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GRAPPLING WITH FISCAL REFORM: THE CASE OF THE DOMINICAN REPUBLIC

By

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١,

Abstract

In the Dominican Republic, fiscal policy and fiscal reform have been at the center stage of the macroeconomic debate for historical and institutional reasons. Fiscal policy is an important constraint and burden on monetary policy and has determined to some extent the choice of exchange rate regime.

Since 1990, the year marking the beginning of the implementation of the stabilisation plan termed the New Economic Policy (NEP), the authorities of the Dominican Republic have been committed to trade liberalisation and stable macroeconomic management. As part of this strategy the country has embarked on successive fiscal reforms. Two key objectives of the most recent tax and tariffs reforms have been to improve the effectiveness of the tax system and to compensate for the expected loss in fiscal revenue resulting from tariff reduction. The reforms have not been fully successful. These have targetted mainly the revenue side of the fiscal accounts through a linear process of substitution among taxes without paying due attention to tax efficiency or the tax burden. In addition the evolution and change in the composition of expenditures have not been attuned to the reform efforts as they have responded mostly to political considerations. The lack of success is reflected in an expansionary fiscal stance that has generated, in part, a current account deficit and in a fiscal position that is not sustainable over time.

ECLAC Sub-regional headquarters for the Caribbean (Port of Spain, Transdad and Tobago). The opinions here expressed are the author's own and may not coincide with those of ECLAC. Comments can be sent to epera@eclacpos.org

1. Introduction

The macroeconomic history of the Dominican Republic is beset with episodes of balance of payments and currency crises, debt default instances and mismanagement of government finances. It also comprises genuine attempts at economic stabilization and sound fiscal management. Stabilization attempts go back to the early 1980's and were definitely implanted in the 1990's under a program termed the New Economic Policy (NEP). For historical and institutional reasons and for reason that respond to sheer economic—logic, a crucial component of this stabilization package was fiscal reform. Rather than a one time set of measures, it has been an ongoing and unfolding process. The main objectives have been to improve the effectiveness of the tax system and to compensate for the expected loss in fiscal revenue resulting from tariff reduction as a result of the decision to deepen the commercial integration of the Dominican Republic.

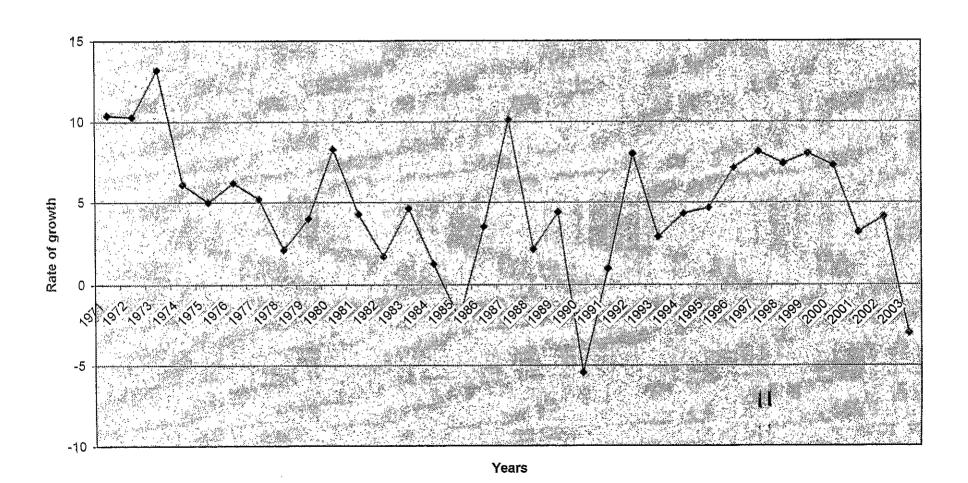
This paper describes and analyses how the Dominican Republic has approached and implemented fiscal reform. The paper is divided into sixth sections. Following the introduction the second section analyses the reasons underlying the importance of fiscal policy in the Dominican Republic. The third section describes the fiscal reforms of the 1990's focusing mainly on tariff reforms, which were its main component. The fourth and fifth sections analyze the pattern and composition of government revenue and expenditure. The final section evaluates the success of the reforms in terms of the relationship between internal and external equilibrium and in terms of the sustainability of the fiscal deficit.

2. Fiscal policy at the center stage of the macroeconomic debate

As in most developing economies fiscal policy and fiscal reform in the Dominican Republic have been a major subject of economic policy discussions and have taken, in different historical instances, the center-stage of macroeconomic debate. In the particular case of the Dominican Republic the role and importance of fiscal policy is explained by three factors.

The first is historical. The macroeconomic history of the Dominican Republic is known for its episodes of macroeconomic instability, currency and balance of payments crises, debt default and fiscal mismanagement. An illustrative example is the year 1990. In that year GDP and per capita GDP growth registered negative rates of growth (-6% and -7% respectively). Consumption and investment declined -11% and -16%. The official and parallel exchange rate depreciated 60% and 36% respectively and the rate of inflation reached 79%. The fiscal and current account deficit were of the order of 5%. Finally, the country faced a financial crisis of major proportions that resulted in the closure of several financial institutions and commercial banks. The evolution of GDP growth marked by frequent upswings and troughs encapsulates this behavior over time (See Figure 1).

Figure 1 The Dominican Republic Rate of growth of GDP 1971 - 2003



The macroeconomic history of the Dominican Republic has created a distrust and lack of confidence in the government and in governmental institutions. The distrust and lack of confidence has permeated over time to the ability and capacity of the government to manage its own finances. The operational deficit of the Central Government rose from 2.2% to 6.3% of GDP between 1980 and 1999. In the same period the operational deficit of the consolidated public sector reached -5.5% and -6.3% respectively (See Table 1 below).

		Table	1			3.,
The operation deficit	of the Centr	al Govern	ment and th	e consolidat	ed public s	ector
·		1980 1	999			
	1980	1990	1999	1980-	1990-	2002
	ļ			1990	1999	
		Primary d	leficit			<u> </u>
Government	-1.6	-2.6	-0.7	-2.7	-2.0	
Consolidated	-4.4	-3.6	-1.7	-2.9	-2.3	-2.6
	Ope	rational fis	scal deficit			
Government	-2.2	-5.2	-6.3	-3.3	-2.0	
Consolidated	-5.5	-6.8	-6.3	-2.9	-3.9	
Note: denotes not av	ailable.			<u> </u>		
Source: On the basis of	official data					

In practical terms this has amounted to the imposition of severe limits on government spending, on its indebtedness capacity and on the management of its debt. The central government spends according to what it earns and has no official means to engage in domestic debt operations. There is no paper denomination to issue debt or market to place domestic debt issues. In addition, the government does not manage the payment of its external debt and does not have discretionary power over all of its tax revenue lines.

The payment of the external debt is the responsibility of the Central Bank. The Central Bank receives from the government the periodic payments corresponding to the external debt service in local denominated currency and converts it into foreign currency to finalize the payments and comply with the external obligations of the country. Some of the tax revenue lines, such as the oil tax revenues, are used exclusively for the payment of the external debt. The burden of the external debt has declined in the past two decades. Between 1985 and 1995, gross external debt represented 65% of GDP on average decreasing to 19% of GDP in the past biennium (2000-2002). (See Table 2 below).

The	Ta Dominican Re	able 2 public Debt I	ndicators		
	1980-1985	1985-1990	1990-1995	1995-2000	2000-2002
Gross debt as a percentage of GDP	59.0	65.4	48.1	23.8	19.2
Total debt as a percentage of goods and services	234.2	243.7	161.0	52.7	48.3
Interests as a percentage of exports	19.3	13.9	4.8	1.4	1.2

The second factor, which in fact follows logically from the previous one, is institutional in character. The absence of official and formal channels to engage in domestic debt operations has not barren the government from indebtedness. To the contrary the government has in fact found ways to obtain credit to finance its operations through informal channels. As an example the government has been able to hire contractors for its capital operations with a verbal promise of future payment. This has led the authorities and in general the country to underestimate the overall level of expenditures, fiscal deficit and debt. The informal internal debt had reached significant proportions in the later part of the 1990's representing close to 6% of GPP and was recognized as a serious issue only in 2000-2001. In 2001 the authorities created a Commission of Debt Evaluation to provide a full estimate of the debt and of its composition and to plan payments to eliminate the domestic debt burden.

In addition, the fact that the Central Bank is the ultimate agent responsible for the payment of the external debt means that when the government falls short of its external debt obligations to the Central Bank, the latter must fill the gap by imposing some type of surcharge or by printing money. Since the external debt has to be paid in foreign currency surcharges are imposed on operations and agents dealing with foreign exchange transactions. That is, charges fall on exporters and importers with the associated foregone costs in terms of output and employment.

The alternative is the recourse to the printing press. In order to avoid unwarranted increases in liquidity, which may jeopardize the balance of payments position leading to a depreciation of the currency and an increase in the service and stock of external debt, the monetary authorities have opted to engage in sterilization operations. These lead however to increases in the domestic rate of interest with the concomitant negative consequences on the levels of activity and employment. Also, in a context of low foreign interest rates, increases in domestic interest rates can worsen the financial position of the central monetary authority by widening the quasi-fiscal deficit. In turn a greater quasi-fiscal deficit can force the authorities to further their need for sterilization operations leading to higher interest rates and ultimately a vicious monetary spiral.

The quasi-fiscal deficit of the Central Bank increased from 0.32% to 1.92% of GDP between 1980 and 1988 and is expected to rise to 3% of GDP from 2003 to 2005.

This institutional context has not only constrained monetary policy but has also significantly influenced the choice of exchange rate regime. The Dominican Republic has a dual exchange rate regime consisting of an official and market determined exchange rates. The official exchange rate, which is fixed by the authorities and has remained constant during prolonged periods of time is *de facto* the anchor rate and is used for the payment of the external debt.

The third factor, which accounts for the importance of fiscal policy, derives from the economic logic of national accounts, which allow to establish a relationship between internal and external equilibrium. Using national accounts it is possible to demonstrate that in a 'quasi steady state' the value of the flow of national income is a weighted average of the export performance ratio and the fiscal stance (Godley and Cripps, 1983; Anyadike-Danes, 1996). The export performance ratio is the ratio of the value of exports to the average propensity to import. The fiscal stance is equal to the ratio of the value of government expenditure to the tax to GDP ratio. Formally,

(1)
$$Y = \omega_1 (X/\mu) + \omega_2(G/\theta)$$

Where,

Y = national income

 ω_1 and ω_2 = weights

X = value of exports

 μ = average propensity to import

G= value of government spending

 θ = the government's share or tax collections to national income (tax to GDP ratio)

Accordingly as stated by Anyadike-Danes (1996, p.716) since the flow of national income is a weighted average of the export performance ratio and the fiscal stance, when the fiscal stance is greater than the export performance ratio, national income is smaller than the former and greater than the latter. That is,

(2)
$$G/\theta > X/\mu \iff G/\theta > Y > X/\mu$$

In turn this implies that a budget deficit will be by definition accompanied by a deficit in the balance of payments. In other words,

(3)
$$G/\theta > Y \iff G > \theta Y \text{ and } X \leqslant \mu Y$$

Since $\theta = T/Y$ and $\mu = M/Y$, where T are taxes and M imports,

(4)
$$G > \theta Y \iff G > (T/Y)Y \iff G > T \iff G - T > 0$$
 (Fiscal deficit) $X \le \mu Y \iff X \le (M/Y)Y \iff X \le M \iff X - M \le 0$ (Current account deficit)

Using this logic an expansionary fiscal stance will translate into a current account deficit forcing the authorities to offset the impending disequilibria via monetary restraint. In other words an expansionary fiscal stance is an obstacle to the generation of growth and employment.

3. An overview of tariff and fiscal reforms in the Dominican Republic from 1990 to 2002

Since 1990, the year marking the beginning of the implementation of the stabilization plan termed the New Economic Policy, the country has been committed to trade liberalization. The Dominican authorities eliminated or reduced tariffs, export taxes, tariff-quotas, permits, exemptions and concessions² through a series of successive tax and tariff measures. During this period, the country embarked on important tariff and tax reforms meant to rationalize the tax system and, at the same time, implement measures to compensate for the expected loss of fiscal revenue resulting from tariff reduction. Tariff reforms were implemented in 1990, 1992 and 2001. Tax reforms were undertaken in 1990, 1992 and 2001.

The 1990 tariff reform was intended to rationalize and simplify the tariff structure as well as to make it more progressive. It established a new tariff structure with seven initial *ad-valorem* tax rates comprised within the interval 5%-35%. This meant a decrease in the ceiling rate by 165 percentage points. Prior to the 1990 reform the tariff rate structure was comprised within the interval 0%-200% (See table 3 below).

Table 3

MAIN STABILIZATION MEASURES ADOPTED BETWEEN 1990 AND 1992

	
Fiscal policy	Petroleum prices were doubled. The oil tax or petroleum differential became an important source of fiscal income 2% of GDP on average between 1991 and 1995 and 14% of all tax revenues on average between 1991 and 1995.
	Elimination of subsidies to electricity, sugar and wheat.
	Temporary tax on imports initially set at 15% but to be lowered to 4% in June 1995 and that affected 40% of all imports.
	Temporary Increase in tariff rates by 1.3 and eliminated by September 1996.
	Implementation of a foreign currency transaction of 2.5% which was reduced to 1.5%.
Monetary policy	Interest rate liberalization. Internal credit reduction.
Exchange rate policy	Unification of exchange rates and beginnings of a managed floating exchange rate regime.

Source: WTO (1996), IMF (1995).

² A majority of import quotas and permits were suppressed in 1990 and 1998. In 1992 export taxes were suppressed.

The tariff rates were to be applied on the CIF value of the imported merchandise rather than on the FOB value as was done prior to the reform. To avoid a sudden impact on given protection structures and ensure a soft landing, the authorities implemented a tariff surcharge set at 30% for 1991, 20% in 1992, and 10% in 1993. The import surcharge was finally suppressed in 1994. Also a temporal tariff of 15% was applied to all imports with the exception of basic food products. This temporal tariff was eliminated by the second half of 1995. Finally a tax on foreign exchange transactions of 2.5% was implemented which was eventually reduced to 2% and later on to 1.5%.

In 1991 the authorities added an additional 0% tariff rate to the prevailing tariff schedule. The 0% rate was applied to basic imports. This increased the number of tariff rates from seven to eight. In 1993, the government increased the 0% tariff rate to 3%. The 3% tariff rate was expanded to cover agricultural inputs that were subject to tariff rates equal or greater than 5%. Finally, in 1997 the authorities increased the number of tariff rates to nine as they decided to reinstate a 0% tariff rate on agricultural and textile inputs. (See Table 4 below).

The tariff reform somewhat simplified the tariff structure. However, according to some, the average tariff effective rate increased from 16.1% to 23.2% during 1990-1995. According to the World Trade Organization (WTO), however, the average tariff rate was 17.5% in 1995 (with a standard deviation of 10.2% and a coefficient of variation of 57%). In terms of sectors, the tariff rates of agriculture, mining and industry were 17.3%, 6.4% and 18.1%, respectively. In 1997, our own calculations yield an average tariff rate of 17.3%.

The tariff rates most commonly found in 1995 were 5%, 10%, 25% and 30% accounting for 10.4%, 28%, 13.3%, and 15.6% of all imports. In 1997, these tariff rates accounted for 7.5%, 24.1%, 9.5%, and 23.9% of all imports.

According to the WTO, the Dominican tariff structure that emerged out of the reform was progressive (i.e., a positive effective rate of protection). The tariff rates applied to manufactured products are higher than those applied to products which are semi-elaborated (i.e., 20.7% for finished products, 14% for semi-elaborated products and 15% for raw materials).

The effective rates of protection of the new tariff structure remained high. The median effective rate of protection for the Dominican industry was estimated within an interval of 133% to 188%. Other sources estimated the median rate of protection to be at 123% for the Dominican industry in 1993.

Possible government revenue losses arising out of the tariff reform could be compensated by several other taxes applied on imports such as the value added tax (ITBIS) (8%) and excise taxes. The excise taxes applied to imports varied within a 5%-80% range. Different excise tax rates were applied to imports and national products. In 1995, the rates applicable to both national and imported products were unified to 20% and 25% for alcoholic beverages. Once all these trade taxes are taken into account the

effective tariff rate may be much higher than that derived from the tariff schedule *per se*. In fact, due to the significant effect of the reform process on the imports base, the import duty revenue increased from 1% to 4% of GDP between 1990-1992. In the same vein, government revenue sourced in trade taxes increased from 5% to 7% of GDP in the same period.

Subsequent to the trade reform, the government implemented a fiscal reform in 1992. The basic aim was fiscal equilibrium. The reform tried to adopt simpler fiscal laws to increase the amount of revenue and the efficiency of tax collection. To this end, the fiscal reform modified personal and corporate taxes, the value added and excise taxes on consumption.

Table 4
SELECTED FISCAL MEASURES, 1995-1998

Date	Measure
January 1995	10 USD tax per passenger on all airlines with scheduled flights from and to the Dominican republic. A tax of USD 5 is established for charter airlines and air cargo lines will be subject to a tax of USD0.03 per pound transported. The USD 0.03 tax was reduced to USD 0.02 in February.
June 1995	The 15% foreign exchange surcharge applied to 41% of imports was eliminated.
1996	Increase by 10% the tax charged to hotel, motel and aparthotel users.
1996	Increases in subsidies to state owned firms (205 million Dominican Pesos to The Dominican Corporation of Electricity; 110 million pesos to the State Sugar Council and 35 million pesos to the Autonomous University of Santo Domingo).
1996	Oil taxes will be used for the payment of the external debt
1996	Increase of 30% in the pension earnings between 0 and 5 000 Dominican pesos and 10% those above 5 000 Dominican pesos
December 1996	The oil tax differential becomes a fixed amount per type of product. For gasoline the oil differential is fixed at 12.48 pesos per gallon and will decrease to 12.17 pesos in 1997.
December 1996	Increase in internal oil prices
1997	Application of inflation adjustment to the income tax
1997	0% tariff rate applied to the import of inputs, equipment and machinery for the agricultural and textile sectors.

1997

Creation of the Dirección General de Impuestos Internos. This institution unified the Dirección General del Impuesto sobre la Renta and the Dirección General de Rentas Internas with the aim of centralizing in one institution the task of tax collection reducing operative costs and eliminating the duplication of functions.

March 1998

Increase in the exempted tax base of the tax income.

Source: IMF (1996), Central Bank of the Dominican Republic; ECLAC (1999).

Regarding personal and corporate tax laws, the reform increased allotted amounts that are regarded as exempted. The reform established three tax rates that could be applied to personal income and one rate for corporate income. The new law established that public firms had to pay the same corporate taxes as private firms. Fiscal incentives were suppressed with a few exceptions (i.e., productive activities undertaken under the free trade zone regime).

The value added tax rate (ITBIS) was increased from 6% to 8%. The application of this tax was extended to cover services. All exports as well as some national produced and imported goods were exempted. The excise tax on consumption, which was a specific tax, became an *ad-valorem* tax. Fifty individual laws that contained more than a 100 tax rates were suppressed and were replaced by the new tax code. The new code contemplated rates ranging from 10% to 15% for national products and seven types comprised in the interval 5% to 80%. The reform also reduced the temporal surcharge on imports established in 1987 from 15% to 10%. This surcharge was eliminated in June 1995.

In 1997 the authorities presented a tax reform proposal which included an increase in the personal income tax base exemption and a fixed charge of 10% on the income tax; an increase in the value added tax rate from 8% to 12% as well as an extension of its base; an excise tax on petroleum products and an increase in the tax rate applied to alcoholic beverages (Pellerano, 1997).

In 2000, the Dominican authorities designed a new tariff reform to further the economy's outward orientation and integration process. The reform entered into force in 2001. The reform comprised the adoption of the harmonized system for the classification of merchandise and the reduction of the dispersion and level of the tariff rates. The reform decreased the number of tariffs from the existing nine (0%, 3%, 5%, 10%, 15%, 20%, 25%, 30%, 35%) to five (20%, 14%, 8%, 3% y 0%).³

Tables 5 and 6 show, respectively, the evolution of the distribution of the tariff schedule and its basic parameters between 1990 and 2001. During 1990-1998, more than 50% of tariff lines were located in the upper tariff echelons ranging from 20% to 35%. In 2001, the tariff structure exhibits the opposite structure. That is, more than 50% of all

³ As can be seen in the next section, tariff rates of 25% and 40% are still applied on some tariff lines. Also two tariff lines still maintain a 15% tariff rate.

tariff lines are assigned tariffs of 3% and 0%, respectively, and thus most of the tariff lines belong to the lower echelons.

Tor	Table 5	
1 al		
,		
1990-1998	1998-2000	2 00 1
0	0.0	0.4
10.7	10.7	0.0
16.5	16.4	0.0
14.4	10.2	0.4
9.0	8.8	26.7
8.1	5.6	0.0
0.0	0.0	6.6
25.6	24.5	0.0
0.0	0.0	11.1
9.5	8.0	0.0
6.0	4.5	41.3
0.0	11.3	13.5
	1990-1998 0 10.7 16.5 14.4 9.0 8.1 0.0 25.6 0.0 9.5 6.0 0.0	0 0.0 10.7 10.7 16.5 16.4 14.4 10.2 9.0 8.8 8.1 5.6 0.0 0.0 25.6 24.5 0.0 0.0 9.5 8.0 6.0 4.5

Most tariff lines are included in the tariff rate of 3% which represents 41% of all tariff lines and are followed by 20%, 0% and 8% representing 27%, 14% and 11% of the total. Thus for all purposes it is a four-tier tariff schedule. The main consequence is the decline in the average and weighted tariff rate and the reduction of the tariff dispersion.

Overall a comparison of the 1990-1998 and 2001 tariff schedules show that the mean tariff has declined subtstantially from 18% to 9%. The standard deviation has also decreased from 10% to 8%. Finally the 2001 tariff schedule is more balanced in terms of its relations between the mean, the median and the mode. The median and mode coincide at 3% and are lower than those corresponding to the previous tariff schedules 15% and 10%, respectively (see Table 2).

	e 6 ule parameters	
Tariff schedule 1990-1998	Tariff schedule 1998-2000	Tariff schedule 2001
18.2	16.6	8.6
18.6	16.8	8.6
10.3	11.3	8.0
35	35	40
0	0	0
15	15	3
10	10	3
	18.2 18.6 10.3 35 0 15	1990-1998 1998-2000 18.2 16.6 18.6 16.8 10.3 11.3 35 35 0 0 15 15

The tariff reform was accompanied by a fiscal reform whose main objective was to compensate for the consequent loss in tariff revenue. The reform contemplated the increase in the ITBIS rate from 8% to 12%. It also included the increase in excise duties applied on beer and alcoholic products and the application of marginal tax rates, ranging from 0% to 80%, on motor vehicles. Moreover it modified the tax brackets applied on personal and corporate income. Finally, it established an additional tax on corporations which is actually an advance on the payment of their tax income corresponding to the current fiscal year and equivalent to 1.5% of their gross monthly revenue.

More recently as part of its participation in the FTAA process, which is set to culminate in 2005, the Dominican authorities have undertaken, as have other countries members, an internal discussion process with the purpose of delineating a tariff reduction proposal.

To provide the regional FTAA context, Table 7 shows the number of tariff lines, average tariff rates, standard deviation, and tariff ranges for selected FTAA countries. In the case of the Dominican Republic, the average nominal tariff rate and the nominal tariff dispersion are below the regional FTAA average. This may indicate that the authorities can contemplate the adoption of higher tariff rates than the existing tariff schedule would allow as a starting point for the negotiations.

Table 7
Comparative tariff lines, average tariffs, standard deviation and tariff ranges
Selected FTAA countries

	Tariff	Average tariff	Standard	Tariff
	lines		deviation	range
Antigua and Barbuda	4077	14.5	13.5	0-70
Barbados	6469	16.5	29	0-243
Chile	5917	8.0	*****	0-35
Dom <u>i</u> nica	6333	13.1	21.6	. 0.5200
Grenada	6334	11.2	10.8	0.40
Costa Rica	7926	7	9.8	0-163
El Salvador	5800	6.9		0-40
Guatemala	5976	7	7.8	0-40
Guyana		10.6		0-40
Honduras	5913	7.1	••••	0-70
Jamaica		10.9	•••	0.50
Mexico	11387	16.5	14.5	0-260
Nicaragua	6235	5.1	***	0-190
St. Lucia	6368	10.1	12.2	0-70
St. Vincent and the	6237	10.9	9.81	0-40
Grenadines				
Dominican Republic	6719	8.6	8.0	0-40
Regional average	6549.4	10.3	13.7	
Standard Deviation	1604.4	3.49	6.71	

Source: On the basis of WTO (2001-2002) and national official information.

Note: In the case of Mexico the trade weighted tariff rate is much lower (around 2%) due to the importance of its trade with the United States.

The tariff reduction scenarios consist in different allocations of tariff lines in five different 'tariff baskets.' The first one, tariff basket A, denotes the immediate tariff reduction to a zero rate upon entry into force of the FTAA. The second, tariff basket B, contemplates a time-frame ranging to five years for the implementation of the tariff reduction. For the third tariff basket, 'basket C', the time-frame ranges from five to 10 years. In the case of the fourth basket, 'basket D', the time allowed for the implementation of a tariff reduction is greater than 10 years. Finally, there is a last 'tariff basket' comprising sensitive goods. In general, sensitive products are a subset of agricultural products.

		Table 8			
	FTAA	tariff basket scenarios			
	Percentage of t	otal tariff lines by tariff rates			
Tariff rates	2001 tariff schedule	Ceiling tariff basket	Floor tariff basket		
	(modified 2001 tariff schedule)				
20	26.7	27.5	26.7		
14	6.6	6.6	4.8		
8	11.1	11.1	- 2.7		
3	41.3	41.3	5.7		
0	0 13.5 13.5 59.3				
Source: On the b	asis of information pro-	vided by the Ministry of Finance.			

Table 8 above establishes the correspondence between the tariff baskets in the floor and ceiling scenarios (which is a slightly modified version of the 2001 tariff schedule) and the different tariff rates. This is also shown in Figure 2 below. The main difference in both scenarios lies in the number of tariff lines included with a tariff rate of 3%, which would decline from 41% of the total in the 'ceiling basket scenario' to 6% in the 'floor basket scenario'. As a result, the number of tariff lines with a 0% tariff rate would increase from 14% to 59%. The reduction from 3% to 0% would affect a number of chapters ranging from Chapter 15 to Chapter 84. The main chapters affected by this decline would be Chapters 25 and 84 (960 and 450 tariff lines, respectively). Also the floor tariff schedule would classify 51 products as sensitive products.

Table 9 Revenue loss estimates using the 2000 import structure					
Tariff rate	Share of imports according to the ceiling tariff basket scenario	Share of imports according to the tariff basket floor	Tax collection according to the ceiling tariff basket scenario (000' of US\$)	Tax collection according to the tariff basket floor (000' of US\$)	
0	14.44	35	0.0	0.0	
3	20.8	9	18 346.7	7 938.5	
8	11.23	0.8	26 414.6	18 817.1	
14	10.51	7.4	43 261.8	30 460.2	
20	43.0	46	252 855.2	270 496.3	
Total			340 878.2	327 712.1	

The estimated loss in revenue between the adoption of both scenarios is 1.7% of GDP.

Source: On the basis of official data provided by the Ministry of Finance.

Note: the tariff basket scenario (third column) does not show a 0.23% corresponding to sensitive products.

The results indicate that more than 50% of imports are located in the C and D categories and, as a result, will not have a significant effect in the short run on

government finances. This result holds independently of the tariff basket scenario adopted. In both the case of the ceiling and floor tariff basket scenarios the share is equivalent to 53% of all imports. The differences arise within the 8% tariff representing 11% of all imports in the ceiling basket scenario, and 1% in the floor scenario and within the 3% which represents 21% of all imports in the ceiling tariff basket scenario case, and 9% in the floor tariff basket scenario case. Preliminary calculations show that the difference in tax revenue collection in the adoption of the ceiling basket and the floor scenario is 1.7% of GDP. The difference in the implementation of both schedules of further tariff declines consisting in reducing the B tariff items to 0 would be negligible in terms of GDP.

Thus, in conclusion, as countries progressively implement the tariff reduction measures, which will affect by far the majority of traded goods, the revenue foregone resulting from tariff reduction will increase. Authorities may adjust via changes in government expenditure or in government revenue, or in a combination of both. The policy choice may depend on the extent to which, there is flexibility to adjust by reducing expenditures or scope for enhancing the revenue collection system.

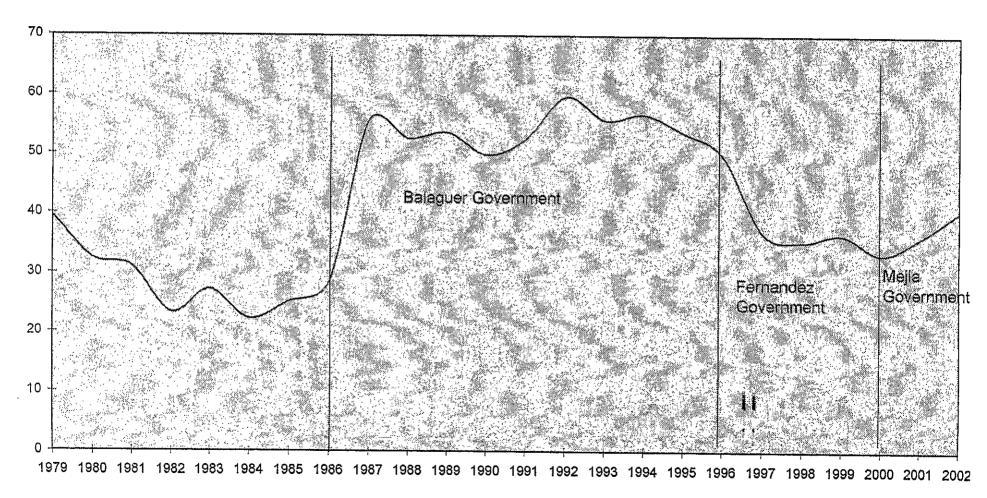
3. An analysis of government expenditure

Central government spending is classified (by economic function) into wages and emoluments, purchase of non-wage goods and services, subsidies and other current transfers, interest payments and capital expenditures.

Wages and emoluments represent close to 6% of GDP and the government employs 12% of the labour force and 25% of the urban labour force (divided into public administration and defence 40% and other State employees 60%) (see Table 11). The level and composition of government employment has not suffered any significant changes in spite of the changes in government expenditure and the privatisation process. This variable tends to vary pro-cyclically and as suggested by Pellerano (2002), greater income is associated with an expansionary fiscal stance in terms of wages and salaries. This is shown in Table 11 where the correlation coefficient for the cyclical variation of real GDP and wages between 1980 and 1999 was 0.87 and 0.95 for 1992-1999. For this reason it may not be the best adjustment or leverage variable available.

Moreover in the last two years as indicated in Table 11 below there has been a marked increase in public sector employment reflecting a conscious decision on the part of the authorities to strengthen the government base.

Figure 2
The Dominican Republic
1979 - 2002
Capital expenditures as a percentage of total expenditures



	T	able 10	······································	
Coefficient of correlation	on for cyclical v	ariations in GDP and re	eal government wages	
1980-1999 1980-1991 1992-1999				
Correlation coefficient	0.87	0.78	0.95	

Source: On the basis of ECLAC (2001).

Note: The results were obtained by separating the permanent and cyclical fluctuations component of the real government wages and real GDP.

_			·		
	Table 11 Composition of government employment				
	Public administration and defence	Other government employees	Total		
1996	100 702	196 451	297 153		
2001	151 662	229 837	381 499		
-	Rate of growth	Rate of growth	Rate of growth		
1997	0.7	2.0	1.6		
1998	3.4	6.2	5.3		
1999	1.7	-2.4	-1.1		
2000	25.3	9.4	14.8		
2001	13.6	1.1	5.7		
Source: Peller	ano (2002).				

The item purchase of non-wage goods and services accounts for 2% of GDP and is indeed an endogenous variable that has responded to the greater attention paid to the social welfare of the population and to the increase in prices of raw materials.

The most important component of current transfers is the item subsidies, which currently account for 1.3% of GDP and 8% of total expenditures (2001). Within this item, subsidies to the electricity service and the State-owned electrical corporation has been the most important item. Subsidies to the electrical sector account for 4% of total public expenditure on average in the last decade and close to a third of all non-financial public firms. Subsidies on electricity services are followed by subsidies to gas and water services. Subsidies can be reduced especially to electrical services as long as the price of electricity declines which basically means an additional reform to the electrical sector and may be in fact be a long-term reform and not a particularly useful variable to be used as a fiscal equilibrating tool. Interests and amortization components of the debt are likely to increase as the country has increased its external indebtedness.

Finally, the last component of public expenditure is capital expenditure. Capital expenditure as a percentage of total government expenditure is endowed with a clear political component. It has a marked political cycle. This is shown in Figure 2, as the importance of capital expenditures as a percentage of the total varies according to different governments. In the last years the importance of capital expenditures has

declined. Capital expenditures comprise, as is shown in Table 12, real investment which represents 2% of GDP, capital transfers (1.7% of GDP) and debt amortization payments (2.5% of GDP out of which 83% is due to payments on the external debt).

Table 12 Composition of capital expenditure as percentage of GDP 1980 – 2001									
= 1980-1991 1992-1996 1997-2001									
Capital expenditure	5.0	8.4	6.1						
Investment	2.5	4.7	2.5						
Capital transfers	1.8	2.2	1.5						
Amortisation of debt	0.4	1.1	1.8 (2.5 in 2001)						
Source: On the basis of official	data provided by the Min	istry of Finance and E	CLAC (2001)						

The analysis of government expenditure indicates that the scope to use government expenditures in a sustainable manner to offset a decline in government revenue brought about by a decline in tariffs is narrow. The fiscal adjustment must be sourced in the revenue side of the fiscal accounts.

4. An analysis of government revenue

Table 13 classifies government revenue from 1980 to 2001 according to whether it is dependent on domestic or external sources. External sources of revenue comprise duties, complementary taxes, exchange rate surtax, the value-added tax levied on imports, taxes levied on transportation and export taxes. The rest of the taxes are considered to be based on internal sources of revenue.

Table 13 Composition of government current revenue As percentages of total current revenue 1980 – 2001									
	1980-1991	1992-1995	1996-2000	2001					
Internal sources of revenue	43.1	37.3	40.8	47.3					
Income taxes	21.3	18.3	20.5	26.6					
Property taxes	2.1	1.1	1.6	1.6					
Excise taxes	9.6	3.9	6.2	6.5					
Taxes on other consumption goods	10.1	14,1	12.5	12.6					
ITBIS (internal)	4.3	8.2	9.8	14.2					
External sources of revenue 36.1 42.7 39.9 32.1									
ITBIS (external)	2.9	8.1	9.0	9.6					

Sales of tickets to the outside	1.5	1.5	0.9	0.0
Airport tax	0.5	0.8	1.1	0.9
Import duties	7.7	27.7	26.7	15.7
Complementary taxes	16.8	1.7	1.8	0.5
Foreign exchange surcharge	3.7	2.8	0.2	0.0
Export taxes	3.0	0.0	0.3	5.4

Source: ECLAC (2001) and the Ministry of Finance of the Dominican Republic.

Note this classification only considers the main sources of revenue and does not include among others non-tax revenue. Taxes on other consumption goods refer mainly to the petroleum and natural gas-taxes.

Traditionally, the Dominican Republic has exhibited one of the highest dependency ratios on international trade taxes and on taxes related to trade in general in Latin America and the Caribbean. If only trade taxes are considered, the ratio of trade taxes to total revenue reached 31% in 1999 ranking 9 for FTAA countries and largely above the average registered for South American, Central American and Caribbean countries (see Table 14). The inclusion of taxes that are dependent on international trade increases this dependency ratio to 45% in 2000 prior to the fiscal reform and is currently situated at 32%.

Table 14											
	Trade tax revenues (as a percentage of total tax revenue)										
Ranking of FTAA countries											
1990-1999											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
Bahamas	62.0	66.4	66.0	64.6	67.9	67.1	65.5	66.5	66.1	65.8	65.8
Antigua & Barbuda	57.9	65.6	66.1	66.2	66.2	67.7	67.1	66.7	67.4	66.1	65.7
Grenada	75.8	62.8	58.9	57.1	56.4	53.5	60.4	63.9	64.4	61.1	61.4
St. Kitts & Nevis	64.8	62.7	62.1	64.2	61.6	59.2	54.4	53.9	49.7	50.6	58.3
St. Lucia	62.8	56.1	50.2	51.7	53.1	55.0	54.2	56.4	59.5	59.4	55.8
Dominica	57.9	54.7	55.1	55.6	56.4	54.1	53.2	54.3	53.8	54.6	55.0
Belize	62.3	61.5	61.1	56.9	56.3	56.3	58.8	33.8	36.8	39,3	52.3
St. Vincent & the	52.3	51.9	51.1	53.5	50.7	52.8	49.3	50.8	49.3	50,3	51.2
Grenadines					<u> </u>						
Costa Rica	28.2	30.2	25.1	23.3	22.4	51.8	46.5	46.0	47.6	43.2	36.4
Dominican Republic	38.7	34.0	41.0	37.1	31.5	29.1	28.9	28.6	28.6	31.3	32.9
Honduras	38.0	36.8	31.8	29.5	29.7	25.9	26.5	24.9	17.7	14.7	27.6
Jamaica	21.0	23.1	24.7	28.3	26.1	30.7	29.0	29.8	30.0	30.1	27.3
Ecuador	31.6	28.2	24.0	22.9	23.8	23.0	19.3	24.5	31.6	25.6	25.5
Colombia	26.0	26.0	21.3	26.1	26.8	27.5	24.5	24.7	26.7	20.4	25.0
Venezuela	35.6	42.2	37.2	25.9	18.9	18.2	17.1	16.5	19.2	16.8	24.8
Nicaragua	21.5	20.3	20.3	21.5	21.7	23.2	22.6	24.1	28.0	31.2	23.4
Panama	22.0	19.1	19.7	28.1	28.5	19.1	20.3	20.2	22.8	19.8	22.0
Paraguay	25.4	22.9	18.3	18.4	18.2	22.9	19.4	19.6	19.3	14.9	19.9
Guatemala	22.5	19.2	25.4	22.7	23.6	23.6	17.5	15.0	14.5	13.6	19.8

Haiti	18.9	21.0	16.1	16.4	13.1	19.0	15.6	21.8	21.0	21.5	18.4
El Salvador	21.6	21.3	18.2	19.3	19.4	17.4	14.0	11.8	11.9	11.4	16.6
Guyana	16.3	16.3	12.5	16.0	15.4	15.0	14.6	13.9	14,3	14.4	14.9
Chile	16.6	13.8	12.7	12.2	11.4	12.4	12.1	10.8	10.1	9.5	12.2
Barbados	13.0	9.3	8.1	7.9	17.9	17.0	14.2	10.2	10.4	10.3	11.8
Bolivia	16.6	13.0	12.1	11.5	11.5	11.5	10.6	9.7	9.4	8.3	11.4
Peru	10.4	10.0	10.6	12.4	12.4	13.2	12.2	10.9	11.1	10.9	11.4
Trinidad & Tobago	8.9	9.1	10.2	10.9	11.9	9.1	8.5	9.2	9.9	9.7	9.7
Uruguay	15.3	13.4	11.2	8.0	8.2	6.8	6.4	6.7	6.8	6.1 -	8.9
Mexico —	8.4	10.1	10.6	9.3	8.2	6.7	6.6	5.8	5.3 =	-5.3~	7.6
Argentina	12.1	5,9	5.9	6.2	6.3	4.6	4.9	5.7	5.1	4.5	6.1
Brazil		0.0	5.0	4.2	3.9	6.0	4.6	4.7	5.0	5.2	4.3

The fiscal vulnerability resulting from the dependency of government revenue on trade taxes is compounded by their volatility. Tables 15 and 16 show the relative volatility of trade-based taxes (or of a sample of these whenever data was not available) for 1990-2000.

The relative volatility was computed as the absolute volatility (measured by the standard deviation) of trade taxes measured in real terms to real GDP. To obtain a value of tax collection in real terms two approaches were followed.

The first involved the use of the GDP deflator. The second involved the use of different deflators according to tax categories, which is a more accurate way of measuring purchasing power. According to both methods the relative volatility ratio is greater than one. That is, the absolute volatility of taxes is greater than that of GDP for the greater majority of the cases pointing to the difficulty in securing a stable stream of revenue over time without resorting to discretionary and once-and-for-all tax compensation measures.

Excluding complementary taxes (which exhibit the highest degree of volatility of all according to the second method used to determine relative volatility) external sources of revenue during the 1990s accounted for 39% of the total on average with a 2.6% standard deviation. The fiscal reforms carried out in the 1990s and the different policy measures regarding tariffs described in Section 1 reduced in part the weight of trade-based taxes in total revenue and the tax effort which shows as a declining trend during the 1990s. Trade-based taxes expressed as a percentage of GDP increased markedly following the 1990 reform (from 2.7% to 5.5% between 1990 and 1993) and then declined to 4.3% in 2000 and to 4.1% in 2001.

The most important taxes related to trade are import duties and the ITBIS applied on imports. Import duties, though still accounting for a quarter of total trade-based tax revenues during 1990-2000 has, in tandem with the efforts of the authorities of decreasing the country's fiscal vulnerability, tended to decline in importance. Import duties, which represented 4% of GDP following the 1991 reform, reaching 4.7% in 1993 declined to 3.8% in 2000 and to 2.6% in 2001.

Table 15 Relative volatility of trade based taxes using the GDP deflator 1990-2001									
	90-2001	79-90	92-2001	93-2001	95-2001	96-2001			
Total external sources of revenue as % of GDP	1.93	2.06	1.62	1.39	1.63	1.75			
ITBIS (external)	1.09	3.86	1.09	0.66	0.89	1.16			
Sales of tickets to the outside	2.65	4.00	2.51	2.16	.114	1.29			
Airport tax	1.97	0.31	1.46	1.24	7.31	1.65			
Import duties	14.68	28.42	5.56	1.00	1.01	1.21			
Complementary taxes	2.42	9.78	2.20	1.65	0.26	0.00			
Source: On the basis of ECLAC	(2001) and o	fficial data		•					

Table 16 Relative volatility of trade based taxes using different implicit price deflators according to tax category 1990-2001											
	90-2001	79-90	92-2001	93-2001	95-2001	96-2001					
Total external sources of	1.23	2.28	1.19	0.87	1.03	1.07					
revenue as % of GDP											
ITBIS (external)	2.04	2.13	1.58	1.36	1.51	1.60					
Sales of tickets to the outside	1.19	3.86	1.46	1.47	1.84	2.21					
Airport tax	2.89	4.00	2.52	2.12	1.11	1.15					
Import duties	1.70	0.45	1.03	0.80	0.98	1.10					
Complementary taxes	14.45	28.42	8.53	8.83	11.53	14.14					
Foreign exchange surcharge											
Source: On the basis of ECLAC	(2001) and c	fficial data.									

The behaviour of import duties was analysed from three perspectives. First, regression analysis of import duty revenue shows that import duty revenues respond positively to movements in the tax base as measured by the ratio of local merchandise imports to GDP. Table 17 shows the results of running a regression of import duties as a percentage of GDP on imports as a percentage of GDP and dummy variables to capture the effects of the tax and tariff reforms of 1992 and 1995 and that of 2001 on import duty collection. Two lagged terms for the import base variable were included as both were found to be significant and the contemporaneous variable was not included simply because it was not statistically significant. The results are consistent with the observed results of tariff and tax reform. Indeed, the coefficient for the 1992-1995 dummy variable has a positive sign and that denoting the 2001 tariff and tax reform has a negative sign. Both coefficients are significant at the 5% significance level.

Table 17
Results of regression analysis of import duties as a percentage of GDP on the
import base and tariff reforms
1980 – 2001

Variable	Parameter estimate	T-statistic
Constant	0.07	1.33
Import base as percentage of GDP (-2)	1.02	2.24
Import base as percentage of GDP (-3)	0.92	2.20
Tariff and tax reform 1992-1995	0.40	2.27
Tariff and tax reform 2001	-0.56	-2.45

N = 19

 R^2 (adjusted) = 0.43

Schwarz Criterion = -2.56

Akaike Criterion = -2.82

Statistical tests

Residual tests

Box-Pierce

 $\chi 2(2) = 1.15$

Ljung-Box

 $\chi 2(1) = 2.31$

Breusch-Godfrey

 $\chi 2(1) = 2.63$

Functional form tests

Ramsey Reset Tests $\chi 2(1) = 0.04$

Heterocedasticity Test

Breusch-Pagan

 $\chi 2(4) = 2.97$

Arch Process Test

 $\chi 2(2) = 0.99$

Source: On the basis of ECLAC (2001) and data provided by the Ministry of Finance. Note: Estimations were carried out with the Modler (250) software.

The parameter corresponding to the tax base (imports as percentage of GDP) is also statistically significant and is either equal or very close to one. However due to an insufficient number of observations, this result fails to capture a key change in the response of import taxes for a given import base that occurred following the 1991 reform. Following the reform, import duties became more responsive to a given tax base indicating perhaps an increase in the efficiency of import duty collection.

The simple correlation coefficient between imports as a percentage of GDP and duty collections as a percentage of GDP is equal to 0.37 for the period prior to the reform (1979-1991) and to 0.64 for the period following the reform (1992-2001). In addition, a scatter diagram (Figure 3) shows a clear change in the slope of the relationship between both variables before and after the reform.

The value-added tax (ITBIS) which is the main tax figure used to compensate for the loss in fiscal revenue arising from tariff reductions has yielded higher revenues over time (1.6%, 3% and 4% of GDP in 1991, 1999 and 2001). However, by known empirical standards the ITBIS is a comparatively inefficient tax, that is, its revenue collection is below its potential.

INSERT FIGURE 3

Table 18, shows two used measures in the tax literature to gauge the efficiency of a tax (Ebrill et. Al (2001). These are the efficiency and c-efficiency ratio. The efficiency ratio is equal to the ITBIS revenue as a percentage of GDP divided by the tax rate. The c-efficiency ratio equals the ratio of ITBIS revenues to GDP divided by the tax rate. The advantage of the latter over the former is that it takes into account the fact that the value added tax is levied on consumption. More important, it avoids making policy recommendations seeking to increase the tax base by incorporating into the tax situature other components of aggregate demand such as investment (Ibid. p.41). A low value of these ratios is an indication of tax evasion or tax erosion.

The results for the Dominican Republic show that the efficiency ratio in 1991, which is the year prior to the 1992 reform, was 0.25 and that in 2000 (the year prior to the implementation of the following tax reform) was equal to 0.33. The first figure means that in 1991 an increase of 2 percentage points in the tax rate would have resulted, other things being equal, in an increase of 0.50 in the ITBIS-GDP ratio. The increase of 2 percentage points in the ITBIS rate from 6% to 8% yielded an increase in the ITBIS-GDP revenue remarkably close to this relationship. The ITBIS-GDP ratio rose from 1.52 to 2.13, that is, an increase of 0.61 percentage points.

In the same vein, the efficiency ratio in 2000 was 0.34 indicating that an increase of 1 percentage point in the tax rate would increase the ITBIS-GDP ratio by 0.34%. The increase in the ITBIS rate from 8% to 12% resulted in an increase of 1.26% percentage points in the ITBIS-GDP ratio which is very close to that predicted by the efficiency ratio (1.36%).

When compared to other countries that have adopted the value added tax or the consumption tax, the efficiency ratios for the ITBIS in the Dominican Republic are low. In fact, as Table 22 shows they are below the Latin American averages. International Monetary Fund (IMF) calculations indicate that the efficiency ratio for Latin America is 37% and 33% for the Dominican Republic. In terms of the c-efficiency ratio, the coefficient yielded an average of 42% and a 44% for 2001. For Latin America the c-efficiency ratio is at 57%.

Table 18
Value added tax
Efficiency and C-efficiency ratios for the Dominican Republic and other
geographic regions

	Sub- Saharan Africa	Asia and the Pacific	Americas	Dominican Republic Average 1995-2000	Dominican Republic 2001
Efficiency ratio	27	35	37	34	33
C-efficiency ratio	38	58	57	42	44

Also more recent estimations for smaller economies validate this conclusion, that is, the Dominican Republic lags in tax efficiency relative to other countries in the hemisphere. Table 19 shows selected Latin American and Caribbean countries, the date of introduction of the VAT and the computed c-efficiency ratio. With the exception of Nicaragua, the c-efficiency ratio in the case of the Dominican Republic is below that of other countries.

Value	e added tax in	the Dominican	Table 19 Republic		Caribbean Cou	ıntries
Country	Population (millions)	Introduction of VAT	VAT rates	VAT percentage of total tax revenue	VAT Percentage of GDP	C- efficiency Ratio
Barbados	0.3	1997	15	32.7	9.5	110.2
Belize	0.2	1996	8			56.2
Costa Rica	3.7	1975	13		4.0	87.4
Dominican Republic	8.5	1983	12	25	4.0 (2001)	44
Jamaica	2,6	1991	15	35.8	8.8	83.5
Nicaragua	4.8	1975	15			34.6
Panama	2.7	1977	5			67.3
Trinidad and Tobago	1.7	1990	15	23.6	4.3	46.8
Sources: On	the basis of offi	cial data				

The decomposition of the efficiency ratio into its internal and external component does not improve the overall picture of inefficiency of the tax. The efficiency and c-efficiency ratios for the ITBIS as a whole are equally divided for its internal and external component.

These results would indicate that trying to replace the foregone revenues of a tariff reduction by an increase in the ITBIS rate is by no means an optimal one. This policy measure, given the inefficiency of the ITBIS, may indeed be placing an unjustified burden on the consumer and his welfare. It also leads, ultimately, to increasing the

complexity of the tax system by introducing discretionary and temporary change in the tax structure, which is a well-known feature of Dominican economic history. Moreover, it causes unwarranted changes in macroeconomic variables leading authorities to react by undertaking measures that are believed to maintain stability in the face of a change in external conditions when, in fact, it is a reaction provoked by the inefficiency of the tax system. If the efficiency ratio were higher than the actual one (34%) say 40% a four percentage point increase in the tax rate like the Dominican Authorities implemented in 2001 would have increased the revenue potential of the ITBIS from 1.3% to around 1.6% of GDP_If the efficiency ratios were closer to those of Caribbean economies, the Dominican Republic would significantly soften its budget constraint.

These arguments become even more relevant when the relationship between the import duties as a percentage of GDP and external ITBIS is examined. Due to the fact that as presented in the first section of this paper, the external tax structure is a cascading one, both variables should be closely related. Both variables were relatively closely associated from the inception of the ITBIS in 1983 to 1989. The coefficient of correlation was 0.47. Following the 1990 reforms both variables seem to be dissociated and the coefficient of correlation declined to 0.22.

5. Fiscal reform in the Dominican Republic: an assessment.

As seen in Figure 4, in spite of the reforms, the fiscal stance has remained expansionary throughout the whole and has not been accompanied by a similar evolution in the tax to GDP ratio. The result has been a persistent deficit. In addition the fiscal stance has surpassed the export performance ratio leading, in the absence of net asset accumulation, to a deficit in the current account (See Figure 5). Finally when an analysis of sustainability is undertaken the deficit is seen to be unsustainable over time.

A budget deficit is said to be unsustainable when it leads to uncontrolled increases in the public or when interest rates are perceived as being too much of a burden as they are imposed on taxpayers through excessive tax rates or unequal distribution of the burden of the debt (Sawyer, 1998). The concept of fiscal sustainability can be examined using an equation that relates four variables: government expenditures, government revenues, rate of growth of real GDP, the real interest rate and the outstanding public debt. More specifically the equation says that the primary budget surplus as percentage of GDP equals the difference between the real interest rate and real GDP growth multiplied by the share of public debt to GDP (Pasinetti, 1998).

⁴ Furthermore the relationship between the ITBIS external tax base and the ITBIS revenue collection is weak as preliminary econometric analysis undertaken showed.

Figure 4
The Dominican Republic, 1980-2002
The fiscal stance and the tax to GDP ratio

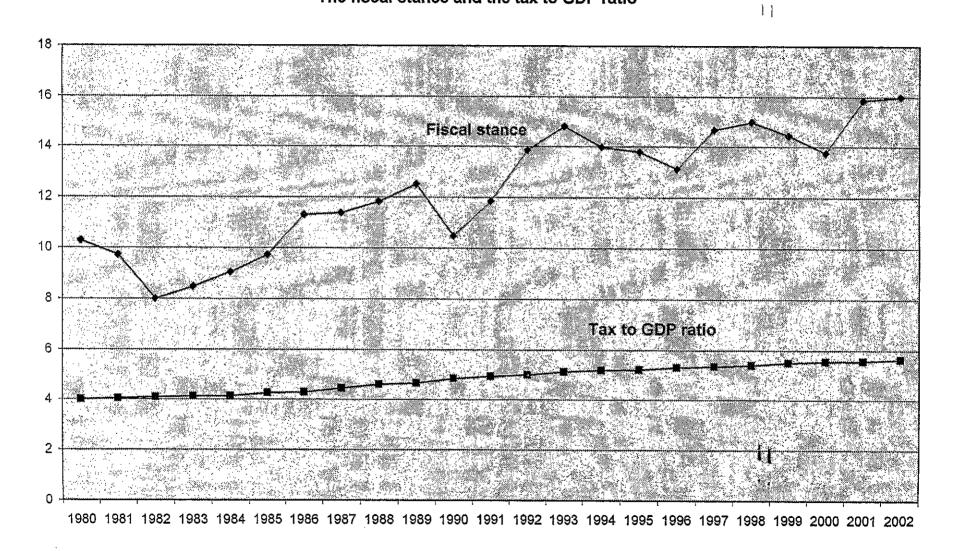
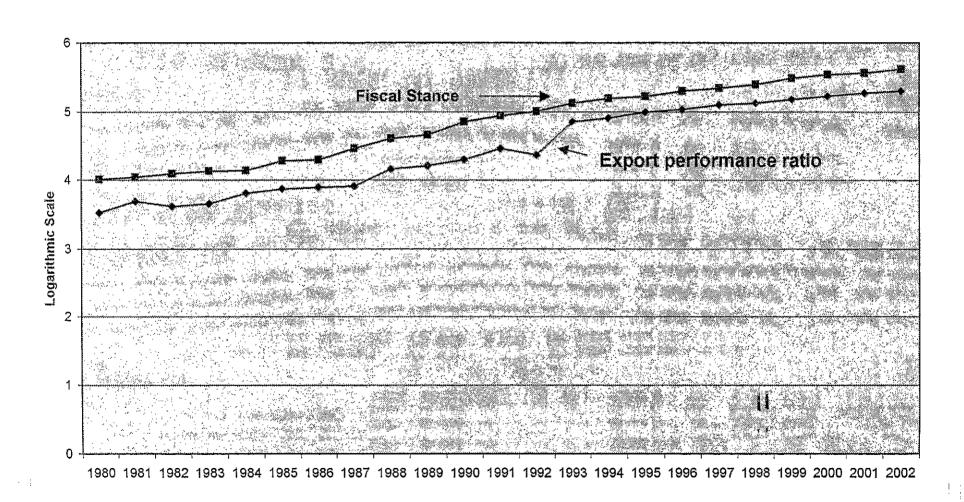


Figure 5
The Dominican Republic
1980-2002
The fiscal stance and the export performance ratio



This concept can be expressed formally as follows,

(1)
$$S/Y = (r-g)D/Y$$

Where,

S= primary budget surplus

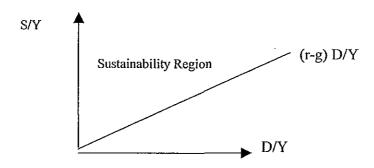
Y= nominal output

r = real rate of interest

D= internal debt

g= real growth rate of GDP

Equation (1) provides the boundary line between an unsustainable and a sustainable budget surplus or deficit. If, S/Y> (r-g)D/Y then the surplus or deficit is said to be sustainable. This is illustrated in graph below for a case of less developed country where real interest rates exceed in general rates of growth of real output.



Notice that the formula considers only internal debt. It would thus at best provide a rough approximation to budget deficit sustainability in less developed countries since external debt often places an important constraint on fiscal accounts. Including external debt in equation (1) and expressing the surplus or deficit boundary line in national currency we obtain,

(2)
$$S/Y = (ri-g) Di/Y + (re+\xi-g)De/Y$$

where,

ri = internal real rate of interest

Di= internal debt

re = foreign real rate of interest

De= external debt

δ = exchange rate depreciation

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This second case more akin to that of the Dominican Republic includes external debt the possibilities for obtaining fiscal equilibrium become more complex as there are four variables determining fiscal equilibrium. In table 14 we carried out computations for 1991 through 2002 of estimated fiscal sustainability and compared these results to actual fiscal performance.

Table 20 STABILITY SURPLUS BOUNDARY WITH INTERNAL AND EXTERNAL DEBT								
1991	3.0	60.3	25.7	14.6	1.0	8.20	3.3	-4.9
1995	6.2	31.7	18.7	5.78	4.8	1.17	0.7	-0.47
1998	6.2	21.3	16.0	16.68	7.3	2.52	1.0	-1.52
2000	5	18.5	17.5	18.22	7.3_	2.5	2.0	-0.5
2002	5	19.8	18.3	26.3	4.1	5.1	2.6	-3.3
					-	ed by the Central Ban ads 2003)	k of the Dominica	n Republic

As table 20 indicates, the actual fiscal result has been below the sustainability region. Also as the external debt and internal rates of interest have decreased the stability surplus boundary as also declined substantially easing pressures to achieve a balance budget.

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