3. INFLATION ACCOUNTING

The present study is an attempt to measure the impact of inflation on the taxation of capital income in the corporate sector. Broadly, the method adopted to achieve this is to neutralise the effect of inflation on the corporate sector by adjusting their accounts for inflation through inflation accounting, and then keeping everything else the same, to estimate the differential in the tax burden on corporate capital income. Thus, inflation accounting is the key element in our estimations and hence deserves more than a passing mention.

1. Need for Inflation Accounting

Inflation, especially when it is prolonged and high, reduces considerably the meaningfulness and use of the corporate accounts because the various amounts in current rupee values may not signify proportionate real amounts, as the real worth of the rupee varies in different years. Moreover, arithmetical operations involving different amounts in rupees having different real worth become quite misleading. To make the accounts more meaningful, all items should be expressed in values relating to a common year. This is attempted through inflation accounting, the following reasons usually being advanced in its favour :

(*a*) It helps to correct the usually distorted picture of the financial operations and condition of a company presented by the conventional system of accounts ;

(*b*) It facilitates inter-company comparisons since inflation hits different firms in different degrees;

(*c*) It also facilitates inter-period comparisons of the performance of a firm;

(*d*) Correct measurement of income is possible only with inflation accounting; and

(*e*) When some nominal value in the accounts forms the basis of government action, e.g., taxation based on profits,

MRTP Act measures based on a nominal value acting as a proxy for relevant variables, determination of controlled price on the basis of nominal profits and so on, inflation may cause unfair decisions by the government, unless the relevant nominal value is adjusted for inflation.

2. Brief History

Inflation accounting and the principles underlying it have been discussed in some form or the other for the last 50 years or so, although the discussions remained more or less academic and confined to accountants. During the runaway inflation in the 'forties in Germany, it was discussed quite a greate deal but no concrete proposal or action emerged, and the discussion subsided once the economy resumed functioning on a more or less even keel. The issue was revived, this time in the UK and the USA, about 25 years ago. Other countries where it became a live issue very early were Latin American countries like Chile, Argentina and Brazil, and the Netherlands in Europe.

In the USA, it was seriously advocated for the first time by the American Institute of Certified Public Accountants (AICPA) in 1963 in a study entitled *Reporting the Financial Effects of Price Level Changes*. About six years later, the Accounting Principles Board (APB) brought out a similar proposal as Statement 3. The Financial Accounting Standards Board (FASB) was formed in 1973. It prepard a few exposure drafts, the most notable of which was FAS 33, issued in 1979. Meanwhile, the Securities and Exchanges Commission (SEC) also contributed to the discussion by issuing Accounting Series Release (ASR) 190. However, despite these expository papers and the tremendous amount of discussion that they have provoked, there is no consensus on the exact method of inflation accounting to be adopted.

In the UK, the first full-scale discussion is found in a report on inflation accounting by the Inflation Accounting Committee (1975) appointed by government and chaired by F.E.P. Sandilands. There were, of course, several expository papers issued by accounting bodies already existing. Hard on the heels of the Sandilands Committee Report (1975) came Exposure Draft (ED) 18 by the Inflation Accounting Steering Group,

also known as the Morpeth Group. Unlike most other proposals, where inflation-adjusted accounts were to be added as supplementary information to the conventional accounts, ED 18 required companies to give inflation-adjusted accounts in the primary financial statements. This sparked off a revolt among the U.K. accountants and led to an unprecedented formal vote by the Institute of Chartered Accountants in 1977 against this kind of imposition. As a result, ED 18 was shelved and fresh discussions started with the *Hyde Guidelines* issued in 1978. In 1979 it was proposed that disclosures under *Hyde Guidelines* should be mandatory. In 1980, Statement of Standard Accounting Practice (SSAP) 16 was issued, by the Accounting Standards Committee (ASC), requiring most large companies to give inflation-adjusted accounts, in both the balance sheet and the profit-and-loss account. SSAP 16 was slated to be reviewed in 1983. A working group under the chairmanship of Tom Neville pointed out the limited usefulness of SSAP 16 after consulting various users, preparers and auditors of SSAP 16 accounts. Meanwhile, the urgency of the issue has declined due to a fall in the rate of inflation. As a result, no successor to SSAP 16 has yet emerged. However, it is almost certain that the new standard would be simpler, less rigorous and will require fewer adjustments.

The Netherlands allows inflation accounting for companies; and Philips, a big multinational based in that country, has been giving such accounts for a number of years now.

At least two Latin American countries practise inflation accounting—Brazil and Chile. Inflation has been rampant in these countries and naturally, they were the first to practise inflation accounting. Argentina also has been facing a very high rate of inflation and has been on the verge of accepting inflation accounting for a number of years now, but somehow has not taken the plunge yet.

Canada, Australia and India seem to be simply following the U.K. in this matter. In Canada, some exposure drafts have been issued which do not propose anything new and India and Australia have so far made only one serious attempt each to discuss the issue by instituting a committee. The Australian Committee was chaired by R.L. Mathews and the Indian one was chaired by R.M. Honaver. Again, there is nothing original

with respect to the principles of inflation accounting in the reports of these committees.

Some companies have been giving inflation-adjusted accounts in India on their own. Examples from the public sector are Bharat Heavy Electricals Limited (BHEL) and Hindustan Machine Tools Limited (HMT). The inflation-ad-adjusted accounts, of course, are supplied in addition to the conventional accounts.

The Institute of Cost and Works Accountants of India sponsored two publications in 1975 to familiarise Indians with this issue. Later, in December, 1979, the Federation of Indian Chambers of Commerce and Industry (FICCI) organised a workshop in Bombay to discuss the issue and published a Report on the Workshop (1979).

Thus, the present position is that though there are very few countries which have officially adopted inflation accounting, either as a superior substitute for traditional historical cost accounting or as supplementary to it, there are many other countries which are at least engaged in discussing the issue seriously and in detail. In the near future a number of countries may actually decide to adopt inflation accounting officially, if inflationary conditions should continue.

3. Methods of Inflation Accounting

So far, we have used the term 'inflation accounting' as if it was unambiguous. As a matter of fact, it is not. One of the reasons why many countries in principle agree that inflation accounting is desirable but are still unable to implement it, is that the exact method of adjusting the accounts for inflation is fiercely debated. There are many issues within the ambit of inflation accounting on which a general agreement is necessary before it can actually be implemented. In this section we summarise the important issues.

As mentioned earlier, historical cost accounts become unsatisfactory during inflation because they contain values based on both current as well as past values of the unit of money and calculations are done without paying any attention to this fact. For example, suppose a firm bought a machine worth Rs 100 in the year 1975 and again bought another at the same price in the

gross fixed assets upto 1978; with another Rs 100 added to it in 1979, gross fixed assets are shown at a value of Rs 200. This is clearly improper because Rs 100 in 1975 is not the same as Rs 100 in 1979.

Thus, inflation accounting essentially involves identifying any value in the accounts which is expressed in terms of past rupees and updating them in line with the rest. This is conceptually simple, as all one has to do is to convert the values in past rupees to values in current rupees using a suitable index. However, it is the choice of a "suitable" index that gives rise to a major controversy.

There are two extreme views. One would suggest the use of a general price index like the GNP deflator or the consumer price index irrespective of the item in the accounts to which it is being applied. The other would require a large number of specific price indices to be applied, one for each item needing adjustment. The first is called current purchasing power (CPP) method and the other is called current cost accounting (CCA) method. Between these extremes there lie various suggested combinations. The rationale for CPP is that it is the general value of money that is needed to be corrected for because the money value of any commodity in the accounts should reflect the general purchasing power embodied in that commodity. The rationale for CCA is that since it is a question of updating the money value of specific items in the accounts, the indices relating to the price of each item should be used. This, in essence, is the major controversy. While the Sandilands Committee as well as the Morpeth group advocated CCA, the American accountants seem to be in favour of CPP, as is expressed in the following statement by George Terborgh: "In principle, the inflation adjustment should reflect what has happened, not to the specific prices, but to the dollar itself, in terms of its general purchasing power over finished goods and service. In practice, moreover, this is almost a necessity. The adjustment of corporate accounts for inflation is complicated enough, in all conscience, without the use of a multiplicity of specific price indices." (Terborgh, 1976, pp. 90-91). Further arguments are provided by William Fletcher of Indiana Telephone Corpn., U.S.A.: "Why, then, did we use the GNP Implicit Price Deflator ? We used it because it is broadly based, calculated by

someone else, and published to the world over a long period. Further, changes in design of the index are likely to be widely known . . . It would be interesting to know what our capital will do in the telephone business (construction price indexing); but before we entertain ideas about reinvestment, we want to know what has happened to our purchasing power (capital)." (Fletcher, 1976, p. 224). However, CPP would totally ignore inter-firm differences in the impact of inflation. If the major assets of a company consist of computers whose prices have been falling, use of CPP would give them a very large windfall since the assets will be upvalued improperly and depreciation calculated accordingly.

There are others who tread a middle path. For example, W.T. Baxter says, "Full analysis (i.e., splitting up of total gain into its nominal and real parts) demands use of *both* specific index and general index." (Baxter, 1976, p. 169). An example can illustrate the thrust of this statement.

Suppose a bond was bought by a company in 1975 for Rs 100. In 1982, its market value is, say, Rs 130. According to CCA, Rs 30 should be shown as holding gain, and the assets should reflect Rs 130 in place of Rs 100. But, suppose the inflation in the meantime has been 20 per cent. What Baxter (and others like him) means is that holding gain should be recorded as Rs (130−120)=Rs 10. The rest of the gain, i.e., Rs 20 should be recorded under a separate head.

Among the countries practising inflation accounting, Latin American countries have all opted for CPP, whereas Netherlands uses CCA.

As for a comparison of relative merits and demerits, almost all experts are of the opinion that these two approaches should not be compared. To quote a representative view on the claim that CCA is superior to CPP, "This is akin to asserting that a cow is superior to a horse. Each is superior for the very different purpose for which it is intended. Because the two 'approaches' deal with entirely different objectives, their conceptual merits simply cannot be compared" (Sprouse, 1976, p. 120, footnote). Be as it may, the problem of choice still remains because for actual application only one can be used. The essence of correct choice is clarity of objective.

CCA and CPP (or a middle path). There are other issues to be settled with respect to the various items included in the accounts. We briefly outline some major problems and the suggested methods of dealing with them. The three problems that we discuss below relate to cost of sales, physical assets, and financial assets.

4. Cost of Sales

The amount shown against sales for a particular accounting year adds up the sales revenues earned throughout the year, at the prices prevailing when the sales actually took place. Thus, the recorded sales reflect an average price index for that year, weighted by the quantities sold in various periods.

The costs of sales, however, are not recorded at a similar average price for that year. This is because many items included in costs were bought in earlier years. A company normally has at the beginning of the year an inventory of finished goods, semifinished goods, raw materials and stores and spares. During the year, it simultaneously uses up this inventory and adds to it. Depending on whether the former or the latter is higher, the year-end inventory is smaller or greater than the starting inventory. However, the fact remains that at least some of the products sold by a company during a year are either themselves carried over from earlier years or are produced using materials carried over from earlier years. The way the costs of the materials used are recorded depends upon the accounting convention. The convention normally adopted in India is called First-In, First-Out (FIFO) basis. This assumes that for the output sold in a particular year the beginning of the year inventory is used up first, and only then the purchases of materials during that year are utilised. Under historical cost accounting, therefore, the costs of sales would reflect costs of material in earlier years to the extent current sales use the beginning of the year inventory. During inflation, this would give rise to an overestimate of profits, part of which are actually inventory gains. Suppose a firm simply holds on to its inventory for a year and sells it off. It will realise more than the historical cost since prices will have moved up. But the difference cannot properly be called

sary to buy materials afresh and bring the inventory to the same level as earlier. Thus, it is argued that this amount, included in profits as arrived at by the traditional accounts, is an illusory inventory profit, and should be corrected for.

One of the ways to eliminate overestimation of profits in this manner is to reject FIFO and adopt LIFO (Last-In, First-Out) basis of inventory valuation. This, contrary to FIFO, assumes that the latest purchases of materials and additions to inventory are used up first for the sales during a year. This ensures that as long as the closing inventory is higher than the beginning inventory, the whole of the material cost of sales reflects the prices of that year. Only when there is a dip in the inventory, the material cost reflects prices of earlier years. This is an optional way of accounting available to U.S. companies, even for tax purposes.

Given the opening and closing inventories and the purchases made during the year, the materials used can be identified as: materials used=opening inventory+purchases—closing inventory. An alternative method of eliminating illusory inventory profits suggests that by dividing the opening and closing inventories by appropriate price indices they can be expressed in real terms and then by applying some average price index for the year, the difference can be made to reflect the same price level as sales. Purchases can then be added to this figure (which will be negative whenever inventories are rising) to yield the cost of materials used. This estimate will eliminate the illusory inventory profits.

Of the two, the latter seems preferable for two reasons. First, whether prices are falling or rising, it works equally well, whereas LIFO will really hurt the companies when prices fall just as FIFO hurts them when prices are rising. Second, when prices rise very fast, LIFO causes an overstimation of the cost of materials used just as FIFO causes an understimation This will be true particularly if most of the sales take place in the earlier part of the year and most of the materials are purchased in the latter part of the year, prices rising considerably in the meanwhile. However, FIFO is easier for the accountants.

5. **Physical Assets and Depreciation**

shown in the accounts at the prices at which they were purchased and depreciation is calculated thereon, whether by straight-line (SL) method or by written-down-value (WDV) method. With these rules under stable prices, at the time the asset-life is over, the firm will have enough funds to replace an asset with an exactly similar one. However, when prices are rising, the accumulated depreciation at the end of the asset-life will not be enough for this purpose. Looked at in another way, the expenses in terms of wear and tear of the physical assets are not adequately provided for in units of money. This results in overestimation of profits. Moreover, when assets are sold, the loss (gain) on the sale may be less (greater) than what it would have been under stable prices, as the resale price would definitely be linked to the prices of new assets. Since the loss (gain) on the sale of assets is included in the profit and loss account, these would also tend to overstate profits solely due to inflation. This, however, does not rule out altogether the possibility of a real loss (gain) due to resale of assets.

But even if one concedes the inappropriateness of historical costs, it is very difficult to choose an alternative to it. There are various alternatives suggested.

(*a*) A simple alternative suggested is sale price, or 'exit value', or 'net realizable value'. However, this concept fails in the case of assets specific to a firm. Also, it does not allow for the difference between a 'going' and a 'dying' concern.

(*b*) Another suggestion is that asset valuation should be done on the basis of future net receipts, or the discounted future cash flow. This method is very much prevalent in capital budgeting, but has problems of its own. Apart from the subjectivity involved in forecasting the future income stream, it is useful only for valuing additions to the physical assets, but not for all physical assets. When a company starts with a number of various physical assets, even if it can estimate the future cash flow, it is impossible to allocate it among the different assets.

(*c*) A very popular alternative is replacement cost or 'entry' price. This is reasonable conceptually, but there may be a number of practical problems. The foremost among them is that more often than not an asset is not replaced in the true sense of the term. This is because over a period of years tech-

nological progress brings about improvements in the efficiency of a machine performing a given service, so that the improved version cannot be said to just replace the earlier model. Moreover, if the asset is not subject to frequent market tradings, information on replacement cost becomes scanty. It has been suggested that if the information on replacement cost cannot be collected from the market, it can be estimated by blowing up the historical cost of the asset with a suitable price index. But then the problem of choosing the 'suitable' price index again crops up. However, this issue is tied to the choice between CCA and CPP or any combination thereof and does not involve a fresh choice.

Allowance for depreciation creates some further problems. Under stable prices the usual depreciation formulae allow a firm to replace the asset with an identical one with the accumulated depreciation allowed. But if prices are not stable, none of them do, and the divergence between replacement cost and accumulated depreciation becomes larger the less accelerated the depreciation formula is.

There are some who assert that even when depreciation is based on the historical cost, it would suffice to cover the replacement cost, if the return (interest) on the cash flow generated by depreciation is taken into account. However, it can easily be shown that even when the rate of return on depreciation is the same as the rate of inflation, this will not be true. For this to be true, the rate of return has to be much higher than the rate of inflation.

If the rate of return on depreciation is not considered, irrespective of whether it is provided on the basis of current or replacement cost, the accumulated depreciation will not be enough to cover replacement cost. This is known as the backlog problem, discussed at length in the Sandilands Committee Report. However, if depreciation based on replacement cost earns a rate of return exactly the same as the rate of inflation, then the accumulated depreciation plus the rate of return thereon would exactly be enough for replacement of the asset. If no rate of return on allowed depreciation is assumed, the backlog problem has to be taken into account. Lief Johansen (1965, pp. 242-244) has devised a formula to take into account backlog depreciation.

6. Financial Assets and Interest

Besides having physical assets, a company has financial assets and liabilities too. The assets can be cash in hand, money in the bank and interest-bearing bonds. Liabilities, on the other hand, include share-holders' capital, loans, etc. Some of the financial assets and liabilities are short-term in nature, whereas the others are long-term.

With inflation, a company loses on financial assets as the same assets command a smaller amount of real resources, but gains on financial liabilities as the cancellation of these liabilities requires a smaller sacrifice in real terms. If differences in the price movements of specific items are ignored, it follows that a net borrower is a gainer and a net lender is a loser during an inflationary period. So far as monetary assets and liabilities are concerned, the relevant price movements are more or less in line. Hence, adjusting all the items with a single index may not be very much off the mark.

If some of items on the financial assets or liabilities side are traded in the market they will have market prices. These market prices may not equal the figures adjusted on the basis of the relevant price index. In that case, another choice crops up for the items that are traded in the market, i.e., whether to account for gains (losses) on the basis of the market price or on the basis of the adjusted historical price. A third a'ternative to record the gains (losses) is to use both, as described earlier (p. 15) while discussing the method suggested by Baxter. The change in the market price has two components, real and nominal. The nominal part can be deducted by using the price index and the rest, which can be called real gain or loss, can be accounted as income or expenditure.

Another problem about financial assets and liabilitities is with regard to the timing of the inclusion of such gains or losses in the accounts. The problem is exactly the same as the one that arises in the case of capital gains – whether to include them in their income during accrual or at realisation. Some take the view that realisation basis is proper because even after accrual, if gains are not realised, they are only notional.[1] But to the extent that future income pays for present consumption,

[1]See, for example, Schultz (1976), pp. 14-15.

this argument becomes invalid.

One of the adjustments in the profit and loss account which is sometimes advocated is that interest payments should also be adjusted for inflation and the difference between adjusted interest payments and actual interest payments should be taken as income. This adjustment may have some point, but to the extent that interest rates have an inflationry element built into them (*i.e.*, the rate of interest is higher by the extent of expected inflation than the rate that would have prevailed in the absence of any expected inflation), it loses its bite. The gain in interest payments due to *unforeseen* inflation only can then be regarded as income.

7. Review of Selected Studies

In this section, we briefly review some previous studies in this field. Since our ultimate concern is the impact of inflation on the taxation of capital income in the corporate sector, we concentrate on studies that have attempted to estimate such impact.

First, we show for illustration purposes, the impact of inflation accounting in respect of two Indian companies, both of the public sector. These two government companies are Hindustan Machine Tools (HMT) and Bharat Heavy Electricals (BHEL). The accounts relate to the financial year 1978-79 for HMT and 1976-77 for BHEL.

Table 3.1

Adjustments for Inflation for Deriving Profits of Two Indian Companies

(*Rs. million*)

	HMT	*BHEL*
Depreciation adjustment	23.8	128.9
Cost of sales adjustment	50.3	16.9
Total inflation adjustment	74.1	145.8
Profits before tax	144.8	629.5
Adjusted profits before tax	70.7	483.7

Source: Respective *Annual Reports*.

The percentage reduction in profits before tax for HMT

and BHEL is 51.2 per cent and 23.2 per cent respectively. The adjustments, strictly speaking, are incomplete because the adjustments for financial liabilities and assets are not included in the above calculations. Since the companies are likely to have positive net financial liabilities their profits would increase to some extent and may even cancel the adjustments reproduced above.

The above adjustments were carried out by the companies themselves. An Institute of Cost and Works Accountants of India (ICWAI) study (1975) attempted inflation adjustments using the CPP approach, employing three alternative price indices—the GNP deflator, the wholesale price index (WPI) (all commodities) and the consumer price index (CPI). The exercise included adjustments for financial assets and liabilities but excluded those for the inventory of stores and spares. Tax provision was assumed constant. Reproduced below are their results for the company Coromandel Fertilizers Limited.

Table 3.2

Inflation Adjustments for Coromandel Fertilizers Limited

(*Rs. lakh*)

	1967-68	*1968-69*	*1969-70*
Unadjusted profits after tax	—387.37	—62.38	55 50
Adjusted profits (using GNP deflator)	—415.96	—138.38	—25.20
Adjusted profit (using WPI)	—422.78	—141.50	—39.52
Adjusted profit (using CPI)	—424.79	—128.41	—26.47

It is evident that at least for this company, the inclusion of net financial liabilities adjustment did not make the extent of inflation adjustment negligible.

As regards such exercises for groups of companies, there have been many in the USA, but very few in India.

Taking the USA studies, we briefly discuss the results obtained by Tideman and Tucker (1976), Davidson and Weil (1976), Hart (1980), Shoven and Bulow (1975, 1976) and Feldstein and Summers (1979). We also discuss the results of the calculations by Jenkins (1977) for Canada. For India, we sum-

marise the adjustments reported in a FICCI report (1979), and the report of the Study Group on Inflation Accounting (1978).

Shoven and Bulow (1975, 1976) started with the definition of corporate net income or profit. They discussed both realisation and accrual basis and brought out the fact that the current accounting procedure combines both. Either way, they argued, inflation accounting was a must if the accounts were to depict the position and working of a company in a fair manner. They used the CPP method for their calculations, but agreed that CCA is conceptually superior. They first estimated the impact of the CPP method of inflation accounting (using the domestic spending deflator) on depreciation calculations for thirty firms in the Dow Jones industrial index and for non-financial corporations in the aggregate. The calculations showed that with inflation accounting, book depreciation would have gone up by 38.2 per cent. The effect on the tax bill (for 27 out of 30 companies) would have been to reduce it by $ 633 million and on after-tax profits to reduce them by about 20 per cent. For non-financial corporations as a whole, the adoption of inflation accounting would have raised depreciation by about 14 per cent in 1974. Under the assumption of FIFO accounting for inventory, inflation adjustment for the thirty Dow Jones companies would have resulted in upward or downward adjustments in their profits, depending on whether they were actually using LIFO or FIFO. For the non-financial companies as a whole, the before-tax profits would have been less by $ 16.2 billion in 1974.

So far as net financial liabilities are concerned, Shoven and Bulow estimated the gain for the same thirty Dow Jones companies as well as for the non-financial companies. For the former group, the adjustments amounted to $ 5.3 billion compared to the total reported net income of $ 16 billion. For the non-financial companies the adjustments amounted to $ 26.2 billion, or about 40 per cent of their total net earnings.

The overall adjustment for the Dow Jones companies amounted to an upward revision of their profits by $ 7.4 billion. For the individual companies, however, the directions of adjustments differed. Similarly, the adjustment would have been $ 39.4 billion for all non-financial companies, and positive.

The reader must be cautioned, however, about the above

estimates. The adjustments that Shoven and Bulow made were on the historical cost accounts revised on the basis of the Haig-Simon definition of income, which is based on accruals rather than realisations. It is the latter which is adopted in the conventional accounts. The estimates, it follows, contained two sets of adjustments, one for shifting to their own accounting methods and the other for inflation. Their results do not allow us to separate out these two adjustments and hence one cannot say how much of the adjustments is due to inflation by itself and even in what direction it would have been.

Two studies on inflation accounting and its implications for corporate income tax revenue were presented at a Brookings conference in 1975. These were published subsequently in the conference volume [Aaron (ed.), 1976]. We deal with two of the papers in the volume.

Davidson and Weil (1976) applied the inflation accounting technique (the CPP method) to the accounts of General Electric Company and twenty-nine other Dow Jones industrial companies. Two things were clearly brought out. One, almost invariably inflation adjustment (without monetary item adjustments) caused profits to fall substantially (or losses to be higher). Two, adjustments for monetary items, however, improved the position considerably and for the exceptionally highly leveraged companies, adjusted profits were higher than unadjusted profits.

When twenty-four utilities were separately considered, this point was affirmed. Every company had much higher adjusted profits (when adjustments for monetary items were included) than unadjusted profits. Before the monetary item adjustment, the inflation-adjusted profits were around 65 per cent, on the average, of the unadjusted profits. These companies had much more debt than equity, confirming the fact that companies with high debt-equity ratios are more favourably placed during inflation.

As regards taxation, Davidson and Weil found that General Electric Company's taxable income remained almost the same after inflation accounting for the year 1974. For the twenty-nine Dow Jones industrials as a group, the taxable income fell by about 13.5 per cent. But the extent of adjustments (both positive and negative) in profits for individual companies hav-

ing different effective rates of tax worked out to be such that the adjustments did not affect tax revenues substantially. However, they concluded that since taxpayers as a group would be net monetary asset holders and since net monetary asset holding reduced income, the adoption of inflation accounting was likely to cause a fall in income tax revenue.

Another paper in the same volume by Tideman and Tucker (1976) dealt with inflation accounting results by groups of industries. Their methodology was different from that of Davidson and Weil because they did not use actual price indices like the latter, but assumed a once-for-all 10 per cent inflation and a steady 10 per cent inflation, alternatively. Also, taking actual accounts data for the year 1972, they calculated the effect of inflation on the corporate income tax payments for the subsequent years. Their results suggest that all the groups actually paid less tax than they would have under inflation accounting in the first year after a once-for-all inflation. But in the long run they gained significantly with the adoption of inflation accounting. With a steady inflation they gained even more significantly.

Among the three major corrections for inflation, the corrections for net monetary assets dominated in the beginning but in the long run it was depreciation correction which was more important.

They discussed also other effects of inflation on a corporation. Among other things, they showed that inflation would have biased investment financing towards debt, causing greater risks of bankruptcy. Required rates of return rise and more so for short-lived assets than for long-lived ones. Inflation also encourages mergers, they pointed out.

The study by Jenkins (1977) relates to Canadian corporations. He used replacement cost figures for depreciation adjustments. For inventory valuation adjustments, suitable indices were prepared from the commodity-wise indices keeping an eye on the composition of the inventory of various groups. The third adjustment, that for net monetary assets, was undertaken on the basis of a general price index. The reference period was 1965 to 1974.

The results of the empirical exercise indicated that depreciation expenses uniformly went up after adjustment. As was to

be expected, it was much more important for non-financial companies than for financial ones. Out of all adjustments, this was also the most important in terms of magnitude, except in the year 1974 when inventory valuation adjustment assumed the highest importance for non-financial companies. Adjustments for net monetary assets normally raised the income and hence tax liability. However, the net effect was to reduce the income by around 15 per cent for non-manufacturing non-financial corporations. For financial corporations, the effect of inflation accounting would have been to raise the income. Jenkins also brought out the fact that the immediate effect was greater than the long-term effect of inflation accounting, because the gains through having net monetary liabilities cancelled to some extent the reduction in income due to the other two adjustments with the passage of time. Jenkins did not calculate the impact of inflation on tax payments.

Feldstein and Summers (1979) focussed on the impact of inflation on the taxation of corporate source income in the USA. They went beyond inflation accounting and the three major adjustments in the company accounts, and took into consideration the change in the tax revenue from the lenders to the corporate sector as well as from dividend recipients. They gave an empirical estimate of the net overtaxation of corporate source income for the year 1977, considering all these adjustments. They also calculated the overestimation of income and the extent of overtaxation due to inflation through depreciation and inventory valuation only for the years 1954-77. Their results clearly showed that between 1954 and 1969, the rate of inflation was not very high, nor were the distortions. But from 1969 onwards the high rate of inflation led to correspondingly large distortions. The peak was in 1974 when profits were overstated by 61.8 per cent due to these two distortions. The tax burden would have been 69.5 per cent lower if adjusted profits formed the tax base instead of the nominal profits.

The authors' comprehensive calculations for 1977 showed that inflation caused an overstatement of profits by a little more than $ 32 billion. The total effective tax rate on corporate sector capital income was 66 per cent; without inflation, this rate would have been only 41 per cent.

The authors gave estimates by industry groups, besides the

aggregate estimate. Among the manufacturing industries, Lumber Products, Paper & Paper Products, Rubber & Miscellaneous Plastics, and Primary Metals suffered greater overtaxation due to inflation than other industries. Their tax liability would have been almost zero had inflation not occurred. The least-affected group was Non-Electrical Machinery, which would have paid only 17.8 per cent less than its actual tax liability without the inflation.

Peter Hart's paper (Hart, 1980) is based on the inflation-adjusted accounts prepared by 120 industrial corporations in the USA, as required by FAS 33. He tabulated the effect of CPP accounting and CCA on certain items in the accounts for the year 1979. He showed that the recalculated income from continuing operations came down to 60 per cent and 61.4 per cent of traditionally calculated income when CPP and CCA respectively were used. The return on net asset came down to 7.9 per cent instead of 16.3 per cent. The effective income tax rate went up to 59.4 per cent and 54.6 per cent from 41.1 per cent with the use of CPP and CCA, respectively.

He also provided analysis of the inflation-adjusted accounts of 215 companies divided into five groups. For industrial companies the historical-cost return on net assets was 17 per cent, which fell to 8 per cent when either CPP or CCA was employed. The effective tax rate rose from 39 per cent to 53 per cent. For financial companies the rate of return fell only slightly, from 14 to 13 per cent, when historical cost accounting was substituted by CPP accounting. The effective tax rate did not change. For retailing trade, the fall in the rate of return was from 16 per cent to only 5 per cent and the rise in the effective tax rate was from 42 per cent to 68 per cent when CPP method was employed. In transportation also similar results were observed. For utilities, the rate of return fell from 10 per cent to 4 per cent with the CPP method, and further to 2 per cent with CCA. The effective tax rates went up from 34 to 62 per cent and 78 per cent, respectively. The nominal growth of sales for the five groups turned out to be, on average, about twice the real growth.

Now to briefly recapitulate the findings of two Indian studies on the subject.

The FICCI study (1979)[1] showed that for companies like India Cements, Hindustan Motors, Tata Iron & Steel Co. (TISCO), Hindustan Aluminium and Tata Engineering & Locomotive Co. (TELCO) the nominal profits disappeared with inflation accounting and that the first four actually were incurring losses. Some companies, on the other hand, would have reported higher profits before tax, but by not more than 48 per cent. A group-wise study showed that inflation accounting would have reduced profits before tax of companies in the basic metals group the most (by about 72 per cent) and those of companies in the utilities group the least (by only about 5 per cent). The average fall in profits before tax over the various groups due to inflation accounting is around 33 per cent.

The Study Group on Inflation Accounting (1978) dealt with the advisability, methods and implications of inflation accounting in India. It was more in the nature of a survey of the issues than a set of recommendations on steps to be taken. They did recommend, however, partial introduction of inflation accounting (for public sector companies and large private sector companies), though they did not think it advisable to base the corporate income tax on inflation-adjusted profits. Some rough calculations on depreciation adjustment for inflation were also reported. In 1975-76, the calculations show, the upward revision in depreciation would have been about 73 per cent of the historical cost depreciation for large and medium public limited companies. For Central government public enterprises, this figure would have been higher at around 77 per cent in 1976-77.

In sum, though the need for inflation accounting is generally agreed upon and though the debate on the method to be employed has come to centre on one of the two—CCA and CPP—, there still remain some areas of disagreement. However, the choice between CCA and CPP is the most important and most elusive. As for the impact of inflation accounting, the results of empirical exercises seem to indicate that the gearing ratio is the key variable. Companies with high leverage would not gain much (and may actually lose due to the introduction of

[1]The FICCI publication actually referred to a study by Ramesh Gupta and L.C. Bhandari. More details of the study are now available in Gupta (1983), pp. 59-83.

inflation accounting, but companies with low leverage would certainly gain. In terms of taxation, there are other factors to be considered, the most important being the extent and type of inflation accounting allowed and whether its coverage is total. Complete inflation adjustment with wide coverage (both at corporate and personal levels) may not alter the tax revenues very much. At the disaggregated level, the impact of inflation adjustment is, however, quite important.