The Underground Economy in Barbados

(A Preliminary Report)

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Introduction

This paper will investigate the extent of the underground economy in Barbados. The size of the underground economy is a phenomenon which is now attracting the attention of several economists in the major industrialised countries. Statistical departments concerned with the estimation of National Income are investigating the issues and tax departments of the various governments are also attempting to come to grips with the levels of unreported income and the resulting tax evasion efforts of individuals.

The first section of this paper will discuss the nature of the underground economy and the second section will investigate the size of the underground economy in various countries and the impact on national income, employment and government revenues. In the third section, the theoretical issues of estimating the size of the underground economy will be presented. Following this, an attempt will be made to estimate the size of the underground economy for Barbados and a summary of conclusions will follow in the final section.

1. The Nature of the Underground Economy

The underground economy is characterised by those activities which escape official measurement because of efforts by individuals to beat a tax system which is considered burdensome. Many terms have been used to describe the underground economy, and these include terms like cash, black, informal, and sub-teranean, to mention a few. From different vantage points, different terms can also be used. 'Moonlighting' is used with reference to employment and 'unreported' is used by tax administrators in relation to tax evasion. We will continue to use "underground economy" in this paper but the modern concept of an "economia sommersa" or submerged economy was first put forward by Professor Giorgio Fina of Ancona in 1977[1].

The economic activities which are included in the underground economy can be placed into two categories - legal and illegal - for national income purposes. The legal activities are those which can be included in the national accounts and the illegal are by nature omitted[2].

1. News Week June 30, 1986, "The Black Economy", page 21.
2. U.S. Department of Commerce, Survey of Current Business Vol. 64, May 1984. pp. 21-22.

The legal activities can include the following:

(a) moonlighting - "working off the books";

(b) bartering of goods and services;

(c) growing own fruits and vegetables and other foods and selling these products;

(d) manufacturing articles without proper registration of both companies and proprietorships; and

(e) providing goods and services - carpentry, masonry, vehicle maintenance, retailing, etc.

The illegal activities include the following:-

(a) prostitution;
(b) illegal gambling;
(c) loan sharking;
(d) smuggling; and
(e) drug trafficking.

From the National Income perspective, the measurement of the underground economy must generally be limited to market activities as most non-market activities must be omitted. With respect to those activities which are considered illegal, we must differentiate between those activities which are, by law, illegal and those which, although they are within the province of legality, are considered tainted with illegality.

The reason why economic activity is driven underground is generally "the desire to express disaffection with the means and goals of Government"[3]. Tax evasion is generally an incentive and results from high marginal tax rates with respect to income taxes and other mandatory taxes (social security payments).

Regulations which place severe limitations on the conduct of business activities would also drive economic activity underground. These relate to minimum wage, maximum hours and overtime, safety conditions and environmental protection.[4] Outright prohibition by law do drive some activities underground. Such activities encompass drug trafficing, gambling and prostitution. Support programmes related to unemployment and pensions may also entice persons receiving this kind of support to join the underground activity as a means of maximising income and at the same time evading income taxes and other statutory taxes on income.

II The Size of the Underground Economy in Various Countries

The underground economy, the black economy or the economica sommersa is thriving in European countries (including Eastern Europe), the United States of American and even Russia. However, evidence of its existence in less developed countries is not documented. Economists' pre-occupation with the subsistence economy and lack of data may have been the prime reasons why no attempt has been made to estimate the impact of the underground economy in these countries[5].

The existence of the underground economy in the highly developed countries (Chart I) is recognised by governments and labour unions as they have traditionally fought ardently against these types of economic activities but now admit that underground economic activities are here to stay and that the underground economy may well be a good thing[6]. The importance of the underground economy to the economic well being of Italy was voiced in the Italian Labour Ministry's "Labour Policy for the Next Decade" when it stated that the "official [Italian] economy would obviously be in an explosive situation were it not for the presence of the underground economy"[7].

In Europe, the underground economy is estimated at 10% of Gross National Product. In Britain, its size is estimated at 7.5% of GNP, Italy 20% and West Germany between 8-12%. The unreported income is estimated at US$16.0 billion for West Germany and US$8.6 billion for France.

3. U.S. Department of Commerce "Survey of Current Business Vol. May 1984, p. 23.

4. Op. cit p. 23.

5. The parallel economy in Guyana is estimated at 30% of Gross Domestic Product.

6. News Week June 30, 1986, p. 20.

7. News Week June 30, 1986, p. 20

The numbers employed in the underground economic activities can be staggering. It is estimated that in Italy nearly 3.0 million people are employed in these activities; 7.5% of the labour force indulge in some sort of underground economic activity in West Germany; 800,000 to 1.5 million in France; 300,000 in Belgium and nearly 3/4 million in Sweden. In Spain, it has been estimated that 50% of the unemployed in Andalusia are actually working.

In the centralised economies, it would be expected that the underground economy would be minimal. This is not the case for Eastern Europe where the regimes have begun to despair of eliminating it[8]. In Yugoslavia, 10% of the labour force has another job while in Hungary 70% of the population do some sort of part-time work. In Russia, it is estimated that 20 million workers take home an extra US$8.0 billion per year with the "unofficial sector" providing more than 50% of th day-to-day services in the urban areas and nearly 80% in rural areas.

Estimates of the size of the underground economy for the United States have been made for the year 1974-1981 (Table 2) and range from as low as 1% to 33% of GNP depending on the approach taken and what source of income have been estimated. The annual growth rate of the underground economy for various periods (Table 3) vary but range from 10-55%. No evidence as to the number of persons employed by the underground economy is available but this could well be substantial.

The impact on the level of government services is substantial. In Britain, the loss in government revenue from taxation is estimated at US$6.0 billion and revenue inspectors (ghostbusters) are being employed. In the United States of America, the revenue loss for 1976 was estimated at $35.0 billion or 25% of collections of individual income tax[9].

8. Op. cit. p. 26.

9. Survey of Current Business, Vol. 64 May 1984, p.32

III Theoretical Considerations

The generally accepted approach to the estimation of the underground economy is monetary. Perhaps less accepted aproaches include interviews, a consideration of labour participation rates and evidence of tax fraud within an economy[1].

The monetary approach has developed along four, not necessarily, distinct lines. The first of these is the Currency Ratio Method as developed by Gutman (1977) and analyses the ratio of currency to checkable (demand) deposits with the assumption that this ratio for the aboveground economy is constant over time. An increase in the amount of currency held in relation to checkable deposits represents a rise in underground economic activity. The estimation of the underground economy is therefore the product of the underground currency and the income velocity of above ground money (MI) - aboveground currency and checkable (demand) deposits. The final assumption would be that the income velocity of money for both the aboveground and underground economy is the same.

The second approach is a modified version of the Currency-Ratio Method and was developed by Feige(1979). He suggested that this modification conformed more closely to what was the "actual" practice in the underground economy. The postulate of the Feige's method is that, while the exclusive medium of exchange in the underground economy is currency, households still use cheques in meeting obligations. He further suggested that the underground economy is service-oriented and that money balance per dollar of output is small in this sector. He therefore make the assumptions that the currency ratio in the underground sector is equal to 2 and that the income velocity of underground money is 10% higher than that of the aboveground economy.

The third approach which was developed by Tanzi [1983] is as a more empirical model. Using the ratio of currency to Money (M), Tanzi link the size of the underground economy to the incentive to evade taxes. His model can be stated as follows:

$$C/M_2 = f(T, \frac{WS}{N}, Y, R)$$

when C = currency holding;

M_2 = money supply;

Y = real per capita income;

R = rate of interest on time deposits;

$\frac{WS}{N}$ = ratio of wages and salaries in national output; and

T = Ratio of total income tax payments to adjusted gross income.

The basic calculations to estimate the size of the underground economy using Tanzi's approach can proceed as follows:-

1. Oxford Economic Papers Vol. 35 March 1983 No. 1. Bruno S. Frey and Hannelore Week" estimating the Shadow Economy: A Naive approach.

(1) For each year C/M_2 can be calculated;

(2) Using M_2 the predicted level of currency holdings $\hat{C}$ can be calculated;

(3) With the tax variable equal to zero, $\hat{\hat{C}}$ can be calculated;

(4) The difference between $\hat{C}$ and $\hat{\hat{C}}$ gives an indication of how much currency holding is tax induced - how much taxes induce people to hold larger amounts of currency and presumably because of their attempts to evade taxes.

(5) $\hat{C} - \hat{\hat{C}}$ is an estimation of illegal money;

(6) The difference between the total currency and demand deposits in circulation (Total M_1) and the estimated illegel money, yields legal money.

(7) $\frac{GNP}{LM}$ = estimate of income velocity of legal money (LM = legal money)

(8) Assuming the income velocity of illegal money is same as legal money an estimate of the underground economy can be obtained.

The fourth method as developed by Feige proposes that monetary transactions in the underground economy is already recorded in total monetary transactions but omitted from total income. The ratio of total transactions to Gross National Product is used to estimate the size of the underground economy with the omission of certain transactions including those of major financial institutions and direct transfers. The method of estimation then proceeds in the same way as the currency ratio method after assuming a bench mark ratio.

IV Preliminary Results for Barbados

The size of the underground economy using the currency ratio method as developed by Gutman is given below with the details in Appendix I.

Table

Underground Economy

Year	Underground Economy		Unemployment rate
	$M	% of GDP	
1973	30.0	6.6	16.9
1974	48.8	7.6	19.6
1975	58.7	8.4	22.5
1976	78.8	10.0	15.2
1977	102.1	11.5	16.2
1978	117.1	11.7	12.5
1979	86.4	7.2	11.3
1980	173.6	11.3	11.4
1981	208.7	12.2	11.4
1982	208.7	11.7	11.2
1983	154.5	8.1	13.3
1984	149.2	7.2	15.8
1985	147.8	6.6	18.3

Preliminary observations would suggest the following:

(1) The size of the underground economy is not unduly large ranging from 6.6% to 12.2% of Gross Domestic Product.

(2) The revenue loss from personal income tax is of the order of $9.2 million but could be higher with the progressive income tax system.

(3) Increasing unemployment rates are associated with decreasing size of the underground economy suggesting that with higher employment levels and greater spending power, the underground economy is apt to grow.

TABLE 1

The Underground Economy

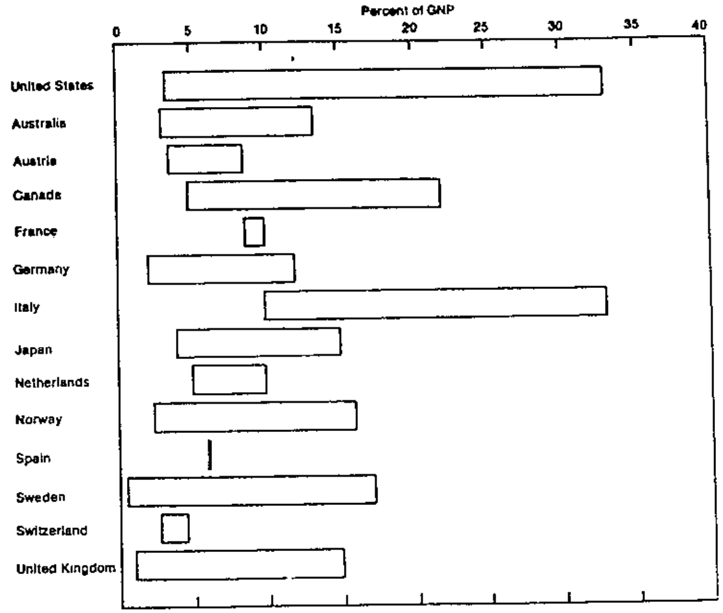
Contribution to the National Economy

	% of GNP	Numbers Employed	Income Unreported(US$)
Britain[1]	7.5	N.A.	N.A.
Italy	20.0	3.0	N.A.
West Germany[2]	8-12	7.5%	16.0 billion
France	N.A.	0.8-1.5 million	8.6 billion
Belgium	N.A.	0.3 million	N.A.
Sweden	N.A.	0.75 million	N.A..
Yugoslavia[3]	N.A.	10.0%	N.A.
Spain[4]	N.A.	N.A.	N.A.
Russia[5]	N.A.	20.0 million	8.0
All Europe	10%	N.A.	N.A.

1. The loss in Government revenues is estimated at $6 billion.
2. The number of persons employed estimated at 7.5% of the population.
3. The numbers of persons emploved estimated at 10% oт the labour force.
4. In Andalusia, 50% of the unemployed are actually working.
5. The unofficial sector provides more than 50% the day-to-day services of the economy and this figure rise to 80% in rural areas.

CHART 1

Estimates of the Size of Underground Economy in Selected Countries



NOTE—The estimates are from many sources; when a range is shown, the high and low estimates for a country may bracket one or more estimates. Both among countries and for a particular country, the estimates vary in the scope of the underground economy measured, the methodology used, and the time period covered.

U.S. Department of Commerce, Bureau of Economic Analysis

Table 2.—Estimates of the Size of the Underground Economy in the United States, 1974-81

Estimator		Estimate: Coverage	Year	Billions of dollars	Percent of GNP[1]	Percent of alternative aggregate used by the estimator
Gutmann	1977	Unreported[2] and untaxed cash transactions	1976	176	10	
	198[illegible]	Unreported[2] and untaxed transactions not limited to cash	1981	420	14-15	
Feige	1979	Activities that go unreported (largely to tax authorities) or are unmeasured[3]	1976 1978	[illegible] 542-704	*13-21 *25-33	Economy (GNP + unobserved) 12-19* 20-25*
	1980	Monetary unobserved[3] sector	1979	600+	25	
Tanzi	1983	Legal-source income induced by income taxes and presumably not reported to tax authorities[4]	1974 1977 1979	71 100 130	5 5 5	
Internal Revenue Service (IRS)	1979	Income unreported to IRS: legal source, individuals illegal source (3 kinds) total	1976	 75-100 25-35 100-135	 *4-6 *1-2 *6-8	Income reportable on tax return Legal-source—6-8
	1983	Income unreported to IRS: legal source, individuals illegal source (2 kinds) total[5]	1981	 132 13 145	 *5 *1 *5	Income reportable on tax return Legal-source—10
Simon and Witte	1982	National income: legal goods not properly reported[6] illegal goods and services total (including unallocated)	1974	 63-84 37-52 100-177	 *4-6 *3-[illegible] *7-12	Domestic income 6-7* 3-[illegible]* 9-16
Frey and Pommerehne	1984	Activities that because of under- or non-reporting escape the societal measurement apparatus	1978	...	8	

*Calculated by BEA (not supplied by estimator) using GNP as shown in the October 1982 Survey.
1. GNP as defined by BEA.
2. Defined as activity that "wholly escapes the ministrations of the tax collector and very largely that of the statistician."
3. Defined as activity that escapes "society's current techniques of monitoring economic activity" or the "current societal measurement apparatus."
4. Weighted tax rate variant.
5. Does not include legal-source income of corporations or fiduciaries or legal-source unrelated business income of tax-exempt organizations.
6. Includes incomes from activity primarily aimed at evading taxes plus income of illegal aliens.

NOTE.—Estimates are rounded to nearest billion dollars or nearest percent.

Table 3.—Estimates of the Growth of the Underground Economy in the United States

Estimator		Estimate: Coverage	Years	Average annual percentage growth rate
Gutmann	1977	Unreported[1] and untaxed cash transactions	1974-80[2] 1976-78 1976-80	20* 19* 19*
Feige	1979	Monetary unobserved[3] sector	1976-78	30-55*
Tanzi	1983	Legal-source income induced by income taxes and presumably not reported to tax authorities[4]	1974-80 1976-78 1976-80	14* 10* 14*
Internal Revenue Service (IRS)	1983	Income unreported to IRS: legal source, individuals; illegal source (3 kinds); total[5]	1976-81	14* 21* 14*
Simon and Witte	1982	National income: legal goods not properly reported[6]; illegal goods and services; total	1974-80	10* 7-8* 9* or 10
Addendum: GNP as measured by BEA[7]		......	1974-80 1976-78 1976-80	11 12 11

*Calculated by BEA (not supplied by estimator).
1. Defined as activity that "wholly escapes the ministrations of the tax collector and very largely that of the statistician."
2. Time series prepared by the Congressional Research Service using Gutmann's methodology. See Molefsky.
3. Defined as activity that escapes the "current societal measurement apparatus."
4. Weighted tax rate variant.
5. Does not include legal-source income of corporations and fiduciaries and legal-source unrelated business income of tax-exempt organizations.
6. Includes incomes from activity primarily aimed at evading taxes plus income of illegal aliens.
7. As shown in the October 1982 SURVEY.

NOTE.—Estimates rounded to nearest percent.

Appendix 1

Estimates of Underground Economy
1972-1985

Year	Currency in Circulation	Demand Deposits	Money Supply	Gross Domestic Product	Aboveground Currency	Underground Currency	Aboveground Money Supply	Underground Economy	
	$M	$M	$M	$M	$M	$M	$M	$M	% of GDP
1972	23.1	56.6	79.8	357.0	23.1	-	79.7	-	-
1973	26.8	49.3	76.1	451.1	20.1	6.7	69.4	30.0	6.6
1974	33.9	56.6	90.5	640.4	23.0	10.9	79.6	48.8	7.6
1975	39.8	65.4	105.2	700.6	26.7	13.1	92.1	58.7	8.4
1976	46.7	71.3	118.1	788.0	29.1	17.6	100.5	78.8	10.0
1977	55.2	79.6	134.9	890.1	32.4	22.8	112.1	102.1	11.5
1978	65.8	98.3	164.2	984.4	40.1	25.7	139.5	115.1	11.7
1979	80.1	149.1	229.2	1196.1	60.8	19.3	209.9	86.4	7.2
1980	101.6	153.9	255.4	1535.9	62.8	38.8	216.6	173.8	11.3
1981	111.2	158.4	269.7	1706.2	64.6	46.6	223.1	208.7	12.2
1982	110.1	155.5	266.1	1784.2	63.5	46.6	219.5	208.7	11.7
1983	114.1	195.0	309.1	1898.9	79.6	34.5	274.6	154.5	8.1
1984	118.1	183.3	301.4	2075.0	74.8	33.3	268.1	149.2	7.2
1985	123.5	221.7	345.2	2241.6	90.5	33.0	315.2	147.8	6.6

Notes:

(1) Aboveground Currency = Demand deposit times ratio of currency to demand deposits in 1972 (base year).

(2) Underground Currency = Currency in circulation minus aboveground currency.

(3) Aboveground Money Supply = Demand deposits plus aboveground currency.

(4) Underground economy = Underground currency times ratio of Gross Domestic Product to money supply in 1972 (base year) or underground currency times income velocity of money.