Inflation and Taxation: A Comparison of the Brazilian and American Cases

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by

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Introduction

The recent worldwide inflation and particularly the impact in the United States has once again brought the topic of inflation accounting into vogue. Many groups have expressed concern that inflation is eroding the usefulness of accounting reports and argue that accounting for variable value monetary units should be a natural evolution from a static type of measure.

Most countries have experienced inflation to some degree. Some have compensated for inflation either by one-time readjustments or more or less permanent plans, with the hope that these compensations will lead to a more efficient allocation of resources and minimize the effects of inflation on their citizens and residents. Other governments have no formal mechanism for dealing with many aspects of inflation either because rates of inflation have been historically low, as in the U.S., or because it is believed that indexing an economic system is difficult and has undesireable side effects such as cost-push inflation and stagnated economic growth.

Many groups who heretofore have opposed the move to price level or value adjusted accounting have reversed their stance within the past few years. A recent study of Touche Ross (1975)[1] argues very strongly for current value accounting and states that total corporte earnings for U.S. corporations would change by a factor of three if adjusted for inflation.

The trend of value adjustment proposals is toward a type of current value accounting concept. The Sandilands report in the U.K. supports a "Current-Cost Accounting" concept. The Institute of Chartered Accountants in Australia suggests a current-cost approach to the valuation of assets on the balance sheet and a profit

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[1] Current-Value Accounting, Economic Reality in Financial Reporting, A Program for Experimentation, Touche Ross & Co. 1975.

measurement based on matching revenue and expense both expressed in current values. The S.E.C. is proposing a requirement that business disclose in the footnotes to conventional financial statements the current costs of replacing inventories and productive capacity as well as costs of sales, depreciation, depletion and amortization expense expressed in current value.

The interesting point to note about the proposals of these groups who have worked diligently at procedural accounting changes is that so little attention is given to tax issues involved. Proposals for financial accounting changes have little force and effect for tax accounting measurement of income, at least in the U.S. Most governments are hesitant to adopt revolutionary plans for taxation since these could have significant effects on revenues. The effects of inflation on taxes cannot be ignored. Rosenn states that "The distribution of tax burdens established by income tax legislation undergoes a multiplicity of distortions in an inflationary economy... Some of the distortions will offset one another, but their net effect may be a substantial reallocation of the fiscal burdens originally built into the income tax."[1]

The distortions to which Rosenn refers include fictitious profits which slowly erode the capital structure of a firm, as well as the possibility of shifting income into higher marginal brackets without real increases in this income, thereby causing a decrease in real after-tax income.

This paper will examine price level and value adjusted accounting methods. It will then turn to the specific case of inflation adjusted accounting methods for tax purposes. The Brazilian system, generally acknowledged as one of the most sophisticated in the world, will be explained and used as a benchmark for comparing inflation adjusted tax proposals in the U.S.

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[1] Keith Rosenn, "Adaptions of the Brazilian Income Tax to Inflation," 21 Stanford Law Review 58, 58.

Price Level Adjusted Accounting

The admitted goal of financial statements is to present accurately the economic status of the enterprise in order to aid in the economic decision process. The Objectives of Financial Statements were extensively discussed in the report of the Accounting Objectives Study Group (1973). The emphasis of the measurement process can be focused on different factors such as maintenance of the owner's equity, the future cash flow and the productive capability of the going concern.

A large number of alternative accounting treatments have been proposed in the literature. Vancil (1975) classifies methods of measurement into four main categories: GAAP (Generally accepted accounting principles), CRVA (Current replacement value account), GPLA (General price level accounting) and SPLA (Specific and General price-level accounting). Sterling (1975), on the other hand, constructs a simplified model that compares four different proposed methods of accounting for inflation, Historical cost (GAAP), Price level adjusted historical cost (GPLA), Current value and Price level adjusted current value. Vancil concludes that the SPLA produces better measurements than the other systems while Sterling states that only the price level adjusted current value provides measures that are relevant and interpretable.

The accounting methods for treating variable currency values can be broken down into two principal categories, exchange output values and exchange input values. Chambers proposes a single measurement concept for all assets representing present realizable prices (current cash equivalent). Aside from the work by Chambers and the proposed SEC requirements, the input value methods seem to have the greater support.

The exchange input valuation methods include historical cost, general price level adjusted cost (general purchasing power method) and current value.

Historical Cost Method. The historical cost method of accounting values assets at historical input values. It is purported to possess the characteristic of verifiability. The numbers, however, are often combinations of monetary units with

differing purchasing power and therefore are heterogeneous measures of different financial report items.

General Price Level Adjusted Cost. The general price level adjusted cost method, also called the general purchasing power method uses one index for adjusting monetary values to a common denominator. The common denominator is achieved by applying an index such as a wholesale price index, a consumer price index, or a GNP deflator to asset and liability amounts. A general price level adjusted cost method was proposed by the FASB in its exposure draft of December 31, 1974. The method also requires adjustments to income statement items. Depreciation expense is adjusted to take into account the restatement of property, plant and equipment accounts. Gains and losses resulting from holding net monetary items are recognized.

Current Value Method. The current value method is a method whereby historical costs are adjusted for specific price indices related to the specific assets in question. This method is a response to the fact that different organizations will not be affected the same by changes in the general price level because of discrepancies among price changes in different economic sectors. The United Kingdom may adopt a modified version of current value accounting. This U.K. proposal provides that government will furnish indices for revaluation of inventories and fixed assets.

Inflation and Tax Accounting in Brazil

Brazil has been plagued by inflation for several years (Table 1). Rather than attack this double and triple diget inflation using traditional economic measures such as price controls, the government has chosen a broad system of indexing in an attempt to alleviate many of the problems generated by inflation. The government consciously wished to learn to live with inflation if, in the process, economic growth was not stagnated. Brazil's economy has grown dramatically and inflation has abated somewhat since indexing began in 1964. The heretic thinking by Brazilian economists that traditional economic inflation controls would be ignored did necessitate definite measures

Table 1

Wholesale and Consumer Price Index--Brazil (1963=100)

Year	Wholesale Price Index	Consumer Price Index
1949	3.6	<0.1
1952	6.3	<0.1
1955	9.9	11
1958	15.3	22
1961	36.9	44
1964	191.1	200
1967	495.5	611
1970	909.9	1,111
1973	1,496.4	1,756

Source: International Monetary Fund, Bureau of Statistics, unpublished data. Cited in De Jantscher, "Taxing Business Profits During Inflation: The Latin American Experience," International Tax Journal, January 1976, p. 133.

such that businesses could withstand inflation erosion, maintain standards of measureability of results and allow taxation without endangering productive capability of business. Measures adopted were encouraged by success in other programs previously adopted by the government such as the treatment of government debt (adjustable government bonds), housing debt (tied to minimal salary) and stepwise (crawling peg) devaluations of the Brazilian currency.

The Brazilian government has attempted to structure a tax system which would be neutral to the effects of taxation. The system is basically a price level adjusted cost valuation method. An index based on changes in the wholesale price level is used for adjustments of historical costs in both financial accounting and tax records.

Fixed Asset Revaluations and Depreciation. Fixed asset amounts are restated annually using a revaluation index based on the wholesale price index. The indices for 1975 revaluation of fixed assets are shown in Table 2. Paper profits resulting from write-ups are not subject to tax as long as they are capitalized. Depreciation using the straight line method is calculated on the adjusted asset value. This higher value will more closely approximate current cost than original cost only if the movements of the specific index for those types of assets approximates the movements of general wholesale prices.

Revaluation increments are credited to a monetary correction reserve account, increases in outstanding debt incurred to finance the purchase of fixed assets are deducted. The balance is capitalized. Increases in the firm's outstanding debt may result from devaluation of the cruzeiro in relation to a currency in which the foreign debt is payable or from a domestic loan which is index-linked.

As an example of the above, assume that in 1970 a firm purchased an asset for Cr$50,000 which was being depreciated over a 10 year life using the straight line method. In computing taxable income for 1974, the indices published in 1975 for revaluation of assets are used (see Table 2). The asset is revalued upward by

Table 2

Indices for the 1975 revaluation of assets

Table of indices for the 1975 revaluation of fixed assets is as follows:

Year of Acquisition	Index
1938	1,527.88
1939	1,445.27
1940	1,362.51
1941	1,238.76
1942	1,004.78
1943	867.19
1944	757.04
1945	646.90
1946	564.33
1947	523.00
1948	495.52
1949	454.14
1950	399.11
1951	330.31
1952	302.81
1953	261.58
1954	206.44
1955	178.90
1956	151.41
1957	137.67
1958	116.99
1959	85.31
1960	64.74
1961	46.80
1962	30.27
1963	13.74
1964	7.90
1965	6.21
1966	4.55
1967	3.71
1968	2.97
1969	2.49
1970	2.10
1971	1.74
1972	1.50
1973	1.33
1974	1.00

Cr$105,000 (Cr$50,000 x 2.10). The depreciation deduction is based on the adjusted value of Cr$105,000 and is Cr$10,500. The revaluation increment is calculated by subtracting the previous year's revaluation amount from the current year's amount. The increment for the asset is Cr$26,000 which is derived by subtracting the previous year's value of Cr$79,000 (Cr$50,000 x 1.58) from the Cr$105,000. If a loan payable in foreign currency was obtained to acquire the asset and the cruzeiro was devalued with respect to this currency the resulting increase in the loan payable is offset against the Cr$26,000 increase in asset value.

Revaluation of Working Capital. In addition to revaluing fixed assets each year, firms are also allowed to revalue working capital.[1] A deduction comparable to a price level loss in regular price level adjusted financial statements is taken. Changes in the values of assets and liabilities are not recorded in the firm's accounts. Since LIFO inventory methods are not allowed gains from the sale of inventory items include a gain from the change in purchasing power.

Working capital is defined as the difference between total equity capital in the enterprise and net fixed assets. If a firm has positive working capital (total equity capital exceeds net fixed assets) this balance is multiplied by the appropriate index, wholesale price index, as of the beginning of the tax year. For example if in 1974 a firm had positive working capital at the beginning of the year of Cr$140,000 the amount which would have to be added to working capital to preserve its real value would be Cr$46,000 (Cr$140,000 x 1.33 = Cr$186,000 and Cr$186,000 - Cr$140,000 = Cr$46,000). Therefore Cr$46,000 can be deducted from profit at the end of the year.

A firm which has negative working capital at the beginning of the year theoretically has realized income. Such gains are not required to be recongized for tax purposes.[2]

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[1] Decreto-Lei 401, December 30, 1968.

[2] Decreto-Lei 1338, July 23, 1974. Portaria 544, October 21, 1974.

Taxation of Interest on Certain Monetary Assets. The Brazilian income tax law does not eliminate the tax on negative interest income but has attempted to make otherwise negative interest rates positive by encouraging index-linking deposits and bonds such that a monetary correction is made to principal. Interest on these index-linked obligations is fully taxable and the increments of value added resulting from monetary corrections may be taxable.[1] Index-linked monetary assets are included in a firm's working capital before revaluation. The same index used to revalue working capital is also used to increase the value of index-linked assets. Therefore if a firm has positive working capital, no income is recognized since the increase in value of index-linked assets will be exactly offset by the deduction from income on account of the deduction allowed to maintain the real value of working capital. A firm with negative working capital will recognize income from the monetary correction since the corresponding deductions are not appropriate.

Individual Income Tax. During periods of inflation personal income taxes may be distorted in at least three ways.

1. Progressive tax brackets and personal exemptions are expressed in nominal terms.
2. Negative interest income is subject to tax.
3. Illusory capital gains are subject to tax.

The Brazilian tax system compensates for the distortions of the nominal progressive tax brackets by indexing these brackets. Rate schedules for 1971 through 1974 are shown in Table 3. The family allowance (similar to U.S. personal exemptions) is also index-linked. The 1971 exemption amount for the spouse and dependents was Cr$2,695 and for 1974 was Cr$4,500.

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[1] Decreto-Lei 1338, July 23, 1974.

Table 3

Rates of personal income tax effective 1972
payable by individuals on 1971 income

Income brackets Cr$	Rate %	Deduction Cr$
- - 6,048.00	exempt	-
6,049.00 - 6,480.00	3	181.40
6,481.00 - 8,640.00	5	311.00
8,641.00 - 12,096.00	8	570.20
12,097.00 - 17,280.00	12	1,054.00
17,281.00 - 23,760.00	16	1,745.30
23,761.00 - 32,400.00	20	2,695.70
32,401.00 - 43,200.00	25	4,315.70
43,201.00 - 64,800.00	30	6,475.70
64,801.00 - 86,400.00	35	9,715.70
86,401.00 - 129,600.00	40	14,035.70
129,601.00 - 172,800.00	45	20,515.70
over - 172,800.00	50	29,155.70

Note: The tax payable is obtained by applying the rate corresponding to the income bracket to the total income, and deducting the amount shown in the final column.

Rates of personal income tax effective 1973
payable by individuals on 1972 income

Income brackets Cr$	Rate %	Deduction Cr$
- - 7,600.00	exempt	-
7,601.00 - 8,200.00	3	228.00
8,201.00 - 10,900.00	5	392.00
10,901.00 - 15,200.00	8	719.00
15,201.00 - 21,700.00	12	1,327.00
21,701.00 - 29,700.00	16	2,195.00
29,701.00 - 40,300.00	20	3,383.00
40,301.00 - 53,400.00	25	5,398.00
53,401.00 - 79,700.00	30	8,068.00
79,701.00 - 104,200.00	35	12,053.00
104,201.00 - 152,700.00	40	17,263.00
152,701.00 - 198,700.00	45	24,898.00
over - 198,700.00	50	34,833.00

Table 3 (continued)

Rates of personal income tax effective 1974
payable by individuals on 1973 income

Income brackets Cr$	Rate %	Deduction Cr$
- - 10,700.00	exempt	-
10,701.00 - 11,550.00	3	321.00
11,551.00 - 15,300.00	5	552.00
15,301.00 - 21,250.00	8	1,011.00
21,251.00 - 30,050.00	12	1,861.00
30,051.00 - 40,750.00	16	3,063.00
40,751.00 - 54,600.00	20	4,693.00
54,601.00 - 71,250.00	25	7,423.00
71,251.00 - 103,000.00	30	10,985.00
103,001.00 - 130,750.00	35	16,135.00
130,751.00 - 180,750.00	40	22,673.00
180,751.00 - 222,550.00	45	31,710.00
over - 222,550.00	50	42,838.00

Rates of personal income tax effective 1975
payable by individuals on 1974 income

Income brackets Cr$	Rate %	Deduction Cr$
- - 13,900.00	exempt	-
13,901.00 - 15,000.00	3	417.00
15,001.00 - 19,900.00	5	717.00
19,901.00 - 27,600.00	8	1,314.00
27,601.00 - 39,100.00	12	2,418.00
39,101.00 - 53,000.00	16	3,982.00
53,001.00 - 71,000.00	20	6,102.00
71,001.00 - 92,600.00	25	9,652.00
92,601.00 - 133,900.00	30	14,282.00
133,901.00 - 170,000.00	35	20,977.00
170,001.00 - 235,000.00	40	29,477.00
235,001.00 - 289,300.00	45	41,227.00
289,301.00	50	55,692.00

As was mentioned above, modifying the income tax law to eliminate tax on negative income was rejected in favor of attempts to make negative interest rates positive by index-linking certain monetary assets.

In order to eliminate the problems of taxing illusory profit from the sale of capital assets, Brazil has completely eliminated the tax on capital gains to individuals.[1]

Inflation and Tax Accounting -- U.S. Proposals

Although the United States has not experienced the rates of inflation comparable to those in Brazil, the rate has been alarming enough that concern has been expressed about the effects of inflation on the U.S. tax system.[2] The rates of inflation as indexed by the Consumer Price Index are shown in Table 4. The 1974 and 1975 rates were 11 percent and 9.1 percent respectively, certainly enough to cause some distortions in the tax system.

Business Profits. The U.S. has no provisions at the present time comparable to the Brazilian system to alleviate tax on inflated business profits. The LIFO inventory method and accelerated depreciation (not permitted in Brazil) may partially counteract the effects of inflation on profits. The use of the LIFO inventory method expresses costs of goods sold at values which may be close to real value except in periods of rampant inflation. Therefore revenues and costs are expressed in terms of value adjusted currency.

With respect to depreciation, it can be shown that present methods of depreciation partially adjust for inflation since if funds are reinvested at an interest rate equal to the inflation rate, the resulting fund will be greater than the original cost of the asset since larger depreciation deductions are taken in earlier years of an asset's

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[1] Decree Law No. 94 of December 30, 1966, art. 2.

[2] Henry R. Cheeseman, "How to Create an Inflation Neutral Tax System," The Journal of Accountancy, August 1975, p. 44.

Table 4

Consumer Price Index (all items--United States city average)

Year	Index	Percentage Change
1967	100	
1968	104.2	+4.2
1969	109.8	+5.4
1970	116.3	+5.9
1971	121.3	+4.3
1972	125.3	+3.3
1973	133.1	+6.2
1974	147.7	+11.0
1975	161.2	+9.1

Source: Monthly Labor Review, February 1976, p. 85.

life before the cumulative effects of inflation are realized. Straight line depreciation accounts for almost one half of the intervening inflation.[1]

The "Cost of Living Adjustment Act"[2] introduced to the Senate Committee on Finance by Senator Buckley provides for several inflation adjustments for businesses and individuals. It is proposed that the corporate surtax exemption of $25,000 be index-linked to the Consumer Price Index (all items -- U.S. city average), hereafter CPI, This provision increases the width of the 22 percent marginal bracket and essentially makes the brackets neutral to the effects of inflation.

The Buckley Bill does not provide for direct revaluation of fixed assets for depreciation purposes but does provide that the depreciation expense be adjusted by the ratio which the CPI for the preceding calendar year bears to the CPI for the next preceding calendar year. If the CPI is equal to the inflation on that particular asset then the depreciation will fully eliminate the effects of inflation. Also, provided in the Buckley Bill is a provision upon the sale of the asset, the adjusted basis of the asset is to be adjusted by the ratio which the CPI for the year in which the asset is sold bears to the CPI of the year of acquisition.

A completely different bill currently before the House called the Tax Equities Act of 1975,[3] introduced by Representative Corman, provides for the adjustment for inflation of the basis of property sold or exchanged. This proposal provides for the exclusion from gross income gain equal to one third of one percent of the adjusted basis of property at the time of disposition times the number of full months the property was held after 12 months.

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[1] Note, "Inflation and the Federal Income Tax," 82 Yale Law Journal 716, 721 (1973).

[2] U.S. Congress, Senate, Committee on Finance, Cost of Living Adjustment Act. S 987, 94th Congress, introduced March 6, 1975.

[3] U.S. Congress, House, Tax Equity Act of 1975, HR 1040, 94th Congress, introduced January 14, 1975.

Both the Buckley and Corman proposals may fall short of accomplishing the goal of excluding inflation gains from income. The four percent rate provided by the Corman Bill may not have any relationship whatsoever to any index. Also, since under both proposals the percentage adjustments are made to adjusted basis at the time of sale a low basis asset will require a longer holding period to exclude the same amount of gain as a higher basis asset. For example, if an asset was purchased twenty years before sale for $100 and a second asset was purchased ten years before sale for $500 and each is sold for $1,000, under the Corman Bill the gain on the asset purchased 20 years before would be $824 ($1,000 less $100 and less 4% x 19 years x $100). The gain on the asset purchased 10 years before would be $320 ($1,000 less 500 and less 4% x 9 years x $500). In other words, before the inflation adjustments the gain from the sale of the asset held 10 years would be 56 percent as large as the asset held 20 years. After the inflation adjustments, the gain is only 39 percent as large.

Also assets which are depreciated to a low basis will be allowed to exclude virtually no gain since the indexing of the low basis will yield only a small increment which may be excluded from income.

Personal Income Taxes. Of the three distortions of the tax system caused by inflation mentioned above, the Cost of Living Adjustment Act provides some measure of relief to U.S. taxpayers but certainly not the comprehensive relief evidenced in the Brazilian tax system.

The Act provides only minimal relief from the problem of progressive tax brackets expressed in nominal terms. Tax rate schedules remain constant, but the standard deduction and personal exemptions are index-linked to the CPI. Assume a single individual had gross income of $35,000, a standard deduction of $2,300 and one personal exemption of $750. His tax using the current tax rate schedule is $10,515. Assume the next year the CPI increases by 10% and his salary is raised at the same rate. His gross income would be $38,500, price-level adjusted standard deduction and

personal exemptions are $2,530 and $825 respectively. Although income has not increased in real terms, his tax bill has increased to $11,863. If the rate schedule was index-linked the tax would have been $11,567. Neutrality is more easily achieved by index-linking the entire tax rate schedule.

The second distortion in the tax system caused by inflation is that of taxation of negative interest. The Buckley Bill corrects this distortion for certain government obligations. It is proposed that the interest rate on U.S. savings bonds, certificates and other government obligations be adjusted each year by the ratio which the CPI in the year of issue bears to the CPI prior to the year in which the interest accrues. The bond redemption amounts are also to be adjusted by the ratio which the CPI in the year the bonds are issued bears to the CPI in the year the bonds are redeemed.

The third distortion, taxation of capital gains on profits which are illusory has been discussed above.