (Bourguignon *et al.*, 1987).

Nor do the components of fiscal revenue of Côte d'Ivoire exactly match the budgetary expenditure structures. Indeed, resource collection tasks are handled by the Treasury, the marketing boards and a special agency, *Caisse Autonome d'Amortissement* (CAA), which is in charge of the monitoring of government debt. These resource collection agencies deal with different components of fiscal revenue, namely tax revenue, other ordinary fiscal revenues and public debt.

Tax receipts come from duties and taxes on international trade (imports and exports), excise taxes on domestic products and services, and direct taxes (income tax, tax on car users, tax on lands, etc.). Since the early 1970s, tax and duties on international trade have represented a very important component of tax receipts, amounting to an average of 40% of the total from 1980-1988 (*Presidence de la Republique*-DCGTX, 1990). Taxes on external trade comprise taxes and duties on imports (VAT, duty for entry [*droit fiscal*

d'entrée – DFE], customs duty [*droit de douanes* - DD], and others), and on exports (gate duty for timber, coffee and cocoa, *droit unique de sortie* [DUS], and others).

Other excise taxes have been the major component of tax receipts since 1981, at close to 46% of the total (*Presidence de la Republique* - DCGTX, 1990). They include VAT on domestic products, taxes on services, taxes on fuel and petrol, and other excise taxes. The remaining component of tax receipts is direct taxes, with a contribution of around 14% of the total. It comprises tax on profits (*impôt sur les bénéfices industriels et commerciaux* [BIC]), on salaries and wages (*impôt général sur les revenus* [IGR]) and employers insurance contribution. It also includes taxes on lands, as well as other direct taxes.

Other fiscal revenues include receipts from public corporate companies (RC) and marketing boards (RM). The contribution of RC to the fiscal revenue has usually been very weak except during the period 1976-1982, when it amounted to more than FCFA 15 million per year. The contribution of RM was very important from 1975 to 1983, representing the essential domestic financing of BSIE over this period (Mahieu, 1990).

Fiscal stance of adjustment programmes in Côte d'Ivoire

Côte d'Ivore has experienced high growth rates and reached many other development records in industrialization, education enrolment, health service ratio, literacy level, etc. But, since the early 1980s, the country has faced a persistent depression and serious external payments problems.[5]

The economic and financial difficulties of the 1980s were certainly linked to external shocks (the second oil shock, the rise in international interest rates and the fluctuations of the US dollar), but obviously, they were also the result of inappropriate domestic policies and structural weaknesses. Indeed, the Ivorian economy at the time was still agrarian, with insufficient industrial development and a strong reliance on the export of cash crops (Pegatiennan, 1988a; Mytelka, 1989; Riddell, 1989). The crisis in Côte d'Ivoire also stemmed from the domestic policies of the 1970s, which were characterized by expansionary fiscal and monetary policies (in the form of an expansion of public spending and the subsequent high fiscal deficits). Nor could inappropriate incentive structures help shift production towards industrial exports and more productive techniques.

To cope with this crisis, several structural adjustment programmes (SAPs) have been implemented with the support of the World Bank and the IMF.[6] SAPs aim to restore the external and internal balances. This should be achieved through a strong policy of export promotion coupled with a dismantling of domestic protection and sharp cuts in public spending. It was thought that adjustment measures, by improving the financial situation of the government and the incentive structures, would create the conditions for the recovery of the economy along a sound growth path. Actually, fiscal policy was a major component of Côte d'Ivoire's SAP (World Bank, 1984, 988; IMF, 1986a/b; Barbier, 1988; Bourguignon *et al.*, 1987). The objective was to reduce the fiscal deficit using spending cuts and appropriate measures to improve the mobilization of budgetary revenues.

SAPs affect fiscal policy directly through spending cuts, credit ceilings on the government and tax rate manipulations, as well as through the impact of measures on GDP and international trade, which can reduce the tax base. We should mention here that inconsistencies often arise betweeen structural adjustment measures for competitiveness and fiscal objectives. For instance, measures relating to a reduction in domestic tariff protection and cuts in some import items might result in tax revenue losses, whereas export promotion by the introduction of subsidies brings about additional fiscal spending (Barbier, 1988; *Presidence de la Republic*-DCGTX, 1990). These tend to raise, not reduce, the fiscal deficit, contrary to the SAP's aims.

In fact, SAPs have achieved some fiscal deficit reduction at the cost of public investment reduction and tax rate increase. Public investment (BSIE) fell by 66% between 1982 and 1989 (which means a drop of 10% per year over this period).[7] On the resource side, the major changes during the adjustment period relate to tax revenue. Tax revenue represents a stable fraction of GDP (around 15.5%) over the 1970s, collapsing in 1983-1985 (8.5% of GDP) and rising again in 1986. The increase in taxes over the last period was brought about by measures related to tax rates and the tax base. For instance, VAT on imports, tax on alcohol and petrol, and stamps for car users were raised in 1980. VAT on domestic products and tax on services, DUS, DFE, tax on wages and salaries of expatriate workers, and stamps for car users went up again in 1982. In the same way, in 1987, VAT was extended to some services and distributional activities, and stamps for car users (*vignette auto*) were increased by 50%; other administrative stamps doubled.

These measures resulted in growing overall tax revenues, while tax revenues on international trade were decreasing. The consequence of this move was a sharp increase in the domestic tax burden (*Presidence de la republique*-DCGTX, 1990). We can summarize the discussion as follows:

1. The Ivorian economy has faced a deep and lasting crisis since the early 1980s, following the economic boom of the mid 1970s. Adjustment programmes adopted to cope with the crisis comprise a major fiscal component.

2. Fiscal deficit reduction seems to have been the main objective of fiscal adjustment in Côte d'Ivoire. This has been achieved through a sharp reduction of public investment and attempts to raise tax revenues by rate manipulations. However, since 1986 the fiscal deficit has been stuck at around 4%-5% of GDP. It seems that the government cannot reduce it further by using these instruments. Furthermore, these measures have never been studied in terms of their impact on the main macroeconomic aggregates in relation to the other fiscal variables.

These arguments show the need for a model of the fiscal deficit in Côte d'Ivoire. Such a model, based on a full description of the determinants of fiscal deficit together with an appropriate growth model, will provide us with a device for the relevant fiscal policy analysis.

III. A model of the fiscal deficit of Côte d'Ivoire

A fiscal deficit model has already been devised and discussed by the authors (Kouassy and Bohoun, 1990). The model is based on a disaggregation of the different components of fiscal deficit. Leaving aside the traditional impact of fiscal policy on aggregate demand (Blinder and Solow, 1973; Choudhry, 1976) and on debt and current accounts issues (Plane, 1988; Roe, 1988; De Melo and Devarajan, 1987), it has focused on the determining factors of fiscal deficit.

Starting from the following budget constraint inspired from Musgrave (Choudhry, 1976), and modified for our purpose:

$$G + Ig = TR + dM + dV + Sf \tag{1}$$

where dM, dV and Sf stand for money, bond and external financing of fiscal operations, and G, Ig and TR are as already defined.

From Equation 1, and decomposing public revenue into tax (TR) and non-tax revenue (RIg), we may derive an identity equation of fiscal deficit (FD):

$$FD = (G + Ig) - (TR + RIg) \tag{2}$$

Equation 2 offers possibilities of modelling the fiscal deficit from the spending and the revenue sides. This led to the following model as developed in Kouassy and Bohoun (1990). On the spending side we have two equations, one for public consumption (G) and another for public investment (Ig).

$$G = f(Y, EC, P, G_{t-1}) \tag{3}$$

$$Ig = f(EX, Sf, d0) \tag{4}$$

where EC stands for the civil servants wage bill, P for consumer price index, EX for exports, Sf for foreign capital flows, and Y for the current GDP; dO is a dummy variable that captures the coffee and cocoa boom for 1975/76 and 1985/86. That is, current spending is explained by the GDP level, the civil servant pay, some price indicator and the past values of current spending. The specification borrows the inflation effect on public spending from Tanzi (1987). Export earnings (marketing board surpluses) and capital inflows (foreign public debt) are the main source of public capital spending.

Revenue side equations are as follows:

$$TR = f(Y, t, tp, Ig, TR_{t-1}) \quad (5)$$

$$RIg = f(RC, Pd, Q) \quad (6)$$

where *RC* stands for receipts from public corporation, *Q* and *Pd* for volume and price differential of products handled by the marketing boards CAISTAB and *Caisse de Péréquation*), *t* is average variation of tax rates, and *tp* is tax elasticity to public investment.

By substituting equations 3 to 6 into Equation 2a, we have the following reduced form of fiscal deficit equation:

$$FD = f(Y, G_{t-1}, Ig, t, tp, TR_{t-1}, RC) \quad (7)$$

The results, by using the OLS method on TSP, are:

$$FD = f(Y, G_{(t-1)}, Ig, T, Tp, TR_{(t-1)}, RC) \quad (8)$$

The test of the model by estimating Equation 8 and keeping the most significant variables showed a positive link between *FD* and $G_{(t-1)}$, *Ig*, and *T* and a negative link between *FD* and *Y*, *Tp*, $TR_{(t-1)}$, and *RC*. The following summarizes these results:

The estimated equation:

$$FD = \underset{(0.59)}{108.35} \underset{(-1.87)}{- 0.008Y} + \underset{(4.54)}{0.78G(-1)} + \underset{(5.21)}{0.80Ig} + \underset{(1.77)}{426.27T} \underset{(-16.45)}{- 16.45Tp} \quad (9)$$

$$\underset{(-3.49)}{-0.67TR_{(-1)}} \underset{(-5.13)}{-8.55RC}$$

$$R^2 = 0.94$$

And in the following table, the summary of the determinants of fiscal deficit:

Table 3: The determinants of fiscal deficit

	Positive linkage	Negative linkage
FD	$G_{(t-1)}$: LCC + HSS	Y : LCC + HSS
	Ig : LCC + HSS	Tp : HCC + HSS
	T : HCC + LSS	RC : HCC + HSS
		$TR_{(t-1)}$: LCC + HSS

LCC and HCC stand, respectively, for low and high coefficient of correlation, HSS and LSS for high and low statistical significance.

From the results, it appears that seven instruments are available to the government of Côte d'Ivoire for a reduction of FD. The first group of variables (positive linkage) must be lower, whereas the second group (negative linkage) should be raised for this purpose. But the final choice of a set of instruments depends on their feasibility (financial, economic and political). In particular, the impact of each instrument on the growth prospects of the country should be cautiously studied.

Looking at the devices available to reduce the fiscal deficit over the 1980s, it appears that the Government of Côte d'Ivoire resorted to public investment cuts in the light of short-term adjustment. However, given the negative relation between FD and Y and between FD and Tp, investment cuts could offset the gains of such a policy. Indeed, investment cuts might negatively affect Y and Tp, which in turn could deepen the fiscal deficit. Tax rate manipulations seem inappropriate since their final outcome could be an increase in the fiscal deficit. Futhermore, the neglect of the other instruments such as G, Tp and RC is an obvious caveat of the current mode of adjusting fiscal operations adopted by Côte d'Ivoire.

There is a need for an approach that can take into account the full range of the instruments presented above. To do so, we adopt the following steps:

1. A growth model incorporating fiscal variables is designed in order to establish analytical links between fiscal variables and growth. Particular attention is put on those variables that may be used to reduce fiscal deficit.

2. Simulations of fiscal policy packages, based on our knowledge of the Ivorian economy, are undertaken and discussed. The aim of the exercise is to identify the packages that are the least harmful to growth.

IV. Growth model and fiscal variables in Côte d'Ivoire

Modeling growth and fiscal variables

We turn now to the building up of our growth model. The connection between fiscal variables and growth is one of the most controversial topics of economic theory. The first attempt at modelling this linkage was made by J.M. Keynes through the multiplier effect of public spending. This traditional approach has been improved by, *inter-alia*, Musgrave, Blinder and Solow (1973) and Choudhry (1976).[8]

The shortcomings of these studies on public spending multipliers relate to their high level of aggregation and the limitation of public spending to their consumption component. They are also weak because they neglect the impact of public spending on private activities. The weaknesses of this first approach led to a vigourous debate between the traditionalists and the new classical economists. The latter argued that the crowding-out effects of public spending on the private sector may offset its beneficial effects on growth (Blinder and Solow, 1973; Choudhry, 1976; Feldstein, 1986). In this approach, the method of financing fiscal operations was the key factor.

For these two schools of thought, fiscal deficit was not a concern as such. What was important was its mode of financing (neo-classicals) or the impact of the overall public spending on growth (Keynesians).

Begining in the 1980s, with the generalization of adjustment programmes and the coming to power of conservative leaders in some western countries (Reagan in the USA and Thatcher in the UK), fiscal deficit has come under attack along with a general reappraisal of the Keynesian paradigm. For many developing countries, this meant the adoption of fiscal adjustment measures in the form of fiscal deficit compression. The relative importance of fiscal adjustment as a major component of structural adjustment programmes is based on three major points:

- The link between fiscal operations and the external sector - Fiscal operations are responsible for fueling the BOP deficit as a result of high and persistent fiscal deficit (Tanzi, 1987, 1990; Ekpo and Ndebbio, 1990; Montiel, 1990; Van Wijnbergen, 1989; Roe, 1988).

- The link between fiscal operations, interest rates and price inflation, depending on the mode of financing these operations - Here authors consider the impact of bond

financing of fiscal operations on interest rates and money financing on price inflation (Roe, 1988; Aghevli and Khan, 1978).

The impact of fiscal operations on gross investment - Studies exist in this last group that break down public spending into its investment and consumption components (Ndulu, 1990; Khan and Reinhart, 1990; Ariyo and Raheem, 1990). It is argued that the positive effect of public investment on growth (through the crowding-in effect on private investment) and its negative effect on growth (through its relative low efficiency and its absorption of a big proportion of the available foreign currencies) are simultaneous and difficult to distinguish clearly. While growth has been recognized as a factor as well as an outcome of the structural adjustment process, it is not yet fully taken into account in most fiscal adjustment measures in developing countries. Actually a minimum growth rate should be targeted for a sustainable fiscal adjustment, since any fiscal adjustment that jeopardizes growth generally creates the conditions for subsequent, more drastic, adjustment.[9]

Analysis of the connection between growth and fiscal adjustment requires a relevant growth model and a full description of the mediated variables from fiscal policy to growth. Our modelling process also handles the integration of fiscal variables.

The growth model of Côte d'Ivoire

The method of integrating fiscal variables in the growth model of Côte d'Ivoire is very close to what is usually done in the literature. Spending (Ig and G), revenue (taxes, returns to Ig) and financing (money creation or bond issuing or foreign financing) are incorporated into the growth models.

Empirical attempts to evaluate the impact of government spending on growth in developing countries started only in the late 1970s (Rubinson, 1977; Landau, 1985, 1986; Blejer and Khan, 1984). Some of these studies found a negative relationship between government spending (both consumption and investment) and growth, based on the the lower productivity of the public sector compared to the private sector and on the financial crowding-out effect found by Landau and Marsden (Landau, 1985 and 1986). But Rubinson (1977) and subsequent studies by Ram and Easterly (1990) countered this result and found a net positive relationship between these two variables, confirming results obtained by Castles and Dorwick (1988) for OECD countries. In addition to that, the study by Blejer and Khan (1984) focusing on public investment, and all the other studies mentioned above advocating a net crowding-in effect of public investment on the private sector, suggest a breakdown of public spending into its different components.

The impact of public consumption on growth comes from the associated increase in demand (positive) and the financial effects (negative). Public investment affects growth from the supply side in a similar way. According to Easterly (1990), the distortion effect

brought about by tax revenue does affect growth negatively while public investment affects growth positively.[10] He found that the net effect of investment on growth depends on the relative importance of these factors as well as on the flexibility and the rate of saving of the economy under consideration. Indeed, with higher levels of substitutability (flexible), an economy requires lower savings rates to offset the adverse effects of distortions and vice-versa.

Ram (1986) elaborated on the exact nature of the contribution of public investment to growth. He found two major effects: a factor productivity effect (relating to relative productivity of public and private sectors) and an externality effect (relating to the elasticity of private sector to public sector output).[11] These two effects can be treated as direct and indirect influence of public investment on growth.

On the fiscal revenue side, while there is a body of literature consisting of studies on taxation in developed countries (Easterly, 1990; Ram, 1986; Feldstein and Elmendorf, 1990; Reinhard and Kormendi, 1989; Baro and Sala i Martin, 1990), only a few important studies focus on this issue for developing countries (Trela and Whalley, 1990; Shah and Whalley, 1990; Tanzi, 1990; Skinner, 1987).

The impact of the other revenue variables is rarely investigated.[12] Taxes are integrated into growth models through taxation of income (labour and capital) and productive activities (domestic market, international trade). The income taxes may distort the intertemporal consumption choices and the supply of labour. The taxation of economic activities is generally associated with allocative and efficiency distortions resulting in intersectoral resource transfers, which are likely to affect growth adversely (Krueger, 1990; Easterly, 1990; Trela and Whalley, 1990). For example, the taxation of international trade – very important in African countries —is the traditional means of domestic market protection policy, while selective credit taxation distorts domestic capital allocation.

This suggests that taxes should be broken into relevant components in order to capture all the features of their impact on growth. In the same way this impact also has to be contrasted with the productive spending financed by tax revenues (Baro and Sala i Martin, 1990; Easterly, 1990; Ram, 1986; Skinner, 1987).

Concerning the other revenues, namely corporate revenues, funds from marketing boards, etc., their impact on growth depends chiefly on the proportion in which they are allocated to productive spending. In the case of Côte d'Ivoire, a World Bank mission has reviewed the sources of potential revenues (including non-tax revenues) and suggested a schedule for their mobilization (World Bank, 1990). If the non-tax revenues were allocated to productive spending, they would yield the Ram beneficial effects, presented above (factor productivity and externality effects).

The starting point for our growth model is a traditional production function of the form

$$Y = f(K, L)$$

with K and L for capital and labour and Y for the GDP level.

Considering that idle capacities do exist and that there is an imperfect factor substitution, supply constraints to medium- and long-term growth are very important in countries such as Côte d'Ivoire (De Melo and Devarajan, 1987; Ndulu, 1990). De Melo and Devarajan, for instance, have shown that the elasticity of manufacturing to price changes (using a model based on labour as the unique flexible production factor) lies between 0.3 and 0.8. This is probably due to the existence of idle capacities. Such idle capacities for capital stocks in manufacturing have been shown by many authors in Côte d'Ivoire (Mytelka, 1989; Riddell, 1990; Pegatiennan, 1988, 1990).

Studies by Helleiner, Rattso and Ndulu (all in Ndulu, 1990) have shown that in countries such as Côte d'Ivoire, with significant idle capacities, imported inputs are the most important single constraint to capacity utilization, particularly in the industrial sector. In fact, in such countries, growth depends partly on changes in and productivity of the capital stock. This contribution can be expressed in the following relation:

$$dYk = f(V^*dK) \tag{10}$$

with V the average productivity of capital goods.[13]

The contribution of changes in capital stock (investment) covers two major components: *Iu*, investment for capacity renewal, and *Ir*, capacity growth.[14] Given the existence of important idle capacities, endogenous growth can be expressed by the degree of utilization of the capacities. The latter can be captured by the ratio of actual output over potential output. Such an approach draws particular attention to potential output, which is, in connection with investment, the main source of domestic endogenous growth in countries such as Côte d'Ivoire. From this we can say that endogenous growth in Côte d'Ivoire depends chiefly on investment, so that the building of growth models in the country should be based heavily on an analysis of the investment process.

For the modeling process we adopt a three-fold procedure: (1) output and growth determination; (2) determination of the investment financing and closure rules; and (3) bringing all these elements together in order to build a system and identify the status of the different variables (identities, exogenous, endogenous and instrumental variables). Then, we discuss the different channels of transmission of fiscal measures to growth.

Output and growth determination

Capacity output is assumed to be determined by investment and its productivity. The following equation depicts this relationship.

$$Yp = Y0 + dYp \tag{11}$$

with Yp as capacity output (potential output), dYp as the changes in Yp, and $Y0$ for the starting year ($Yp0 = Y0$). We also have:

$$Yp = Y0 + V*dK \tag{12}$$

$$dK = K - K_{(-1)} = I_{(-1)}, \text{ therefore } Yp = Y0 + V*I_{(-1)} \tag{12a}$$

V is generated by taking peaks from two years (m and n) during which output has grown without significant bottlenecks. This provides us with the appropriate V computed through the following formula: $K = (Yn-Ym)/(Im+Imt+1+Imt+2+...+In-1)$.[15] An alternative way to get V is to run Equation 12 over a sub-sample or the full sample. V will then be the fitted value of the coefficient of dK. From there, by setting Y0 at a certain level, Yp series can be generated.

Since our growth model is investment determined, modeling investment is the appropriate indirect way to work it out. We start this exercise by breaking down investment into its public and private components:

$$I = Ip + Ig \tag{13}$$

with Ip = private investment and Ig = public investment (actually overall productive spending of the government).

Following Ndulu (1990), we assume that Ig is exogenous and that there is a positive link between public and private investment in most African countries as demonstrated by studies by Rattso, Boye, Sepheri *et al.*, and Mkandawire, reviewed by Ndulu (Ndulu, 1990). The analysis of the relationship between investment and growth becomes one of the determinants of private investment. These are usually interest rates, the exchange rate, taxes and duties on intermediate goods, and wage rates on the supply side, and consumption, excise taxes and market structures on the demand side. In other words we have:

$$Ip = \beta_o + \beta_1(G) + \beta_2(Ig) + \beta_3(R) + \beta_4(W) + \beta_5(Td) + \beta_6(Te) + \beta_7(RIg) + \beta_8(EP) + \ldots \tag{14}$$

where,

Ig	=	public investment, exogenously determined
R	=	interest rate on loans
W	=	average wage rate
Td	=	taxes on domestic activities
Te	=	gate taxes

Given the net public sector crowding-in effect on private investment, bringing Equation 12 into Equation 11 yields:

$$I = \beta_o + \beta_1(G) + (1+\beta_2(Ig) + \beta_3 R + \beta_4(W) + \beta_5(Td) + \beta_6(Te) + \beta_7(ER) + \ldots \tag{15}$$

These latter equations can be run by regression techniques in order to get the determinants of private investment and an explanation of endogenous growth in our

model driven by investment.

From Equations 13 and 10, comes

$$Yp = Y0 + V(\beta_1(G) + (1 + \beta_2(Ig) + (\beta_3(R) + \beta_4(W) + \beta_7(RIg) + (\beta_5(Td) + \beta_6(Te) + \beta_8(EP) \quad (16)$$

Potential output is determined by automatic (accelerator) effect, price factors (*R, ER* and *W*) and fiscal factors (*Ig, Td* and *Te*). This has been derived through an investment function. From this we know that output relates closely to investment. But investment is subject to the availability of finance.

Closure rules and financing investments

Let us take the different components of investment (public and private) and look at their major sources of financing in an open economy as adopted by Chhibber and Dailani (1990) and Ndulu (1990):

$$I = Ig + Ip \text{ and } S = Sg + Sp + (IM\text{-}EX),$$

rearranging we get,

$$(Ig - Sg) + (Ip - Sp) = (IM - EX) \text{ and}$$

$$(-)Sge + (+)Spe = (+)Sf \text{ or } (-)Sge - (+)Sf = (+)Spe$$

where *Sge* and *Spe* stand for net public and private savings and *Sf* for foreign savings, *IM* and *EX* for import and export. The signs are as usual.

For Côte d'Ivoire, *Sf* is very limited and declines after 1980 given the country's indebtedness. Therefore, the closure of the growth model requires a reduction in (-)Sge (a fall in public net dis-saving) or an increase in (+)Spe (a rise in private net saving). This can be done in two ways. The first calls for a reduction in public spending and/or an increase in tax and other public revenues (Landau, 1986; Chamley and Ghanem, 1990; Krueger, 1990) along with a rise in real interest rates à la McKinnon-Shaw (Roe, 1988; Krueger, 1990), to improve public saving as well as private saving.

Another group argues that the average saving rate is a positive function of GDP (S = sY). Therefore, any policy (public spending cuts, tax rates, interest rate rises) that is likely to negatively affect GDP may result in further public net dis-saving and a fall in private net saving. But there is a positive relationship between investment and GDP. Hence, raising investment may lead to a marked growth in GDP, then to an improvement in the level of domestic saving. The problem with this approach is how the initial increase in investment is financed.

Three major sources are generally mentioned: gains from improvements in public sector management (Anderson, 1987; World Bank, 1988); monetary financing of public

productive investment and lower interest rates where inflation is moderate (Pegatiennan, 1988a/b); and fresh adjustment resources to ease the foreign exchange constraints (Ndulu, 1990). The closure of growth models in developing countries is still debated.

We will adopt the second approach, as it seems to be the most appropriate to the case of Côte d'Ivoire, which has been under adjustment since the early 1980s and has been experiencing moderate rates of inflation so far. Nevertheless, we are also concerned about the issue of saving generation. This is why we investigate some of the factors impeding private saving, such as income taxes and foreign capital.

From this we construct a saving function as follows:

$$S = Sp + Sg + Sf \tag{17}$$

$$Sp = b_0 + b_1(1 - Ti)Yp + b_2Sf \tag{18}$$

with Ti = income taxes, and,

$$-Sg = FD = (G + Ig) - (TR + RIg) \tag{19}$$

with TR = tax revenue
RIg = non-tax revenue $(RIg = Rc + Rm)$

As we note, the model is closed by changes in private and foreign savings. Here fiscal policy does affect these aggregates, mainly through income taxes. This closure is a very tight budget constraint since the Ivorian government cannot use any monetary device to loosen it. The only way available is fiscal deficit reduction.

Next we bring together all these elements to get a complete view of the model.

Adding some identities and equations to capture the effects of non-fiscal related variables, we can design a wider model as follows:

Identities

Id	=	*Ip + Ig* (demand for investment)
Is	=	Sp + Sg + Sf (-Sg=FD) and Sp = Is - Sf -Sg
It	=	Id = Is
U	=	Y/Yp
Y	=	*I + Cp + G + Tb*, with *Tb = EX-IM*
TXD	=	Td/Y
TXI	=	Ti/Ẏ
TXE	=	Te/IM
RIGX	=	*Rig/(Ig+G)*

Exogenous variables are *Ig = Ig, G = G, Te = Te, Td = Td,*

$$RIg = RIg,\ Sf = Sf,\ Tb = Tb$$

Behavourial equations[16]

$$dYp = V^{*}f(It_{(-1)}) \quad (20)$$
$$Ip = f(Ig, G, Txd, Tex, ER, Rl) \quad (21)$$
$$FD = f(Y, Ig, G, TXE, TXD, TXI, RIGX) \quad (22)$$

Endogenous variables are *dYp*, *Ip* and *FD*. The equations were estimated by OLS.

In addition to the solution of this system, some tests will be carried out on the determinants of capacity utilization, U, from the following equation:

$$U = f(I/Y, V, C, Yp) \quad (23)$$

where $V = (Y\text{-}Y_{(-1)})/I_{(-1)}$ is a proxy for marginal productivity and $C = Cp + G$ stands for total consumption.

Fiscal variables

The fiscal variables used for the discussion of fiscal policy are:

Revenue side: *Txe*, *Txd*, *Txi* and *RIgx*
Spending side: *G* and *Ig*

The impacts of fiscal adjustment on growth are determined through simulations for values of *Yp*, *Y* and *FD* according to changes in fiscal variables used as instruments. The choice of the different instruments and simulations is based on the following analysis of transmission channels.

The channels of transmission of fiscal measures to growth in Côte d'Ivoire

Fiscal measures affect growth from both the spending and financing sides. The spending effects are associated with government consumption (*G*) and investment (*Ig*). It is generally admitted that the latter exerts a crowding-in effect on private investment and affects growth directly through goods and service delivery by and demand from the public sector. But these activities generate some crowding-out effects on the private sector on the financing side. The crowding-out effects of public activity financing can be estimated by the size of its domestic credit and/or fiscal deficit. Fiscal measures also affect growth from the revenue side, mainly through tax policy instruments (*Txe*, *Txd* and *Txi*). These

do affect private investment and saving. The simulation exercises tend to assess the impact of changes in all the fiscal variables on growth.

The rest of this paper tries to ascertain the growth story summarized in the model. This means a thorough check of the influence of investment on growth in Côte d'Ivoire. Then, using the fiscal variables as instruments, the impact of the current adjustment policy on growth is derived and alternative adjustment packages are extensively discussed.

V. Empirical results

The generation of potential output

To generate potential output (*Yp*), we resort to the two methods presented above.

Estimating Equation 12, $dY = V^*I_{(-1)}$, over the full sample using OLS, we have the following regression:

$$dYp = 0.331^*I_{(-1)}, \text{ therefore } V = 0.331$$

Alternatively, choosing peaks for output in 1977 and 1986,

$$V = (Y86\text{-}Y77)/(I77+I78+...+I85) = (2911\text{-}1415)/3689.5 = 0.405, \text{ thus } V = 0.405$$

The two methods yield values for *V* that are very close. We have selected the highest value to make sure that there will not be any loss of productivity in the estimated *Yp*. This leads to the following equation for *Yp*:

$$Yp = Y0 + 0.405^*I_{(-1)} \tag{24}$$

Setting *Y0* at *Y74-dYp74*, *Y77 - dYp77* and *Y86 - dYp86*, *Yp* can be generated through an estimation of $I_{(-1)}$ as described in the system above. All our results are obtained using OLS on TSP software, version 4.1.

The research findings

Single equations

$$Yp = 364.749 + 0.699Ct + 2.865I - 254.835v \tag{25}$$
$$(2.437)\quad (10.750)\quad (9.533)\quad (-2.908)$$

$R^2 = 0.969$ DW = 1.929 F = 157.72

$$Y = -36.785 + 0.995C + 0.514I + 94.181v \tag{26}$$

(-0.300) (18.710) (-3.765) (1.314)

$R^2 = 0.97$ DW = 0.79 F = 195.086

$$Ip = 13.768 + 0.431Ig + 0.545G - 0.954Te + 0.255Td - 0.086ER + 9.070Rl \quad (27)$$
$$(0.398)\ (5.086) \quad (5.127)\ (-3.361) \quad (1.598) \quad (-0.649) \quad (2.861)$$

$R^2 = 0.98\ DW = 1.629\ F = 129.985$

Fiscal deficit (*-Sg*) is negatively linked to output. Equations 20 and 21 provide evidence for the decisive influence of investment on growth in Côte d'Ivoire. This is true for actual output as well as potential output (R^2, *T*-ratios and F-statistics are high). Equation 22 depicts the determinants of private investment. We can note the robustness of the crowding-in effect of public investment on private investment (significant at 5%), but the effect of public consumption on the latter is greater. The signs of the other independent variables are unexpected. Variables linked to the external sector affect private investment negatively whereas domestic taxes and interest rates are positively correlated to the latter. The next equations deal with the financial factors:

$$Sp = 34.168 + 0.074Y - 0.524Ti \quad (28)$$
$$(22.087)\ (30.629)\ (-6.218)$$

$R^2 = 0.63\ DW = 0.359\ F = 30.866$

$$FD = -24.652 - 0.089Y + 0.237Ig + 1.301G - 0.968Te - 0.392Td + 0.409Ti - 0.514RIg$$
$$(-0.99)\ (-1.527)\ (0.722)\ (4.175)\ (-0.957)\ (-0.729)\ (0.192)\ (-1.001)$$
$$R^2 = 0.869\ DW = 2.090\ F = 10.447 \quad (29)$$

Private saving (*Sp*) is positively linked to actual output and negatively correlated to direct taxes. The high R^2, *T* -ratios and *F*-statistics show a robust relationship despite the weakness of the coefficient of correlation. Concerning the fiscal deficit function (*Sg*), we retrieve some of our previous results (Kouassy and Bohoun, 1990). Fiscal deficit is positively linked to *Ig*, *G* and *Ti*, and negatively linked to the components of tax revenue (*Td* and *Te*) and non-tax revenue (*RIg*).

Equations 30 and 31 deal with the determinants of capacity utilization:

$$100*U = 51.850 + 0.019C - 0.052I + 18.793v \quad (30)$$
$$(7.511)\ (6.662)\ (-3.765)\ (4.648)$$

$R^2 = 0.76$ DW = 2.15 F = 16.153

$$100*U = 28.604 + 0.149Sp - 0.108FD + 0.14ER - 0.877Rl \quad (31)$$
$$(1.248)\ (1.025)\ (-1.670)\ (1.652)\ (-0.325)$$
$$R^2 = 0.89\ DW = 1.226\ F = 66.24$$

As one might expect, capacity utilization is positively linked to productivity and consumption. There is a negative relationship between investment and capacity utilization. This might express the existence of a trade-off between an increase in capacity utilization (driven by productivity and demand factors) and growth of capacity (driven by investment). Capacity utilization is also positively linked to private saving and exchange rate and negatively linked to the fiscal deficit and interest rates. This confirms the paramount role of private saving in the growth process, and constraints imposed on capacity utilization by the fiscal deficit and interest rates in Côte d'Ivoire.

Estimating the system and simulation exercises

The system identified above can be estimated and solved for *Y, Yp* and *FD*. Some simulations of *Yp* and *FD* will then be carried out. The base-line solution obtained is summarized in Table 4.

Table 4: Baseline solution (1980-1989)

obs	Y	Yp0	U0	FD0	FD0X
1980	1945	2943.273	0.6608	182.4147	0.0937
1981	2031	2932.522	0.6935	227.6526	0.1121
1982	2198	2925.088	0.7514	225.7129	0.1026
1983	2304	2921.000	0.7887	225.1859	0.0977
1984	2578	2897.045	0.8877	152.5555	0.0591
1985	2828	2855.688	0.9903	101.5555	0.0351
1986	2911	2875.940	1.0121	152.7673	0.5247
1987	2717	2881.974	0.9903	137.3778	0.0525
1988	2718	2866.456	0.9482	137.8486	0.0507
1989	2820	3855.165	0.9876	149.4875	0.0530

Source: Computed by the authors.

As noted, capacity utilization grows over time, although a slight deterioration is recorded in 1988 and 1989. This is due to the slowdown and the decline of *Yp* following the movement of investment. Indeed, the values of *Yp* tend to decline smoothly whereas *Y* fluctuates somewhat. One can also note the effort made by the Ivorian government on the fiscal reduction side. FD0 is declining and accounts for less than 10% of GDP on average.

We now proceed to appropriate simulations of values of *Yp* and *FD* over the 1980s for selected fiscal policy packages. The results of these exercises are reported below. In all the simulations we compute potential output (*YPi*) and its growth, comparing them with the base-line solution (*YPGi=YPi/YP0*), fiscal deficit (*FDi*) as a percentage of GDP (*FDX=FDi/Y*), and its growth compared to the base-line solution (*FDGi=FDi/FD0*). (i represents the ith simulation.)

Spending side measures

Table 5: Simulation 1: -15% Ig

obs	YP1	YPG1	FD1	FDX1	FDG1
1980	2928.932	0.995127	174.5881	0.089763	0.957094
1981	2918.181	0.995110	219.8260	0.108235	0.965620
1982	2913.094	0.995900	219.1670	0.099712	0.970999
1983	2909.485	0.996058	218.9016	0.095009	0.972093
1984	2887.271	0.996626	147.1528	0.057080	0.965017
1985	2848.592	0.997515	97.62252	0.034541	0.961864
1986	2867.512	0.997069	148.1675	0.050899	0.969890
1987	2872.355	0.996662	132.1280	0.048630	0.961786
1988	2860.959	0.998082	134.8487	0.049613	0.978238
1989	2850.373	0.998322	146.8722	0.052082	0.982505

Table 6: *Simulation 2*: -15% G

obs	YP2	YPG2	FD2	FDX2	FDG2
1980	2932.239	0.996251	113.0661	0.058132	0.619830
1981	2920.236	0.995811	150.4344	0.074069	0.660807
1982	2912.415	0.995668	146.0548	0.066449	0.647082
1983	2908.326	0.995661	145.5279	0.063163	0.646257
1984	2884.781	0.995767	75.40646	0.029250	0.494510
1985	2843.739	0.995816	26.45075	0.009353	0.260456
1986	2862.498	0.995326	68.28101	0.023456	0.446961
1987	2868.907	0.995466	55.24540	0.020333	0.402142
1988	2853.060	0.995327	53.65433	0.019740	0.389226
1989	2841.346	0.995160	62.62995	0.022209	0.418965

Table 7: Simulation 3: +15% Ig

obs	YP3	YPG3	FD3	FDX3	FDG3
1980	2957.613	1.004872	140.2413	0.097810	1.042906
1981	2946.862	1.004890	235.4792	0.115943	1.034380
1982	2937.082	1.004100	232.2587	0.105668	1.029001
1983	2932.515	1.003942	231.4703	0.100465	1.027908
1984	2906.819	1.003375	157.8216	0.061219	1.034983
1985	2862.784	1.002485	105.4284	0.037280	1.038136
1986	2884.368	1.002931	157.3672	0.054060	1.030110
1987	2891.593	1.003338	142.6276	0.052495	1.038214
1988	2871.952	1.001917	140.8485	0.051821	1.021762
1989	2859.957	1.001678	152.1028	0.053937	1.017495

Table 8: Simulation 4a: -15% Ig +15% G

obs	YP4	YPG4	FD4	FDX4	FDG4
1980	2939.965	0.998876	250.5893	0.128838	1.373734
1981	2930.467	0.999299	303.6967	0.149531	1.334036
1982	2925.768	0.992998	304.3891	0.138485	1.348567
1983	2922.159	1.000233	303.9014	0.131902	1.349558
1984	2899.534	1.000397	228.7677	0.088738	1.500242
1985	2860.541	1.000859	176.0792	0.062263	1.733822
1986	2880.954	1.001743	236.5637	0.081265	1.548523
1987	2885.422	1.001196	218.7227	0.080502	1.592125
1988	2874.354	1.002755	221.5929	0.081528	1.607509
1989	2864.192	1.003162	235.9528	0.083671	1.578412

Simulation 4b: +15% Ig -15% G

obs	YP4B	YPG4B	FD4B	FDX4B	FDG4B
1980	2944.782	1.000513	169.8514	0.087327	0.931128
1981	2935.120	1.000886	206.0192	0.101437	0.904972
1982	2928.308	1.001101	198.9050	0.090494	0.881230
1983	2924.129	1.001071	199.1366	0.086431	0.884321
1984	2899.732	1.000927	130.1158	0.050472	0.853290
1985	2858.191	1.000876	80.71354	0.028541	0.794773
1986	2878.225	1.000795	133.7426	0.045944	0.875466
1987	2884.948	1.001032	112.6193	0.041450	0.819778
1988	2869.575	1.001088	111.8743	0.041461	0.811574
1989	2858.438	1.001146	122.2389	0.043347	0.817720

The first simulations show clearly that cuts in *Ig* and *G* (simulations 1 and 2) lead to a reduction in fiscal deficit (more important for G, between 40% and 60%) accompanied by a slight decline in *Yp*. Conversely, raising government spending (as *Ig* in simulation 3), while leaving *Yp* unchanged, mainly increases fiscal deficit. The latter in this simulation represents more than 12% of GDP on average. Combining cuts and rises in different components of government spending (simulations 4a and 4b), we get interesting results. Cutting *Ig* and raising *G* leads to a sharp rise in fiscal deficit with a stable *Yp*. *FD* moves up to 12% of GDP and grows by more than 50% on average compared to the base-line solution. Raising *Ig* and cutting *G* results in a stable *Yp* and a sharp reduction of fiscal deficit, which now represents 6% of GDP and is 20% lower than the base-line solution on average.

There is an evident conflict between growth-oriented spending side measures and the deficit reduction objective. As we can see, raising *Ig* and *G* seems the best policy for output growth, but this will lead to growing fiscal deficits. Since fiscal deficit reduction is the aim of fiscal adjustment in Côte d'Ivoire, measures that achieve the latter with

lower costs in terms of loss of output are considered. Therefore, raising *Ig* and cutting *G* seems the best package on the spending side, since it offers a possibility of fiscal deficit reduction while maintaining a good level of potential output. This interesting result might be explained by the double effect of *Ig* on *Yp*, directly through total investment and indirectly through the crowding-in effect on private investment. We should say that the implementation and effectiveness of this spending side package (cuts in *G* and a rise in *Ig*) might be problematic despite its appealing features. Indeed, it supposes a consensus among the population and the acceptance of a sharp reduction in salaries, which seem out of reach of the current government and have proved unsuccessful in several attempts since 1990.

Revenue side measures

Table 9: Simulation 5: -15% TXD

obs	YP5	YPG5	FD5	FDX5	FDG5
1980	2944.782	1.000513	169.8514	0.087327	0.931128
1981	2935.120	1.000886	206.0192	0.101437	0.904972
1982	2928.308	1.001101	198.9050	0.090494	0.881230
1983	2924.129	1.001071	199.1366	0.086431	0.884321
1984	2899.732	1.000927	130.1158	0.050472	0.853290
1985	2858.191	1.000876	80.71354	0.028541	0.794773
1986	2878.225	1.000795	133.7426	0.045944	0.875466
1987	2884.948	1.001032	112.6193	0.041450	0.819778
1988	2869.575	1.001088	111.8743	0.041461	0.811574
1989	2858.438	1.001146	122.2389	0.043347	0.817720

Table 10: Simulation 6: -15% TXE

obs	YP6	YPG6	FD6	FDX6	FDG6
1980	2864.242	0.973149	217.8772	0.112019	1.194406
1981	2858.014	0.974593	265.4380	0.130693	1.165978
1982	2848.679	0.973878	266.5150	0.121253	1.180770
1983	2845.465	0.974141	262.6914	0.114015	1.166554
1984	2822.182	0.974159	180.7034	0.070094	1.185040
1985	2781.478	0.974013	120.2570	0.042524	1.184151
1986	2801.158	0.973997	178.2322	0.061217	1.166691
1987	2807.685	0.974223	168.2322	0.061918	1.224595
1988	2787.007	0.972283	170.1612	0.062605	1.234406
1989	2777.411	0.972767	179.2268	0.063556	1.198942

Table 11: Simulation 7: +15% TXE

obs	YP7	YPG7	FD7	FDX7	FDG7
1980	2947.732	1.001515	174.3711	0.089651	0.955905
1981	2942.176	1.003292	210.2386	0.103515	0.923506
1982	2935.680	1.003621	206.6086	0.093998	0.915360
1983	2932.854	1.004058	203.8050	0.088457	0.905052
1984	2911.007	1.004819	127.3041	0.049381	0.834851
1985	2872.902	1.006028	70.50736	0.024932	0.694274
1986	2890.534	1.005075	126.4456	0.043437	0.827701
1987	2896.684	1.005104	110.8465	0.040797	0.806873
1988	2880.164	1.004782	113.1223	0.041620	0.820627
1989	2871.286	1.005646	120.4103	0.042699	0.805487

Table 12: Simulation 8: -15%TXD +20%TXI

obs	YP8	YPG8	FD8	FDX8	FDG8
1980	2941.764	0.999487	192.2160	0.098826	1.053731
1981	2929.923	0.999114	244.5234	0.120396	1.074108
1982	2921.868	0.998899	247.9781	0.112820	1.098644
1983	2917.871	0.998929	246.3264	0.106913	1.093880
1984	2894.358	0.999072	170.2120	0.066025	1.116238
1985	2853.185	0.999124	118.1063	0.041763	1.162973
1986	2873.655	0.999206	167.2640	0.057459	1.094894
1987	2879.001	0.998968	157.3932	0.057929	1.145696
1988	2863.336	0.998911	158.9582	0.058484	1.153136
1989	2851.892	0.998854	172.4138	0.061140	1.153366

On the revenue side, we note that potential output declines with domestic indirect taxes (*TXD*) and taxes on the external sector (*TXE*), and grows with direct taxes (*TXI*) and non-tax revenue of the government (*RIGX*). Changes in *TXD* particularly affect the fiscal deficit, which is very sensitive to *TXD* declines. For instance, a decline of 15% in *TXD* results in a rise of 12%-14% of fiscal deficit compared to the base-line solution (simulation 5). The positive effect of *TXI* on fiscal deficit without adversely affecting potential output is interesting, since only 5%-10% of direct taxes are collected currently. This can be improved quickly by new tax measures that tend to reinforce tax administration and tackle the problem of tax evasion. We also note that lowering *TXE* leads to substantial gains of output growth accompanied by a sizeable reduction of fiscal deficit (simulation 7). Potential output rises slightly and fiscal deficit declines by 10% on average compared to the base-line solution, with the lowest point of -20% in 1987 and 1989.

These results suggest that fiscal deficit reduction policy should focus on cuts in *TXE* and a rise in *TXI* and *RIGX* on the revenue side. The good results obtained from the simulation of *TXE* both on fiscal deficit and potential output are in line with the traditional

analysis of liberalization of external trade and of the domestic market often encountered in the literature. Reducing *TXE* means opening up the economy for greater exposure to international competition and creating incentives for private investment through the reduction of the cost of imported inputs and equipment.

Mixed measures

Table 13: Simulation 9: -15%Ig +15%G -15%TXE -15%TXd

obs	YP9	YPG9	FD9	FDX9	FDG9
1980	2945.443	1.000737	282.5458	0.117504	1.252891
1981	2942.994	1.003571	275.4473	0.135622	1.209945
1982	2939.142	1.004805	287.7980	0.130936	1.275062
1983	2937.602	1.005684	284.6755	0.123557	1.264180
1984	2918.721	1.007482	201.0726	0.077996	1.318620
1985	2885.006	1.010267	135.4475	0.047895	1.333729
1986	2901.532	1.008899	200.3026	0.068809	1.311161
1987	2905.494	1.008161	190.3423	0.070056	1.385539
1988	2892.712	1.009160	198.9915	0.073212	1.443551
1989	2886.176	1.010861	210.1476	0.074520	1.405787

The combination of growth-oriented spending with revenue side measures leads logically to an increase in output, but also results in growing fiscal deficits (simulation 9). The adverse effects of full expansionary policies on the fiscal deficit will then worsen. Focusing on the fiscal deficit reduction objective, we have to find a package that will reconcile the conflicting objectives of deficit reduction and growth promotion. For that we pay particular attention to *Ig, G, TXE* and other taxes, which are the most influential variables of the system. (Cuts in *IG* and *G* are very harmful for output but good for fiscal deficit reduction; *TXE* is appropriate for fiscal deficit reduction and exerts positive effects on *Yp*.)

Combining measures dominated by a lowering of *TXE* and changes in *G* and *Ig* gives an array of interesting results. Indeed, cutting *TXE* and *TXD* and raising *Ig* and the other government revenues (*TXI* and *RIGX*) result in a slight improvement of potential output and a slight decline in fiscal deficit (simulation 10). Output grows at 0.6% on average whereas fiscal deficit falls by 5% in comparison to the base-line solution. When we add cuts in *G* to this package, the results are improved on the fiscal deficit side, but we note a deceleration of output growth (simulation 11). Given the main objective of fiscal adjustment to sharply reduce the fiscal deficit, simulation 11 seems a good policy. Again, we see that reduction of *G* is a powerful instrument to trim the fiscal deficit.

From these mixed measures it appears that the best packages consist of a combination of spending and revenue side measures. For instance, lowering *TXD*, which is a very bad single measure, yields a better result when combined with other appropriate measures as in simulations 10 and 11. In addition, it appears that the pattern of fiscal deficit reduction does matter for growth, as different packages of fiscal adjustment have different effects on potential output.

The simulations carried out here have also shown that for Côte d'Ivoire the best packages for fiscal adjustment that leads to a reduction of fiscal deficit without hitting potential output include cuts in TXE and a rise in public investment.

Table 14: Simulation 10: +15%lg -15%TXE -30%TXD +15%TXI +15%RIGX

obs	YP10	YPG10	FD10	FDX10	FDG10
1980	2960.444	1.005834	179.4084	0.092241	0.983519
1981	2953.799	1.007256	223.7503	0.110168	0.982858
1982	2944.868	1.006580	232.0574	0.105577	1.028109
1983	2941.120	1.006888	229.7021	0.099697	0.020055
1984	2917.974	1.007224	148.9311	0.057770	0.976679
1985	2877.375	1.007594	85.68260	0.030298	0.843702
1986	2896.557	1.007169	139.9311	0.048070	0.915978
1987	2903.209	1.007368	133.7439	0.049225	0.973548
1988	2882.421	1.005570	134.8085	0.049598	0.977946
1989	2872.685	1.006136	144.9977	0.051418	0.969965

Table 15: Simulation 11: +15%lg -15%g -15%TXE -30%TXD +15%TXI +15%RIGX

obs	YP11	YPG11	FD11	FDX11	FDG11
1980	2949.959	1.002272	91.80225	0.047199	0.503261
1981	2942.146	1.003282	116.2811	0.057253	0.510783
1982	2933.016	1.002710	114.0877	0.051905	0.505455
1983	2929.230	1.002818	113.7554	0.049373	0.505162
1984	2905.055	1.002765	42.95903	0.016664	0.281722
1985	2863.380	1.002694	-13.80928	-0.004883	-0.135978
1986	2881.579	1.001961	32.51127	0.011168	0.212816
1987	2889.715	1.002686	19.19118	0.007063	0.139696
1988	2869.176	1.000949	15.56592	0.005727	0.112920
1989	2858.467	1.001156	22.41807	0.007950	0.149966

VI. Concluding remarks

This paper addresses the issue of fiscal adjustment in Côte d'Ivoire with respect to the growth prospects of the country. From a description of the fiscal framework and profile, and a wide discussion of measures adopted by Côte d'Ivoire for a reduction of the fiscal deficit, we found it necessary to build a model of fiscal deficit and a growth model to deal with the issue.

This exercise has given us the following results:

- Fiscal deficit is affected by some variables controlled by the government [*Ig(+)*, *G(+)*, *Td*(+), *RIg*(+) and *Te(-)*] and some not controlled by the government [*Y(-)*]. The former can be used for fiscal deficit reduction, whereas *Y* will measure the feedback effect of output on fiscal deficit.

- The pattern of fiscal adjustment does matter for growth performance. The growth model, based on the determination of potential output, and the simulations carried out using this model have shown the impacts on growth of different packages of fiscal adjustment. In the case of Côte d'Ivoire, we have found that any growth-oriented fiscal adjustment programmes should not lower public investment and raise taxes supported by the external sector.

Appendix: Comparative results of the two rival specifications

	Yp1	Yp2	PYp11	PYp21	PFD11	PFD21
70	650.93	652.49	646.77	660.23	22.75	16.19
71	653.68	651.93	649.27	660.37	12.40	6.89
72	650.07	656.70	645.97	665.38	4.84	-4.59
73	676.64	659.70	671.39	670.61	8.26	8.65
74	689.88	677.98	683.34	2074.05	0.13	-3.91
75	1399.97	1371.76	1390.67	1388.83	32.87	33.77
76	1420.09	1415.50	1407.76	1437.62	-0.44	-15.08
77	1461.98	1456.59	1444.53	1484.04	-37.75	-57.40
78	2960.48	2955.44	2935.66	2993.81	75.42	46.89
79	2980.89	2957.24	2965.43	3002.27	61.09	43.98
80	2993.58	2993.34	2955.29	3041.44	120.13	77.19
81	2969.92	2969.40	2943.29	3021.55	167.74	129.80
82	2962.49	2948.77	2937.82	3000.94	173.01	142.87
83	2958.40	2936.62	2934.21	2988.59	173.62	147.60
84	2934.44	2922.65	2912.41	2972.03	105.53	76.68
85	2893.09	2886.41	2874.04	2933.29	57.74	28.94
86	2913.34	2887.43	2891.47	2940.54	97.05	73.07
87	2919.37	2813.76	2896.69	2866.07	91.89	106.61
88	2903.85	2853.57	2884.96	2904.60	92.29	82.89
89	2892.56	2836.45	2873.95	2888.55	106.07	99.11

*Yp*1 and *Yp*2 are base-year potential output and *PYp*11 and *PYp*21 the results of a simulation of +15% of *Ig* on the two models.

Notes

1. Exactly four adjustment programmes were introduced, in 1981-1983, 1984-1986, 1987-1989 and after September 1989. For an interesting discussion of the adjustment process in Côte d'Ivoire see Dureflé, 1986; Pegatiennan, 1988; World Bank, 1986, 1988; Barbier, 1988; Devarajan and De Melo, 1987.

2. For more details see Kouassy and Bohoun, 1990.

3. The features of the Ivorian fiscal framework have been presented in detail in a previous work by the authors (Kouassy and Bohoun, 1990).

4. For development records of Côte d'Ivoire see World Bank (1987, 1988); Barbier (1988), Bourguignon *et al.* (1985). Barbier, for example, showed that the manufacturing sector of Côte d'Ivoire grew by an average annual rate of 9.3% from 1965 to1980.

5. The IMF support came through one extended facility from 1981 to1983 and three confirmation agreements in 1984, 1986 and 1988. The World Bank intervened in Côte d'Ivoire through four structural adjustment loans in 1981-1983, 1986 and 1989 and some sectoral adjustment loans from 1986.

6. Recall that the period 1977-1982 was a cocoa and coffee boom, with international prices close to FCFA 630/kg for cocoa and FCFA 626/kg for coffee.

7. Musgrave's multiplier was $dY/dG = 1/T'$ with $T' = dT/dY$, Choudhry's was $dY/dG = [1 + (1-T')*dB/dG - Ta*da/dG]/T'$ with, in addition, B = public debt service, a = the tax parameter and $Ta = dT/da$.

8. The World Bank has admitted recently that adverse effects on growth and poverty are among the major obstacles to more lasting improvements from structural adjustment in most of developing countries (World Bank, 1988, 1990).

9. Easterly used the following specification to capture these two effects of public investment on growth: $Q = f(K1, K2, Kg, L)$ and $Q = A*[(s1K1 + s2K2) + sgKg]*L$, where Ki are the types of private capital goods and Kg public capital goods and L stands for labour and A for technology. In the model, $(dQ/dk1)/(dQ/dK2) = \mu$ is

the distortion effect, which can be measured by s1/s2 while the Kg factor allows us to capture the productive effect.

10. The specification of Ram's two-sector model was the following: $Y = C + G$, $K = Kc + Kg$ and $L = Lc + Lg$ are the expressions of total output, capital goods and labour force broken down into their public and private components; $Gl/Cl = Gk/Ck = 1+\partial$ is the comparative factor productivity. If $\partial > 0$, the public sector is more productive; $\partial = 0$ means that the productivity is the same across the sectors. From there he builds up an equation for growth $Y = \beta 1(I/Y) + \beta 2L + \beta 3*G(G/Y) + \beta 4G$ with $I = dKc$, $\beta 1$ $\beta 2$ $\beta 4$ as usual, $\beta 3 = \partial/(1+\partial) - \beta 4$ and $\beta 4$ is the elasticity of private sector to government sector output [$\beta 4 = Cg(G/C)$]. From there Ram identifies the two effects: a factor productivity effect (measured by $\beta 4$) and an externality effect (measured by $\beta 3$).

11. We should mention that Rubinson's study (1977), with its focus on government revenue as the main device for the measure of dependence in relation to growth, examined the revenue structure and sketched an analysis of this issue.

12. This expression is a simplified version of the usual presentation of the contribution of the factor productivity to growth, $dY = v*dYk + p*dYl + t*Ykl$, from which we retain only the first factor. We are aware of the limitations of this approach, leaving aside the labour and the total factor productivity. But we proceed this way because of the paramount role of capital constraints in Côte d'Ivoire, where a well educated workforce is available for an extensive capital accumulation (Bourguignon and Berthelemy, 1985; World Bank, 1987; Mytelka, 1989).

13. Here we adopt a broader approach than Ndulu (1990), who emphasized the first component of investment (Iu) as being the major influential factor for growth in the medium term.

14. This expression can be easily derived from traditional Leontief production function as follows: $Yt = b*Kt$ leads to $(Yt-Yt-1) = b(Kt-Kt-1)$. Since $Kt-Kt-1$ equals $It-1$, it comes $dYt = b*It-1$.

15. The behavourial equations could be specified alternatively as follows:

$Sp = f(Y,Ti)$	*OLS*
FD = f(Y,Ig,G,Te,Td,RIg)	OLS

$Yp = Yo + 0.405*It(-1)$; derived from the two previous equations and the identities.

This specification yields very similar results to our specification, as can be seen in the figures in the Appendix, but is less sensitive to spending variables.

16. The simulations were computed by the authors on the basis of data from the Ministry of Finance, Republic of Cote d'Ivoire.

References

Aghevli B. and M. Khan. 1978. "Government deficits and inflationary process in developing countries". *The IMF Staff Papers*. vol 25.

Anderson D. 1987. "The public revenue and economic policy in African countries". *The World Bank Discussion Papers No 19*.

Ariyo A. and M. Raheem. 1990. *Deficit financing and economic development: Empirical perpectives from Nigeria* AERC, Nairobi, May

Barbier J.P. 1988. "Nouvelles politiques industrielles en Afrique subsaharienne ou les ecueils de la course au large". CCCE, Paris.

Baro R. and X. Sala i Martin. 1990. " Public finance in models of growth". *NBER WP* No 3362, May.

BCEAO, Statistiques economiques et monetaires. *Notes d'information et statistiques*. Various editions, 1978-1990.

Blejer M. and M. Khan. 1984. "Government policy and private investment in developing countries". *The IMF Staff Papers*, vol 3, June.

Blinder S. and R. Solow. 1973. "Does fiscal policy matter"? *Journal of Public Economics*, vol 2, November.

Bourguignon F. and J.C. Berthelemy. 1985. *Growth and crisis in Côte d'Ivoire*. OECD, Paris, August.

Castles G. and S. Dorwick. 1988. "The impact of government spending levels on medium term economic growth in the OECD, 1960-1985". Research School of Social Sciences Australian National University, discussion paper No. 199, December.

Chamley C. and H. Ghanem. 1990. "Macroeconomics of public deficit, the case of Côte d'Ivoire". The WB, July.

Chhibber A. and M. Dailami. 1990. "Fiscal policy and private investment in developing countries: Recent evidence on key issues". *Ricerche Economiche*.

Choudhry N. 1976. "Integration of budgetary and monetary sectors in the econometric models: Analysis of theoretical issues and empirical findings". *The IMF Staff Papers, Jul*.

Conte A. and F. Darat. 1988. "Economic growth and the expanding public sector: A reexamination". *The Review of Economic Statistics*, May.

De Melo J. and S. Devarajan. 1987. "Adjustment with fixed exchange rate: Case of Cameroon, Côte d'Ivoire and Senegal". *The WBER*, vol 1, May.

Dureflé M. 1986. "La crise et la politique d'ajustement structurel en Côte d'Ivoire". Ministère français de la coopération, Paris.

Easterly W. 1990. "Policy distortions, size of government, and growth" The IMF and

the IBRD, February.
Ekpo A. and E. Ndebbio. 1990. "Fiscal operations in a depressed economy, the Nigerian case 1979-1989". AERC. Nairobi, May.
Feltenstein A. 1986. "Financial crowding out: Theory with an application to Australia". The IMF Staff Papers, March.
Guillaumont P. et S. 1985. "Zone franc et développement africain". *Economica*, Paris.
IMF. 1986a. "Fund-Supported Programs, Fiscal Policy and Income Distribution". *Occasional Papers*, January.
IMF. 1986b. "Analyse et programmation financière, application à la Côte d'Ivoire".
IMF. 1989. "International Financial Statistics".
Khan M. and M. Reinhart. 1990. "Private investment and economic growth in developing countries". *World Development*, January.
Kouassy O. and B. Bohoun. 1990. "The determinants of fiscal deficit and fiscal adjustment in Côte d'Ivoire". AERC, Nairobi, May.
Krueger H.O. 1990. "Government failures in development". *NBER WP* No 3340, April.
Landau D. 1985. *Government and economic growth in developed countries: 1952-76*. Public choice.
Landau D. 1986. "Government and economic growth in the less developed countries: An empirical study for 1960-1980". *Economic and Cultural Change* , no 35, October.
Mahieu R. 1990. "Les fondements de la crise economique en afrique, entre la pression communautaire et le marché internationall".Paris, L'Harmattan.
M'Bet A. and A. Niamkey. 1990. "Europe common market of 1992 and the franc zone". AERC, Nairobi, May.
Montiel P. 1990. "Orthodox models for adjustment and growth". *QEH and Centro studi luca d'Agliano Development Working Papers*, no 28, Milan and Oxford, September.
Mytelka L. (1989. "Ivorian industry at the crossroads". Carleton University-Université Paris X, *QEH*, Dec.
Ndulu B. 1990. "Growth and adjustment in sub-Saharan Africa". The World Bank Conference on African Economic Issues, Nairobi, Dec.
Pegatiennan J. 1988a. "Stabilization policy in an agricultural dependent economy". An unpublished PhD dissertation, Boston University, Massachussetts.
_____.1988b. "Fiscal deficit monetization and public debt dynamics in Côte d'Ivoire". Miméo CIRES-UNCI.
Plane P. 1988. "Les facteurs de déséquilibre des balances de paiements en union monétaire ouest africain". *Revue d'Economie politique*. Jan-Feb.
Presidence de la Republique de Côte d'Ivoire-DCGTX. 1990. "Fiscalité et compétitivité en Côte d'Ivoire". Abidjan, March.
Ram R. 1986. "Government size and economic growth: A new framework and some evidence from cross-section and time-series data". *The AERC*, March.
Reinhard B. and C. Kormendi. 1989. "Taxation, aggregate activity and economic growth: Cross-country evidence on some supply side hypotheses". *Economic inquiry*, July.
Riddell R.C. 1989. "Manufacturing Sector Development in Zimbabwe and Côte d'Ivoire". ODI, QEH, Oxford, December.

1990. "Manufacturing sector development in Zimbawe and Côte d'Ivoire". *ODI, QEH*, December.
Roe A. 1988. "Debt management in Africa". Development Economics Research Center. University of Warwick, discussion papers, no 98, April.
Rubinson R. 1977. "Dependence, government revenue and economic growth, 1955-1970". *Studies in Comparative International Development*, Vol XII, No. 2.
Shah A. and J. Whalley. 1990. "An alternative view of incidence analysis for developing countries". *NBER WP* no 3375, July.
Skinner J. 1987. "Taxation and output growth: Evidence from African countries". *NBER*, August.
Tanzi V. 1987. "Inflation and the measuring of fiscal deficit". *The IMF Staff Papers*, vol 34, December.
_____.1989. "Fiscal policy, growth, and the design of stabilization programs", in Blejer and Chu, eds., *Fiscal Policy, Stabilization and Growth in Developing Countries*. Washington, DC.: The IMF.
_____.1990. "Fiscal issues in adjustment programs in developing countries". *QEH and Centro Studi Luca d'Agliano development studies working papers*, Oxford and Milan, September.
Trela I. and J. Whalley. 1990. "Taxes, outward orientation, and growth performance in Korea". *NBER WP* no 3377, June.
Van Wijnbergen S. 1989. "External debt, inflation and public sector: Toward fiscal policy for sustainable growth". *The World Bank Economic Review*, May.
World Bank. 1984. "Rapport préparatoire au troisième plan d'ajustement structurel"". No 6051-IVC, March.
_____.1987. "Côte d'Ivoire in transition from structural adjustment to self sustained growth", vol I to IV. March
_____.1988. "Adjustment lending, an evaluation of ten years of experience". *The World Bank Policy and Research Series*, no.1.
_____.1990. "Adjustment lending policies for sustainable growth". *The World Bank Policy and Research Series*, no 14.

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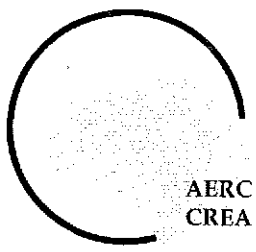

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ISBN 9966-900-86-1

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