Inflation and the Personal Income Tax in Barbados 1970-1981

by

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Introduction

The raison d'etre for the progressive income tax derives from its ability to generate increasing levels of revenues as incomes rise and from its ability to place the tax burden on those who can most afford it. Unfortunately, the surge in inflation in the 1970's has distorted the incidence of the tax by drawing new taxpayers into the net and increasing the effective tax rate of individuals whose real incomes were on the decline. This situation points the way to tax reform during periods of inflation, but there are at least three factors which must be considered. Firstly, the initial tax rates may be unduly low. Secondly, public expenditures - on whose accounts revenues are raised - may improve the general welfare of society and offset the decline in disposable incomes. Finally, lower direct taxation may be replaced by indirect taxation which can destroy efforts to reduce income inequality.

The effects of inflation on the progressivity of the personal income tax manifests itself through reductions in the real value of personal exemptions and allowances and in the real width of brackets to which tax rates apply. The transfer of resources from the private to the public sector, which this increased tax burden creates, has evoked much discussion on whether and how the tax system should be adjusted. The options consist of full or partial indexation of the tax system, periodic discretionary adjustments or in the extreme, no adjustments at all. An analysis of the problems involved and the experiences of several countries can be found in Aaron (1976) and Tanzi (1980). A useful survey of the literature on inflation and taxation is located in Nowotny (1980).

The paper examines the Barbadian income tax structure for the period 1970-81 during most of which double digit inflation prevailed. Using income tax returns for the period, it shows how inflation affected effective levels of taxation as the authorities made no effort to adjust the tax structure. Subsequent reforms did reduce the tax burden but were insufficient to outweigh the losses of earlier years. The simultaneous growth in public expenditures and the low flexibility of the income tax structure as stresssed by Bonnet (1975) and Howard (1979) may have accounted for the slow adjustments by policymakers.

Prices and Wages

In the economic models, it is assumed that rational consumers suffer no money illusion. By extension, concern about disposable income should remove the possibility of fiscal illusion since wage negotiations should be conducted on a net of tax income basis. In reality, economic conditions often invalidate both assumptions with the perverse effects of inflation reflected in declining real wages and, in the absence of tax reforms, higher effective tax burdens. As the analysis below indicates this was the pattern of prices, wages and taxes in the Barbadian economy between 1973-79.

Prices more than quadrupled during the period under review. At the turn of the decade, inflation was on the rise, reaching double digits by 1971. The oil crisis of 1973 and the imposition of a Common External Tariff with regional countries (See Haynes and Holder, 1985) forced inflation to a peak of almost 40% during 1974. Although tight price control measures helped to ease inflationary pressures to 5% by 1976, there was a return to double digit inflation after the second oil shock of 1979.

Wages respond to prices with a lag since, especially in high inflation periods, it is difficult to anticipate correctly the rate of price increase in the current year. Holder and Worrell (1985) - in a study of three Caribbean islands - found that for Barbados a 10% increase in prices in period t-1 led to a 1.5% increase in real wages for the period 1963-80. These results are evidently biased by the pre-1970 period in which strong output and high levels of foreign exchange earnings encouraged wage settlements in excess of modest inflation rates. Mascoll (1985) also notes that real wages increased in the Barbadian economy for the period

Table 1

Average Change in Wages and Prices 1970-81

(%)

Year	Wages	Prices	Real Wages
1970-72	15.4	9.0	6.4
1973-75	10.6	25.0	-14.4
1976-78	13.1	7.6	5.5
1979-81	11.8	14.1	-2.3
1970-75	13.0	16.7	-3.7
1976-81	12.5	10.8	1.7
1970-81	12.7	13.7	-1.0

Source: Central Bank of Barbados

1949-82 but, as Table 1 reveals, real wages for 1970-81 declined at the rate of 1% per annum. The proximate causes of this decline were the spiralling of prices and the instability of foreign exchange holdings which encouraged Government to dissuade wage increases which might increase consumer expenditures too rapidly or damage external competitiveness.

II Income Tax Structure and Reform

The level of personal allowances and deductions permitted to the taxpayer, the width of taxable income classes and the marginal tax rates applicable to each of these classes determine the tax system. Where income clasess are narrow and/or incremental marginal tax rates differ widely from each other, the real tax burden will increase sharply during periods of high inflation.

Notwithstanding the sharp upturn in prices from 1971-75, little attention was paid to tax reform between 1972-76. The income tax system was introduced into Barbados in 1921 covering only a limited share of the working population. With the introduction of the PAYE system in the 1950s, and the growth of a semi-industrialising service economy to replace the predominantly agrarian society, there was a significant growth in the number of taxable individuals. Three reforms of tax brackets and the associated tax rates as well as several changes to the level and scope of deductions (see Holder 1982) were not sufficient to prevent a trebling of tax returns between 1953-70. Even so, the taxable returns in 1970 represented only 30.6% of the estimated working populatin. As Howard suggests administrative difficulties especially with respect to the self employed may have contributed to this low ratio.

Examination of the tax brackets (see Holder 1982) shows that the reforms of 1953, 1958 and 1968 served to gradually increase the number of brackets from ten to fourteen. The highest tax rate of 75% was maintained on incomes of $24,000 and above, even though average wage levels had almost tripled between 1953-68. At the bottom of the tax structure, tax rates of 3% on taxable incomes of less than $500 was mitigated by adjustments to personal exemptions. By 1968, although income classes remained tightly bunched in increments of $1000, smaller marginal rates were assigned to each lower-middle tax brackets in income classes.

The reform of tax brackets in 1971 cannot be seen independently of the changes in exemption levels for that year. Thus, although the two lowest income classes (under $1,000) were amalgamated into one class at the higher rate of 5%, there was a 50% increase in the allowance per single individuals, 43% for married couples and smaller increases for children. There was a general decline in marginal tax rates across all income classes, with middle income workers between $4,000 - $8,000, benefitting from a widening of income classes.

The lack of reforms after 1978 and the rapid growth of nominal incomes made tax reform a necessity by 1977. However, burgeoning public expenditure, of which wages and salaries constituted almost 45%, made it inexpedient to forego the revenue which might be occasioned by tax reform. As a result, only partial adjustments were made in 1977-78. The introduction of a tax credit for workers earning less than $6,000 reduced the tax burden on such invididuals by up to $60 . While this measure provided relief for low income workers, the bracket creep which middle income workers were facing remained intact. However, for workers with taxable incomes in excess of $30,000, the marginal tax rate was raised from 65% to 70%.

After the process of slow change in response to the inflationary period of the mid-1970s, the tax system was marked by substantial tax reforms in 1979-80. The tax credit was increased, personal allowances raised, exemptions permitted for residential property and for savings in cooperative societies and a complete realignment of taxable income classes and marginal tax rates (Tables II and III) were introduced. In addition, new preferential allowances to reduce the tax burden on the aged were added to the revised tax structure.

Table II

Adjusted Tax Rate

(%)

	1953	1968	1971	1977	1979	1980
Under $5000	3-30	3-30	5-25	5-25	10-20	10
$ 5,000-$ 9,999	40-50	35-50	25-35	25-35	30-35	20
$10,000-$14,999	50-60	50-60	40-50	40-50	40-50	30
$15,000-$19,999	60-70	60-70	50-60	50-60	60	40
$20,000-$24,999	70-75	70-75	60	60	60	50
$25,000-$29,999	75	75	60	60	60	50
$30,000-$34,999	75	75	65	70	70	60
$35,000-$39,999	75	75	65	70	70	60
$40,000 and over	75	75	65	70	70	70

Source: Adapted from Holder (1982)

A comparison of Tables III and IV indicates that personal allowances increased by far less than might be suggested by the rate of inflation. Using an inflation adjustment index based on the rate of inflation in the previous year and using 1969 as the base period, none of the major allowances kept pace with rising price levels. The allowance for married couples was 75% of what it needed to be while children's allowances fared worse, showing little change over the period. While a critical evaluation of government's policy towards children must include subsidies provided through recurrent expenditures e.g. school text book scheme, the level of allowances appears inconsistent with their basic

Table III

Changes in Allowances

	1957	1959	1968	1971	1977	1978	1979	1980	1981
Personal Allowance									
Single	800	-	-	1200			1600		2400
Married	1400			2000			3000		4500
Separate				1800/ 1000			1600/ 1600		
65 & over (married)								4000 (5000)	
Children's Allowances									
Under 12		270		300	400*				
12-16		360		400					
16 & over		420		500	600				
16 & over (overseas)		600		720	800	1000			

Source: Adapated from Holder L. (1982)

*Age-range of category changed to under 11
-no change

Table IV

Exemptions
(Adjusted for Inflation)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Inflation Adjustment Index	100	105.3	113.5	127.6	136.5	159.6	221.7	266.7	280.	303.2	332.1	375.6	428.5
Single	800	842	908	1021	1092	1277	1773	2133	2240	2246	2656	3004	3440
Married	1400	1474	1589	1786	1911	2234	3103	3733	3920	4245	4649	5258	6020
Children:													
Under 12	270	284	306	345	369	431	599	720	756	819	897	1014	1161
12 - 16	360	379	409	459	491	575	798	960	1003	1092	1195	1352	543
16 and over	420	442	477	536	574	670	931	1120	1176	1274	1395	1577	1806
16 and over (overseas)	720	758	817	919	983	1149	1596	1920	2016	2183	2391	2704	3096

maintenance needs. Nowotny has noted that studies on tax reform have shown that adjustments to exemptions may alter the tax take more substantively than other changes. In a period of growing public expenditures, there is an obvious reluctance to forego such revenue.

III Effective Levels of Taxation 1970-81

An analysis of effective levels of taxation for 1970-81 is instructive since it gives us a constant tax structure during a period of high inflation and a subsequent period of tax reform. The information (see Table V) used here draws heavily on the aggregated income tax returns prepared by the Department of Inland Revenue but suffers from two shortcomings. Firstly, there is no data for the key years of 1974-75 or for 1977. Secondly, the data excludes those workers who fall outside the tax net but the sum of whose incomes may alter significantly the levels of effective taxation. As a result, we make the heroic assumption that this bias remains constant over time.

In 1970, the level of taxation was high by standards of the ensuing period. However, the tax reform of 1971 was sufficiently substantive to reduce the effective level of taxation by more than one percentage point. This decline continued into 1972-73 even though there were no further tax adjustments. With the tax roll growing steadily, increases in personal allowances overstripped the growth of average assessable income. The expansion of the tax net from 30.6% of the working population to almost 43% was concentrated on low income workers with those earning less than $1000 per annum increasing by 11,000. The growth of the tax roll by only 6500 may be suggestive of a high degree of tax delinquency by self-employed middle income workers.

The effects of inflation on the tax structure manifested itself between 1973-76. Although there is no data for 1974-75, the available information indicates the fiscal drag brought on by the 75% rise in prices during the three-year period. With no increase in the labour force, the tax net increased by 43%. In addition, with nominal incomes growing and no adjustments to the level of allowances, the effective tax ratio rose by almost 2½ percentage points as taxable income almost doubled.

The partial tax reforms of 1977 and 1978 did not serve to reduce the economy's overall level of taxation as measured by the effective tax rate below that of 1976. However, but for the tax credit the effective tax ratio would have been almost one-half of a percent higher in 1978. In addition, the growth of the tax net slowed as several low income workers fell out, thus emphasising the possible income redistributive effects of taxation policies. The loss of these workers meant that the effective rate fell by even more than 0.5% indicated by the data. The failure to adjust all personal exemptions meant that the real value of allowances and deductions claimed by the taxpaying public fell below what it had been in 1970.

The 1979 budget focussed on altering the tax burden in a more fundamental way than hitherto. Thus, increases in the basic personal exemptions were accompanied by modest tax bracket changes at the lower end of the income scale which also benefitted from an enlarged tax credit. Moreover, an increase in the amount claimed for insurance premiums and the introduction of an allowance for mortgage interest underlined the use of tax policy to subsidise expenditures consistent with national objectives.

In a period of fast rising incomes, there was a sharp increase in the tax roll, but the ratio of tax liabilities to assessable income declined. In spite of a steep increase in exemptions, however, tax liabilities rose faster than taxable income. This outcome stems from the impact on rising incomes which placed workers in higher tax brackets. Thus, with tax roll for income earners in excess of $30,000 increasing by over 56%, taxable income in that group rose by almost $14 million (62.0%).

In 1980, the stagnation of tax liabilities, the decline in size of the tax roll and the substantial reduction in the effective tax rate even as inflation was gathering momentum, underlined the importance of tax reform in easing the tax burden. With the strong growth of the economy, the removal of income earners from the tax roll was probably greater than the 6071 as indicated by the aggregate returns. Thus, the decline in effective tax ratios as possibly substantially larger than Table V suggests.

Table V

Analysis of Effective Levels of Taxation

		1970	1971	1972	1973	1976	1978	1979	1980	1981
1	Inflation (1970 - 100)	100	112.4	126.0	147.7	258.2	306.2	346.6	396.5	454.4
2	Assessable Income ($m)	108.7	140.4	162.8	183.8	327.9	379.9	509.3	625.6	698.2
	" " ($1970)	108.7	124.6	129.2	124.9	127.0	124.1	146.9	157.8	153.7
3	Taxable Income ($m)	69.5	84.8	96.4	111.4	219.7	263.2	323.0	421.5	445.0
4	Tax Liability ($m)	14.3	16.7	18.4	20.7	44.9	54.3	69.8	70.2	84.9
5	Allowances ($m)	39.2	55.2	66.4	72.4	108.2	116.7	186.3	204.1	253.2
	($m 1970)	39.2	49.1	52.7	49.2	41.9	38.1	53.7	51.5	55.7
6	Personal Allowances ($m)	33.2	47.1	56.9	62.1	89.6	93.8	163.1	154.2	191.8
	Medical Expenses	0.7	0.9	1.1	1.3	2.2	2.4	2.9	3.1	3.5
	Insurance Premiums	2.8	3.9	4.1	4.8	7.0	7.7	10.9	11.5	13.5
	Mortgage/House Repairs	-	-	-	-	-	-	-	14.3	17.6
	NIS	1.5	1.8	2.1	2.4	5.8	9.1	11.8	13.2	16.7
	Other	1.0	1.5	2.2	1.8	3.6	14.2	-	7.8	10.1
7	Tax Credit ($m)	-	-	-	-	-	1.6	2.6	5.8	3.9
8	Effective Tax Rate (TL/AI)%	13.2	11.9	11.3	11.3	13.7	14.3	13.7	11.2	12.2
9	Effective Tax Rate (TL/TI)%	20.6	19.7	19.1	18.6	20.4	20.6	21.6	16.6	19.1
10	Taxable Returns	25,208	30,171	34,592	36,865	52,754	55,184	71,343	65,272	59,324
11	Employed	82,400	83,900	85,600	86,100	85,700	87,000	95,400	100,300	99,800
12	Average Assessable Income ($m)	4,312	4,640	4,706	4,986	6,216	6,885	7,139	9,585	11,769

The reforms of 1981 though raising the value of allowances and reducing the size of the tax roll, saw an increase in the effective tax ratios. With incomes rising, increased personal allowances and adjustments to the tax credit, the number of tax returns at income levels below $6,000 were halved. However, as in 1979, middle and upper income workers continued to be affected by the progressivity of the income tax structure.

IV Impact of Discretionary Tax Changes

The analysis on the economy's effective tax ratio in Section III does not separate the combined effects of economic events and discretionary policy changes. A more meaningful summary of selected tax changes on the individual tax payer is presented in Table VI in which changes in average tax ratios for 1974-77 and 1977-80 are broken down into incomes and policy adjustments.

Using 1980 as a base, equivalent incomes for 1971, 1974 and 1977 are calculated with the aid of the national wage index. Under the standard assumption of a married couple with two children, the average tax rate for each income level is computed. With the range of personal allowances increasing after 1977, average tax rates, especially in higher income classes, are likely to be lower, but for consistency only basic allowances are included here.

The impact of inflation on the individual tax payers is clear with the average tax ratio climbing for all income levels between 1971-77. As we noted earlier, discretionary changes in 1977 made a relatively small impact on average tax rates. However, the substantial reforms of 1980 impacted significantly on the individual tax burden. With the result that tax ratios were lower in 1980 than they had been three years decline.

Table VI

Changes in the Average Rate of Tax on a Given Constant Real Gross Income

Gross Income	A Equivalent Income			B Average Tax Rates					C		D		
								Nominal Income	Discretionary	Overall Change	Nominal Income	Discretionary	Overall Change
1980	1977	1974	1971	1980	1977	1974	1971	1974-77			1977-80		
$ 5,000	3,540	2,463	1,825	-	-	-	-		-1.0				-2.8
$10,000	7,080	4,926	3,650	7.0	7.3	3.4	1.2	4.7	-0.8	3.9	5.4	-5.7	-0.3
$15,000	10,620	7,389	5,475	12.0	13.5	8.8	4.6	5.8	-1.1	4.7	5.7	-7.2	-1.5
$20,000	14,160	9,852	7,300	17.0	19.5	13.4	8.6	6.7	-0.6	6.1	6.5	-9.0	-2.5
$25,000	17,770	12,315	9,125	22.0	25.1	17.3	12.0	8.4	-0.6	7.8	6.3	-9.4	-3.1
$30,000	21,240	14,778	1 0,950	26.7	30.3	20.9	15.1	10.0	-0.6	9.4	5.1	-8.7	-3.6
$35,000	24,780	17,241	1 2,775	30.3	34.6	25.1	17.9	10.1	-0.6	9.5	3.7	-8.0	-4.2
$40,000	28,320	19,704	1 4,600	34.0	37.8	28.6	20.1	9.6	-0.4	9.2	4.4	-8.7	-3.8

Summary

The findings of this study confirms the importance of flexible economic policies. Inflation creates distortions by reducing individuals disposable incomes and the purchasing power of these incomes. Our analysis, based on the aggregated income tax returns of the Inland Revenue Department show that inflation raised the effective level of taxation even though real incomes were on the decline. The tax reforms of 1977-81 were gradual and even though tax rates were lowered, the indirect taxation imposed since the early 1970's may have served to make individuals worse off than in 1970.

While examining the impact of inflation on the tax ratio, this study does not examine the important issue of tax evasion which too progressive a tax system, as inflation creates, might engender. In addition, we make an attempt to measure the relative progressivity of different tax structures but this is certainly an area for further research. Finally, any conclusions about the level of income taxation and its implications are not complete without an analysis of public expenditures.

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