The Incidence of the Corporate Profits Tax Revisited: A Post Keynesian Approach

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Introduction

The views regarding the incidence of the corporation income tax are varied, and the economics profession has not yet reached a definite conclusion as to who bears the burden of the tax. The incidence of the corporation income tax remains one of the most controversial subjects in economics. Pechman (1987) cites a number of studies and describes the various short-run and long-run shifting mechanisms that are utilized in describing the incidence of the corporation income tax. However, Pechman does not explore the post Keynesian contributions. In this paper, the incidence of the corporate **profits** tax is explicitly considered within the Keynesian tradition.[1] In this tradition, the economy is assumed to operate with excess supplies of labor and capacity. As a consequence, broad based tax changes impact on aggregate demand, employment and real output, and these macroeconomic effects come to bear on the incidence of corporate profits tax.

In this paper the Harbergeresque approach is considered in light of the contributions of post Keynesians; the short period and long period incidence of the corporate profits tax is

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[1]Taxes derived from other sources of capital income will be ignored as the incidence of these taxes, as shown by Asimakopulos and Burbidge (1974), are determined by the operation of different influences in the economy. In the neoclassical approach, taxes on income from capital (taxes on profits, dividends and interest) affect the user costs of capital and, therefore, the demand for capital. It is this theory that allows for the lumping of taxes on income from capital into the analysis of corporate tax incidence.

discussed; an analytical framework is set up for analyzing the incidence of the corporate profits tax; and some empirical observations are made. The incidence of the corporate profits tax is shown to be largely dependent upon the government's budget stance, corporate pricing decisions; corporate investment decisions and household savings decisions. These latter private sector effects, insofar as they mitigate the budget stance's impact on the incidence of the tax, are considered to be indirect and relatively weak. As a consequence, the government budget stance is the primary factor determining the incidence of the corporate profits tax. In light of these findings, the desirability of the corporate profits tax is reconsidered and some policy implications are explored.

Harbergeresque Models.

According to Gravelle and Kotlikoff (1989, p. 750), the corporation income tax model as developed by Harberger 1962 has become "remarkably influential, . . . vanquished earlier . . . analyses, and has shifted the debate from one of theory to . . . proper measurement of the model's parameters." The Harberger model assesses the corporation income tax incidence using a two sector (corporate and noncorporate) pre-Keynesian model. In this model, savings, if it takes place at all, impacts on the level of investment, and capital and labor are assumed to be fully utilized. The imposition of the corporation income tax, in the short-run, assuming profit maximization and perfect competition, reduces the after-tax rate of profits causing corporate capital to bear the full incidence of the tax. In the long run, the extent to which the corporation income tax is shifted depends upon the relative shifts in the demand for and supply of corporate "capital." The corporation income tax reduces the

demand for capital through two channels: 1) a reduction in the after tax rate of return; and 2) an increase in the relative price of goods produced in the corporate sector.[2] The decline in the supply of corporate capital is caused by a capital flight into the non-corporate sector. If the decline in the demand for capital is greater than the reduction in the supply of corporate capital, then corporations, in the long run, bear some, all or more than all of the increase of the corporation income tax. Gravelle and Kotlikoff (1989) modify the standard Harberger model by allowing corporate and noncorporate production in the same sector,[3] and by allowing for intra-sector substitution of products and factors while maintaining the basic pre-Keynesian assumptions. As a consequence, the thrust of their conclusions are the same as Harberger's. Corporate capital fully bears the burden of the corporation income tax in the short run, and the long-run incidence depends upon factor and product elasticities of substitution and the relative elasticities of product demand, among other things. Gravelle and Kotlikoff (1989, p. 779) end their article by hoping for a "rebirth of analytical attention to the

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[2]The corporation income tax increases the price of capital relative to labor. The increase in the relative price of capital induces a greater use of labor. The increased use of labor results in an increased marginal cost and in the corporate sector price level. See Stiglitz, 1988, pp. 567 - 571.

[3]According to Gravelle and Kotlikoff (1989, p. 750), the standard Harberger model allows for differential tax analysis of capital producing different products, but not for the analysis of corporate taxation, per se.

[question of] . . . what the corporation income tax precisely does."

Even though the Harbergeresque models have enjoyed great popularity and have served as the basis for a number of empirical studies, these models have been shown to be irrelevant--ignoring the central features of a capitalist economy and empirically inconsistent--incorporating ad hoc Keynesian cyclical variables into pre-Keynesian models (see Burbidge, 1976). Following the work of Kalecki (1971/1937), Asimakopulos and Burbidge (1974) show, in assessing the impact and incidence of taxation, that the aggregate demand effects must be considered following a change in any broad based tax. These aggregate demand effects are related to the government budget stance, and to the response of business pricing decisions. For example, government may increase its spending or reduce other taxes in response to an increase in the corporate profits tax, and/or corporations may increase their markups and prices in response to increases in the corporate profits tax.

In studying the incidence of taxation, post Keynesians have found it convenient to break the study up into two parts: 1) a study of short-period tax incidence; and 2) a study of long-period tax incidence. In the Harberger approaches, the short period is defined in the classical sense: as the time where the corporate sector's capital stock remains constant following a change in the corporate tax. With constant capital stock and demand conditions and with no substitution of labor for capital, marginal cost, and, thus price, remains constant following a change in the corporate tax rate.[4] In contrast, post Keynesians, like

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[4]This approach has caused others, like Musgrave and Musgrave (1989), to conclude that short-run shifting is the consequence of non profit maximizing behavior.

Asimakopulos and Burbidge (1979), define the short period as the time where investment is fixed (by past decisions) and capacity utilization varies with respect to changes in aggregate demand. Asimakopulos and Burbidge (1979, p. 71) argue that the short period, as so defined, can be measured in . . . "calendar time, for example a quarter of a year, a half of a year or even a year . . ." The long period is that time where capacity also varies--where past investment decisions impact on the present.

A Framework for Assessing Tax Incidence.

In order to analyze the incidence of the corporate profits tax, an accounting identity for corporate profits is derived from the National Income and Product Accounts (NIPA). This identity is similar to Kalecki's (1968) famous profit identity which shows the various sources of aggregate profits. The corporate profits identity utilized here was illustrated by Levy and Levy (1983). On the aggregate, profits are shown to be related to investment, the government budget surplus and personal savings, among other things. Aggregate profits are caused by investment, for example, because businesses cannot decide to earn profits but businesses can make decisions that impact on profits (see Kalecki 1968, p. 55). As Levy and Levy (1983) show, manipulation of the savings and investment identity in the NIPA yields the following expression for corporate profits (see the Appendix for the complete derivation):

Post-tax corporate profits with inventory valuation and capital consumption adjustments

=	Gross Investment
+	Government budget deficit
+	dividends
-	Personal Savings

- Consumption of Fixed Capital
- Wage accruals less disbursements
- Capital grants received by the U. S. (net)
- Statistical Discrepancy

By recognizing that the consumption of fixed capital can be broken down into corporate and noncorporate components; and by adding the corporate component to both sides, and by subtracting the capital consumption and inventory valuation adjustments from both sides, and by adding corporate net interest to both sides, gross post-tax corporate profits can be written as (see the Appendix):

Gross post-tax corporate profits (=undistributed corporate profits + dividends + corporate net interest + corporate consumption of fixed capital)

= Gross Investment
- Corporate inventory valuation adjustment
- Corporate capital consumption adjustment
+ Government budget deficit
+ dividends
+ corporate net interest
- Personal Savings
- Noncorporate capital consumption allowance with inventory valuation and capital consumption adjustments
- Wage accruals less disbursements
- Capital grants received by the U. S. (net)
- Statistical Discrepancy

This latter expression will serve as the basis for analyzing the incidence of the corporate profits tax.

Determining what post-tax corporate profits would be in the absence of a change in the corporate profits tax is more complicated than that implied by the identity: that a dollar

increase in the corporate profits tax reduces post-tax corporate profits by one dollar. The complication arises because other things are not constant with respect to the change in the corporate profits tax. Following a change in the corporate profits tax, other tax receipts and/or government purchases may change, and these changes can generate aggregate demand effects. (see Burbidge, 1976, p. 229). As a consequence, the incidence of the corporate profits tax is analyzed by considering the macroeconomic adjustments that result from a change in the tax and how these adjustment come to bear on corporate profits. As Asimakopulos and Burbidge (1979, p. 79) stress, a "causal story" is needed to explain the incidence of the corporate profits tax; and as Burbidge (1976, p. 233) stresses "macro models *with micro foundations* [Burbidge's emphasis] which link short period stories will provide a consistent and useful approach" for analyzing the incidence of taxation. Unfortunately, macro models have not explicitly considered the incidence question, for example see Arestis and Driver (1988) and Eichner (1979). As such, in the next section a small macro model is constructed to illustrate the short-period and long-period incidence of the corporate profits tax, but first a causal story is considered.

A causal story. To illustrate the incidence of the corporate profits tax, suppose that the latter four categories of the post-tax corporate profits identity are zero, therefore, the analysis of the incidence of the corporation profits tax can be restricted to the tax's impact on gross investment, the government budget deficit and the difference between the sum of corporate net interest and dividends and personal savings. In the short period, assuming gross investment is fixed by past decisions, the incidence of the corporate profits tax is limited to the tax's impact on the government budget deficit, and the difference between the sum of

corporate net interest and dividends and personal savings.[5] Under a balanced budget constraint (with compensating changes in government spending),[6] a tax change, like an increase in the corporate profits tax, that leads to an increase in aggregate demand, through a balanced budget effect, will, under competitive conditions, cause an increase in business markups and prices which will, in turn, reduce real wages and personal savings, and increase post-tax corporate profits.[7] Under non-competitive conditions, with personal savings insensitive to changes in current income, aggregate post-tax profits will be unaffected by a change in the tax. In the long period, assuming competitive conditions, the short-period increase in profits leads to additional profits to finance investment, and, as a consequence, current investment decisions and future investment expenditures and profits increase. In contrast to the Harbergeresque models, the post Keynesian approach allows for partial, full or

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[5]As Kalecki (1971/1937) showed, under some restrictive conditions and a balanced budget constraint, an increase in profits tax has no impact on the aggregate level of profits.

[6]Competitive conditions refer to a situation where the price of wage goods rise in response to a change in aggregate demand (see Asimakopulos and Burbidge 1979, p.76), and noncompetitive conditions refers to a situation where the price of wage goods remain constant with respect to a change in aggregate demand.

[7]On the basis of this conclusion, Burbidge (1976) considered the Harbergeresque models irrelevant and inconsistent (when such models include ad hoc Keynesian cyclical variables).

more than full shifting of the corporate profits tax in the short-run, even under competitive conditions; and the impact of the corporate profits tax in the long period is tied to, not independent of, the short period tax incidence. These results are expressed more formally in a simple macro model.

A Corporate Tax Incidence Model

To begin, the profits identity is rewritten as:

(1) $P = I + X - (Tn-G) + D - Sp - Z$;

where P = gross post-tax corporate profits; I = gross private domestic investment less the inventory valuation adjustment; X = net foreign investment; Tn = net (of transfer payments) government receipts; G = government purchases; D = the sum of corporate net interest and dividends; Sp = personal savings; and Z = the sum of noncorporate consumption of fixed capital, wage accruals less disbursements, capital grants received by the U. S. and the statistical discrepancy.

In order to determine the incidence of the corporate profits tax, the structural determinants of the variables on the right hand side of the identity are briefly considered. For the sake of simplicity, net foreign investment and the sum of wage accruals less disbursements, capital grants to the U. S. and the statistical discrepancy are treated as exogenous variables.

Gross private Investment. Gross private investment, by definition, is the sum of gross fixed investment, residential construction and changes in business inventories. To

simplify the analysis, the determinants of business fixed investment will be considered, and the other categories will be ignored.

Following Kalecki (1968 and 1971/1968) fixed investment is expressed as a function of the past level of entrepreneurial savings, changes in a past level of profits; i.e.:

(2) $I_t = I(SE_{t-\tau}, \Delta P_{t-\tau})$;

where SE = entrepreneurial savings (the internal savings of the corporation plus the personal savings of controlling group (see Kalecki, 1968, p. 97)); and τ = the time lag necessary for investment decisions to be translated into investment expenditures. According to Kalecki (1968), firms will be induced to undertake new investment following a change in the economic environment. A change in the economic environment occurs when businesses accumulate savings out of profits and when the rate of profits change. The latter term in equation 2 largely determines the change in the rate of profits. Since no precise measure controlling group's personal savings exists, it assumed to be a function of corporate profits and it is written as:

(3) $SE = SE(P)$.

Thus equation 2 is rewritten as:

(2') $I_t = I(P_{t-\tau}, \Delta P_{t-\tau})$.

Government purchases. Government purchases are assumed to be dependent upon net tax receipts and the purchases of the previous period; i.e.:

(4) $G_t = G(Tn_t, G_{t-1})$.

This equation is used to judge the short-period government budget stance, and any long-

period dynamic relationship between government purchases and net tax receipts is ignored.[8]

Net Government Receipts. Net government receipts by definition equal gross government receipts less transfer payments. Here transfer payments are broadly defined as government expenditures less government purchases of final goods and services. As such, net tax receipts are written as:

(5) $Tn = Tp + Tc + Ti + Tcsi - GTP$

where Tn = net tax receipts, Tp = personal tax receipts; Tc= corporate profit tax receipts (accruals); Ti = indirect business tax receipts; Tcsi = contributions to social insurance; and GTP = government transfer payments. As a first approximation, expressions for the right hand side of 5 are found.

Total personal taxes are written as a function of personal income; i.e.:

(6) $Tp = Tp(Yp)$;

where Yp = personal income. In a similar manner, the corporate profits tax is written as a function of the pre-tax corporate profits and the corporate profits tax rate; i.e.:

(7) $Tc = Tc(tc, Pg)$;

where tc = corporate profits tax rate; and Pg = pre-tax net corporate profits. The remaining variables in net tax receipts are combined and simply expressed as a function of aggregate

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[8]The presence of a long period (dynamic) relationship between government spending and taxation has been described by Peacock and Wiseman (1961). Although this has not yet been considered, their theory of public sector growth has relevance for the analysis of tax incidence.

income; i.e.:

(8) $T' = T'(Y)$;

where T' = the sum of indirect business taxes, contributions for social insurance less government transfer payments; and Y = aggregate income.

Corporate Net Interest and Dividends. As a first approximation, the sum of corporate net interest and dividends is simply expressed as a function of gross post tax profits; i.e.:

(9) $D = D(P)$.

Personal Savings. Personal savings is represented simply as a function of disposable personal income and a past level of personal savings. Thus personal savings is expressed as:

(10) $Sp_t = Sp(Yd_t, Sp_{t-1})$;

where Yd = disposable personal income.

Aggregate Income. Aggregate income, like in Kalecki's 1968 model, is expressed as a function of a distribution parameter, the wage share,[9] which may vary with respect to the change in corporate profits tax (see Laramie and Mair 1993), and the aggregate level of pre-tax corporate profits; i.e.:

(11) $Y = Y(\alpha, Pg)$;

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[9]Kalecki (1968) illustrated this relationship by writing the wage and salary share as: $V/Y = B/Y + \alpha$; where V = the pre-tax wage and salary bill; B = pre-tax salaries. By defining $V = Y - Pg$ and collecting terms: $Y = [B + Pg]/(1-\alpha)$.

According to Kalecki (1968, p. 61), "national income . . . is pushed up to a point at which profits out of it are determined by the distribution factors."

where $\mathfrak{a}$ = the wage share; and the wage share can be written as:

(12) $\mathfrak{a} = \alpha(tc)$.

To complete the model, disposable personal income, pre-tax net profits and disposable personal income are respectively defined. To simplify the analysis we assume that disposable income can be written as:

(13) $Yd_t = Y_t - NCCAo - T' - Tp - (Pg - D)$;[10]

where NCCAo = the noncorporate consumption of fixed capital (assumed to be exogenous). Pre-tax corporate profits gross of corporate consumption of fixed capital is defined as:

(14) $Pg = P + Tc$;

and personal income is defined as:

(15) $Yp = Yd + Tp$.

Within this framework, both the short-period and long-period tax incidence is discussed. In particular, two cases are considered: a) fixed government purchases, i.e. $dG/dT = 0$; and b) a balanced budget constraint, i.e $dG/dT = 1$.

Fixed Government Purchases. In this case, assuming the increase in the corporate

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[10]The National Income and Product Account definition of disposable personal income is: Y + (RFI - PFI) - NCCAo - T' - SD - (Pg - D) + IPCB - BTPF - WAD -Tp; where RFI = receipts of factor income from the rest of the world; PFI= payments of factor income to the rest of the world; SD = statistical discrepancy; IPCB = interest paid by consumers to businesses; BTPF = business transfer payments to foreigners; and WAD = wage accruals less disbursements.

profits tax rate results in an increase in government tax revenues, corporate post-tax profits fall. To illustrate, consider the case where all profits are retained by businesses and the only tax is the corporate profits tax. Given that investment is exogenous in the short period, an increase in the corporate profits tax has no impact on aggregate demand, aggregate income, disposable personal income and personal savings.[11] The decline in corporate profits is attributable to the decline in the government budget deficit. This decline in corporate profits is dampened, if corporations increase their markups with respect to the increase in corporate profits tax rate **and** if the increase in markups reduces personal savings. The increase in the corporate profits tax rate, via a change in corporate markups, reduces the distribution parameter and aggregate demand, which, in turn, reduces the levels of income and personal savings. It is through the decline in personal savings that the corporate profits tax is shifted in this contractionary budget stance.[12] These results are expressed formally in the Appendix

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[11]The increase in the corporate tax has no impact on disposable personal income because pre-tax profits, which are removed from aggregate income in deriving disposable personal income, is unaffected by the increase in the corporate profits tax.

[12]In an open economy, assuming import substitution, the ability of domestic corporations to change raise markups with respect to an increase in the corporate profits tax is limited by the degree of international competition. An increase in imports diminishes the extent to which the corporate profits tax is shifted.

for the model outlined above.

In the long period, investment may respond to these changes. Insofar as the increase in the profits tax rate has reduced the level of profits, future investment will decline. This decline in investment will increase corporation's tax burden over the long period, as investment is a source of profits.

If businesses increase their markups and, hence, personal savings declines, the level of profits may be restored, but the resulting fall in the aggregate levels of demand and income may discourage future investment and, thus, increase the long-period tax burden.

A Balanced Budget Constraint. In the short period, with constant markups, the change in the corporate profits tax still has a negative impact on level of profits, but this negative impact is less than in the previous case. The increase in the corporate profits tax, insofar as it results in additional profit tax revenues, will increase the level of gross profits, via the balanced budget effect, and, given the distribution parameter, increase the aggregate and disposable levels of income. The rise in disposable personal income increases personal savings and reduces after tax profits. In this case, a sufficient condition, but not a necessary condition for post-tax profits to remain constant is for personal savings to remain unchanged with respect to the increase in disposable income.[13] Again, if corporations alter their

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[13]An implication derived from this result is that government would have to increases its deficit with respect to the increase in the corporate profits tax in order for post tax profits to remain constant. Also, you might consider the special case where the marginal propensity to save is approximately one (like in Friedman's permanent income hypothesis).
In this case, the associated rise in personal savings further reduces post tax profits. The

markups in response to the change in the corporate profits tax rate, then the effect described in the previous case applies.[14] Corporations regain some of their profits but at the expense of the aggregate level of income. Again these results are formally expressed in the Appendix for the model outlined above.

The extent to which the long period tax burden changes depends upon the effects mentioned above. The rise in the corporate profits tax may inhibit further investment and increase the long-period burden of the tax.

Again if corporations alter markups in response to the tax change, the results of the previous case again hold.

Corporate Tax Changes and Profit Changes: A Look at the Data.

As indicated above, the short-period incidence of the corporation profits tax is widely influenced by two factors: 1) the government budget stance; and 2) the reaction of personal savings to a change in the corporate profits tax. An examination of annual corporate profits

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incidence of the tax lies somewhere between the constant government purchase case and the balanced budget case when $0 < MPS < 1$.

[14]Damania and Mair (1992), in the Kaleckain tradition, have argued, that under conditions of oligopoly, the markup may actually fall during an increase in aggregate demand. Conceivably this kind of aggregate demand pressure may swamp any pressure to increase markups following an increase in the corporate profits tax.

data, as published in the NIPA, suggests that conditions have been such so as to eliminate some of the effects the corporate profits tax has had on post-tax profits (the data is presented in Table 1A in the Appendix). These offsetting effects are not only reflected in changes in the government budget deficit and personal savings but also in changes in gross investment (which, in the short period, may represent a hangover effect). In assessing the impact of the corporate profit's tax on corporate profits, the overall trend in gross pre-tax profits, gross after-tax profits and the corporate profit tax shares of GDP are examined; and four corporate tax changes are considered: a) the increase in the corporate profits tax during the Korean war; b) the imposition of a surtax on corporate profits during the Viet Nam War (1968 and 1969); c) the increase in corporate profits tax following the 1986 Tax Reform Act; and d) the reduction in the corporate profits tax following the Economic Recovery Act of 1981. To illustrate, each of the sources of profits were deflated using the GDP deflator instead of their own particular deflator. This convention was adopted to insure that the right hand side of the profits identity added up to the left hand side--profits.[15]

Overall, during the period 1947 to 1991, the gross post-tax corporate profit share of

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[15]Kalecki (1968, p. 119) assumed that the price index to deflate investment goods was identical with the gross product deflator. Ideally profits should be deflated according to some weighted index of consumer goods and capital goods that are purchased with profits. However no such index exists (see Toporowski, 1992). Moreover, if each of the variables were deflated according to their own price index, there is no guarantee that the deflated sum of sources on the right hand side of the identity would add up to the deflated value of profits.

GDP appears to move inversely with the corporate tax share of GDP--see Figure 1. As shown in Figure 1, the gross post-tax corporate profit share of GDP appears to increase on a long-run trend, and the corporate profits tax share of GDP appears to decrease on a long-run trend. If the two series are combined, then the gross pre-tax profits share of GDP appears to exhibit a zero trend. This evidence suggest that corporations have been able to increase their share of GDP primarily through reductions in the corporate tax liability and that the incidence of the corporate profits tax, over the long period, by and large falls upon corporations (in the sense that corporations are able to capture the reduction in the corporate tax share of GDP). The evidence also suggests that changes in the corporate tax code have altered economic incidence of the profits tax.

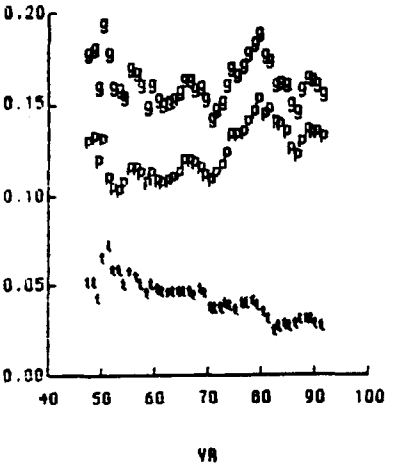

Figure 1. Gross Pre-Tax Profits Share of GDP (top); Gross After-Tax Profits Share of GDP (middle); Corporate Profits Tax Share of GDP (bottom) from 1947 to 1991.

Following the outbreak of the Korean war in 1950, an excess profits tax was placed on corporate profits and the corporate profits tax rate increased from 42% in 1950 to 50.75% in 1951 (see Pechman, 1987). In 1950, the real corporate profit tax liability jumped by about

73%, and real profits increased by about 20.2%. Moreover, in 1950, the corporate profit tax and profit shares of GDP increased respectively by 2.3 and 1.2 percentage points. In 1951 some of these effects were offset. The real corporate tax liability increased by about 20% while corporate profits fell by 9%; the corporate profit tax share increased by .6 of a percentage point and the profit share fell by 2.2 percentage points. If 1950 and 1951 are combined, then the 2.9 percentage point increase in the corporate profit tax share can be compared to a 1 percentage point decrease in the corporate profit share. These relative movements in the respective shares suggest some shifting of the corporate profits tax.

It is interesting to consider the sources of changes in corporate profits during these years. In 1950 the increase in corporate profits occurred during an investment rebound, with gross fixed investment increasing 53.8% over the previous year. Fixed, inventory and residential construction jumped significantly during 1950. However both public and private savings rose significantly. The real government deficit in 1949 of $16.6 billion was transformed into a real government budget surplus of $35.1 billion in 1950, while real personal savings rose by $25.7 billion or by 73%. Moreover personal savings minus the sum of corporate net interest and dividends increased by about $19.3 billion or by 1830%.[16] In 1951, real gross investment continued to grow and the government budget surplus declined,

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[16]The difference between between the sum of net interest and dividends and personal savings is akin to Kalecki's (1968) measures of the difference between capitalist consumption and worker savings. A rise in worker savings relative to capitalist consumption reduces the level of profits.

but real personal savings increased relative to the sum net interest and dividends. The $21 billion increase in personal savings relative to the sum of net interest and dividends accounts for much of the decline in profits.

The effects of the surtax on corporate profits during the Viet Nam War are somewhat similar. A surtax during the years 1968 and 1969 increased the corporate tax rate from 48% to 52.8% and the investment tax credit was suspended during the latter part of 1969 (see Pechman, 1987). The surtax was reduced and the corporate tax rate fell to 49.2% in 1970. It was eliminated in 1971. In 1968, the real corporate profits tax liability jumped by about 15% as real corporate profits increased by 1.5%. The real corporate profit tax share of real GDP increased by .4 of a percentage point while the corporate profit share fell by .3 of a percentage point. As in 1950, the increase in profits can be attributed, in part, to an increase in investment, as the government deficit fell. Gross investment increased by about 4.5%. Moreover, real personal savings declined by about 8.7%, and the difference between personal savings and the sum of corporate net interest and dividends decreased by about $17.6 billion or by about 30%. In 1969, real corporate profit taxes decreased by 4.1% and corporate profits declined by 1.2% as real gross investment rose by 6.6%. The decline in corporate profits can be attributed to the increase in the real government budget surplus offsetting the combined effects of the fall in the difference between real personal savings and the sum of corporate net interest and dividends and the rise in gross investment. In this year, both the real profit and the tax shares of GDP fell. Overall during the period, the corporate profits tax share increased by .1 of a percentage point while the profit share declined by .7 of a percentage point.

In 1986, following the Tax Reform Act, where depreciation rates were reduced and the investment tax credit was eliminated, the definition of taxable income was broadened and the corporate tax rate was decreased from 46% to 32%, the real corporate profits tax liability increased respectively by 7.5% and 15.6% in 1986 and 1987. In 1986, real corporate profits fell by 1% while real gross investment declined by 5.9%. This fall in investment accounts for a large part of the decline in profits as the real government deficit increased and the difference between real personal savings and the sum of corporate net interest and dividends declined. In 1987, real profits recovered as investment increased and the deficit contracted. The increase in profits in this year can be, by and large, attributed to a 26.6% reduction in personal savings (as the sum of corporate net interest and dividends remained roughly constant) and to the 4.4% increase in gross investment. In 1986, the corporate profits tax share remained roughly constant while the profit share declined by about .5 of a percentage point. In 1987 both shares increased. If both 1986 and 1987 are combined, the profit and tax shares both increased by .4 of a percentage point.

Following the Economic Recovery Act of 1981, which accelerated the depreciation rates and liberalized the investment tax credit, the real corporate tax liability fell by about 26.7% in 1982 and then increased by 17.9% in 1983. In 1982 corporate profits fell by about 6.2% as real gross investment decreased by about 19.4%. The 238% increase in the government budget deficit reduced the fall in profits. In this year, both the profit tax and profit shares decreased respectively by .7 and .6 of a percentage point. In 1983 profits increased by 3% as gross investment declined by 6.7%, because the government budget deficit increased by 23.9% and personal savings relative to the sum of corporate net interest

and dividends fell by 23.6%. For 1982-1983 combined, the corporate tax and profit shares declined respectively .4 and .7 of a percentage point.

Table 1 below summarizes the movements in the real corporate profits tax, real post-tax corporate profits, profits share of GDP and the tax share of GDP for the above mentioned years. The less than or equal sign between the last two columns indicates whether the change in the profit share was less than, greater than or equal to the change in the tax share.

Year(s)	Corporate Profits Tax	Post-Tax Corporate Profits	Profits Share of GDP		Tax Share of GDP
1950-51	+	-	-	<	+
1968-1969	+	-	-	>	+
1982-83	-	+	-	>	-
1986-87	+	+	+	=	+

Table 1. The Movement in Post-tax Profits Immediately Following Major Corporate Tax Changes.

The evidence suggests that the impact of changes in the corporation profits tax on corporate post-tax profits was mitigated by changes in other factors despite the contractionary government budget stances in some years. In particular, when corporate tax rates were increased, and the government surplus increased, either increases in gross investment, perhaps due to a hangover effect, or a reduction in personal savings relative to the sum of net corporate interest and dividends offset, to some extent, the decline in profits. The important question, as stated above, is how are the factors on the right side of the profits identity related to each other and to the corporate profits tax. To determine this, the structural parameters of

the model have to be estimated. It is beyond the scope of this paper to estimate the structural parameters of a complete macro model. However, some key relationships will be examined.

A Statistical Illustration

In order to statistically illustrate the incidence of the corporate profits tax, specific expressions for post-tax corporate profits, gross investment, government purchases, personal savings, and aggregate income are examined. The shifting of the corporate profits tax is channelled through the profits equation and is affected by the behavior of gross investment, government purchases, personal savings, and the aggregate level of income, among other things.

The expression for corporate profits estimated is derived by assuming that the sum of dividends and net corporate interest can be written as:

(16) $D_t = Do + d_1(Pt) + d_2D_{t-1}$;

and by plugging this expression in to 1 and by collecting terms which yields:

(17) $P_t = Do/(1-d_1) + (I+X + G - Tn - Sp - Zo)_t/(1-d_1) + [d_2/(1-d_1)]D_{t-1}$;

where $Do/(1-d_1) > 0$, $1/(1-d_1) > 0$, and $d_2/(1-d_1) > 0$.

Recall that fixed investment changes in response to a change in the economic environment as determined by the level of entrepreneurial savings and the change in the rate of profits (influenced largely by changes in the level of profits). Thus fixed investment is written as:

(18) $I_t = b_1 + b_2(P_{t-t}) + b_3(\Delta P_{t-t})$;

where $b_1 > 0$, $b_2 > 0$, $b_3 > 0$.

The government purchase equation is written as a linear function of net tax receipts and government purchases of the past period: i.e:

(19) $G_t = ho + h_1(Tn_t) + h_2(G_{t-1})$;

where ho > 0, h1 >=< 0 (depending upon the government budget stance).

Personal savings is expressed as a linear function of last period's level of savings and the current level of disposable income; i.e.:

(20) $Sp_t = Spo + s_1(Yd) + s_2(Sp_{t-1})$;

where Spo > 0; $0 < s_1 < 1$, and $s_2 > 0$.

Following Kalecki (1968), aggregate income can be written as a function of profits, by first specifying the wage and salary (gross of taxes) share as:

(21) $V/Y = B(1/Y) + \alpha$;

where V = wage and salary bill; B = the salary bill and α = the wage share of aggregate income. By defining $V = Y - \pi$, where π = pre-tax corporate profits + indirect business taxes + other incomes,[17] and by substituting this expression into 21 and collecting terms, aggregate income can be written as:

(22) $Y = (1/1-\alpha)[B + Pg + Ti + OIo]$;

where Ti = indirect business taxes; and OIo = other incomes (assumed to be autonomous). By assuming that the wage bill's share can be written as a function of the tax bill share of

[17]The other incomes include, for example, rental income, proprietors income, and net interest, which are assumed to be autonomous.

corporate cost in a previous period, through, for example, the corporate markup; i.e.:[18]

(23) $\alpha = \alpha o + \alpha_1[(TC/Yc\text{-}P)_{t\text{-}v}]$;

where Yc = the corporate domestic product, v = a previous period, 1 - 4, $\alpha o > 0$; and $\alpha_1 >=< 0$, depending upon the pricing behavior of firms, the aggregate level of income can be written as:

(24) $Y_t = B'/(1 - \alpha o - ti) + Pg/(1- \alpha o - ti) + \alpha_1[(Y_t)(TC/Yc\text{-}P)_{t\text{-}v}]/(1\text{-}\alpha o - ti)$;

assuming Ti = Tio + ti(Y); and where B' = B + Tio + OIo.

Empirical Estimates

Equations 17, 18, 19, 20 and 24 were estimated using quarterly data for four periods: 1947 - 1960; 1961 - 1972; 1973 -1980; 1981 - 1993:Q1. Each of the variables were deflated using the GDP deflator for the reason mentioned above. The method of estimation was either ordinary least squares or Beach and McKinnon's maximum likelihood method or the Corchrane and Orcutt's technique.[19] Investment was regressed using lags ranging from two to six quarters. Only a sample of these results are presented. The regression results are

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[18]I am grateful to Wynne Godley for suggesting the use of the ratio of corporate taxes to corporate costs.

[19]Ideally two or three-stage least squares should be used to estimate the structural parameters in a simultaneous equation system. The above techniques were utilized because a complete macro model was not specified, and the purpose of this analysis is strictly illustrative.

summarized in Table 2 below and the regression output is provided in the Appendix.

Table 2. Sample Regression Results (t-statistics in parenthesis).

1947:Q3 to 1960:Q4[20]

$P_t = .382 + 1.02(I+X + G - Tn - Sp - Zo)_t + .942D_{t-1}$ R2 = .99 DW = 2.01

(.227) (51.68) (16.40)

$I_t = 123.24 + .207P_{t-2} - .091(P_{t-2} - P_{t-3})$ R2 = .39 DW = 1.57

(5.02) (1.84) (-.989)

$G_t = 9.64 + .1271Tn_t + .856G_{t-1}$ R2 = .95 DW = 2.14

(.853) (2.00) (14.15)

$Sp_t = -23.75 + .058Yd_t + .407Sp_{t-1}$ R2 = .64 DW = 2.05

(-1.52) (3.22) (3.41)

$Y_t = 1332.06 + .842Pg_t + .438[(Y_t)(TC/Yc-P)_{t-2}]$ R2 = .62 DW = .925

(4.64) (5.19) (3.04)

1961:Q1 to 1972:Q4

$P_t = 1.94 + 1.02(I+X + G - Tn - Sp - Zo)_t + .942D_{t-1}$ R2 = .99 DW = 1.98

(.920) (58.55) (31.12)

$I_t = -25.0 + 1.03P_{t-2} - .520(P_{t-2} - P_{t-3})$ R2 = .86 DW = 1.54

(-1.39) (16.30) (-5.00)

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[20]The investment equation was estimated for the period 1947:Q3 to 1960:Q4, and the GDP equation was estimated for the period 1947:Q4 to 1960:Q4.

$G_t = 13.50 + .027Tn_t + .956G_{t-1}$ R2 = .99 DW = 1.53

(1.95) (.641) (23.82)

$Sp_t = -68.21 + .102Yd_t + .103Sp_{t-1}$ R2 = .52 DW = 1.84

(-1.80) (3.25) (4.72)

$Y_t = 1525.32 + 2.40Pg_t + .605([(Y_t)(TC/Yc-P)_{t-4}]$ R2 = .68 DW = 1.31

(4.16) (7.43) (1.58)

1973:Q1 to 1980:Q4

$P_t = -12.59 + 1.06(I+X + G - Tn - Sp - Zo)_t + .927D_{t-1}$ R2 = .99 DW = 1.83

(-1.68) (45.48) (16.74)

$I_t = 226.73 + .422P_{t-5} - .096(P_{t-5}-P_{t-6})$ R2 = .70 DW = 1.17

(3.37) (3.02) (-.602)

$G_t = 2.49 + .030Tn_t + .972G_{t-1}$ R2 = .95 DW = 1.78

(.089) (1.53) (21.65)

$Sp_t = 10.69 + .0122Yd_t + .792Sp_{t-1}$ R2 = .55 DW = 1.94

(.166) (.613) (5.05)

$Y_t = 2557.76 + 1.46Pg_t + .396[(Y_t)(TC/Yc-P)_{t-1}]$ R2 = .94 DW = 1.53

(12.89) (7.07) (1.70)

1981:Q4 to 1993:Q1

$P_t = 30.28 + .977(I+X + G - Tn - Sp - Zo)_t + .904D_{t-1}$ R2 = .99 DW = 1.97

(1.68) (22.26) (16.11)

$I_t = 331.40 + .288P_{t-2} - .012(P_{t-2} - P_{t-3})$ R2 = .81 DW = 1.12

(3.63) (1.87) (-.084)

$G_t = 21.78 + .012Tn_t + .969G_{t-1}$ R2 = .99 DW = 2.06

(1.69) (.446) (39.40)

$Sp_t = 213.85 - .0389Yd_t + .529Sp_{t-1}$ R2 = .58 DW = 2.09

(2.85) (-2.56) (4.07)

$Y_t = 3459.88 + 1.25Pg_t + .461[(Y_t)(TC/Yc-P)_{t-2}]$ R2 = .79 DW = .73

(6.22) (4.49) (1.84)

For the period 1947:Q3 to 1960:Q4 , the estimates suggest that very little tax shifting was occurring. Consider the latter three equations for this period. First, the relationship between the change in government purchases and the change in net tax receipts is relatively small at .1271. This coefficient suggests that government took a somewhat contractionary budget stance. Second, the coefficient on the latter term on the income equation is positive and statistically significant. This positive term indicates that the distribution parameter and the aggregate level of income moved in the same direction as the change in corporate profits tax's share of total costs (lagged two quarters). Insofar as this higher level of income encouraged additional savings, the level of profits is reduced, and the incidence of the tax on corporations is heightened. The extent to which the corporation profits tax incidence is heightened is relatively small though, given that the marginal propensity to save is small. For example, with the aggregate income to aggregate corporate cost (lagged two quarters) ratio equal to 2.30 (standard deviation = .12), the change in aggregate income given a dollar change in corporate profits taxes is 1.00 (2.30 times .438); and the change in personal savings given a change in corporate profits taxes is .058 (.058 times 1.00), ceteris paribus. If the government purchases and savings effects are combined, then the evidence implies that corporations shifted some, albeit a small portion, of the corporate profits tax during this period. This result can be formally represented by differentiating the profit equation with respect to a change in the corporate profits tax, TC, assuming that a dollar change in corporate profit taxes equals a dollar change in net tax receipts and that a dollar change in

disposable personal income equals a dollar change in aggregate income; i.e.:[21]

(26) $dP/dTc = 1/(1-d_1)[h_1-1-s_1(\alpha_1(Y_t)/(Yc-P)_{t-v} + 1/(1-\alpha o-ti))]/$

$\{1 + [1/(1-d_1)](s_1)[1/(1-\alpha o-ti)]\};$

or given the parameter estimates:

(26') $dP = -.974(dTc);$

The investment equation did not perform very well for this period. The profit level coefficient was statistically significant at the 90 percent confidence interval and the change in profit coefficient was statistically insignificant. Dynamic tax incidence effects, through business fixed investment are, therefore, expected to be relatively weak during this period.

For the period 1961:Q1 to 1972:Q4 similar results were obtained. However, no statistical relationship was found between net tax receipts and government purchases, and the marginal propensity to save and the tax coefficient in the aggregate income equation increased (the latter being statistically insignificant). Given that no statistical relationship was found between government purchases and net tax receipts, during a time when aggregate government deficits first became chronic (and somewhat erratic), it could be ventured that

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[21]Given the above assumptions, the change in post tax profits given a change in corporate profits tax is:

$dP/dTC = (\partial P/\partial G)(\partial G/\partial TC) + \partial P/\partial TC + (\partial P/\partial Sp)(\partial Sp/\partial Y)[(\partial Y/\partial Pg)(\partial Pg/\partial Tc) + \partial Y/\partial TC]$

$/ [1 - (\partial P/\partial Sp)(\partial Sp/\partial Y)(\partial Y/\partial Pg)(\partial Pg/\partial P)].$

government purchases arise independently from corporate profits tax receipts.[22] As a conservative guess, any tax shifting through the government's budget stance and the aggregate income equation is ignored; i.e. $h1 = \alpha_1 = 0$. Thus the change in profits given a dollar change in the corporate profits tax is: $dP = -1.03(dTc)$.

The investment equation estimates suggest that dynamic tax incidence effects were present during this sample period. Both the profits coefficient and the change in profits

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[22]Whether government would have substituted another form of taxation in the absence of the corporate profits tax is not known. However, if the government substituted the personal income tax for the corporate profits tax, the results would be quite similar. The increase in the personal income tax reduces disposable income, consumption and savings. The extent to which the rise in the personal income tax reduces corporate profits depends upon the difference between the rise in net tax receipts and the fall in personal savings. For example, in this period, a dollar increase in personal taxes reduces corporate profits by approximately \$.95 (1 - .048; where MPS = .048). If a personal tax were levied on specific types of households, with MPSs varying from the aggregate, then incidence of the tax would vary accordingly. In regard to the budget stance, in the process of aggregation, some important relationships may have been lost. For example, most of the states in the United States have balanced budget requirements. Under this law, states may determine their spending requirements then raise taxes accordingly. The state budget process (coupled with the deductibility of the state corporate profits tax at the Federal level) may thus generate an economic incidence of state corporate profits tax that is quite distinct from the economic incidence of the federal corporate profits tax.

coefficient are statistically different from zero.

However, the change in profits coefficient did not have the expected positive sign. Nonetheless, these results do suggest that corporations' incidence of the profits tax is heightened by the relationship between investment and profits. If, for example, a dollar decrease in the profits tax increases corporate profits by $1.03, then investment and corporate profits would increase by $.510 two quarters hence.[23]

For the period 1973:Q1 to 1980:Q4 similar results were obtained. However, the marginal propensity to save was not statistically different from zero. With a statistically insignificant MPS and a statistically insignificant tax coefficient in the aggregate income equation, corporations' short-period incidence of the corporate profit tax is: $dP = [-1/(1-d_1)]dTc = -1.06(dTc)$.

The investment equation estimates are very similar to those in the previous period and, again, suggests that dynamic tax incidence effects are present. Given the relationship of investment to the change in profits, a dollar reduction in corporate profit taxes increases investment and corporate profits by $.447 ($1.06 times .422) five quarters hence.

The period 1981:Q4 to 1993:Q1 bears some interesting results because the estimated marginal propensity to save is negative and statistically different from zero. This result indicates that the growth in income's impact on corporate profits is heightened by the behavior of savings. As a consequence, given the positive tax coefficient in the aggregate

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[23]The profit equation can be rewritten as:

$I_t = -25.0 + (1.030 - .520)P_{t-2} + .520P_{t-3}$.

income equation (which is statistically different from zero at the 90% confidence interval), the corporate burden of the tax is less than the legal burden; i.e dP = -.940(dTc); where the average ratio of real GDP to corporate costs (lagged two periods) equals 2.140 and its standard deviation is .054.

The estimates of the investment equation suggest that dynamic tax incidence effects are present although weak. The profits coefficient is statistically different from zero at the 90% confidence interval. These effects, again, will heighten corporations' burden of the tax in the long period.

Conclusions.

The purpose of this paper was to consider the factors that impact on the economic incidence of the corporate profits tax. If the market clearing/full employment assumption is dropped, then the incidence of the corporate profits tax can be analyzed using a Keynesian (macroeconomic) model. Within such a model the incidence of the corporate profits tax is determined by two sets of effects : 1) a public sector effect which depends upon the government's budget stance; and 2) a private sector effect which depends upon: a) the reaction of personal savings to the tax; b) the reaction of investment to the tax in the long period; and c) the change in corporate markups with respect to the tax. As shown, a dollar increase in the corporate profits tax, holding other things constant, results in a dollar reduction in post-tax corporate profits, but this effect is mitigated depending upon the public and the private sector effects. If the government spends the corporate profit tax receipts on final goods and services, corporations' incidence of the profits tax is reduced depending upon the

reaction of personal savings to the resultant change in aggregate income. Moreover, if corporations respond to the tax by altering markups, then the economic incidence of the tax may further vary from the legal incidence. These various effects impact on future investment, through profits, which may lead to cumulative incidence effects.

In determining the economic incidence of the corporate profits tax the relative strengths of these various effects must be considered. The government's budget stance is a policy decision and little a priori can be said about that. However, some speculation can be made about the relative strengths of the private sector effects. The private sector effects are expected to be relatively weak. First, consider the behavior of savings. If the marginal propensity to save is small, as the evidence suggests, then any change in personal disposable income given a change in the corporate profits tax is likely to have a small impact on post-tax corporate profits. Second, the degree to which corporations are able to shift the corporate profits tax through changes in corporate markups and the extent to which changes in profit margins impact on aggregate post tax profits is diluted by a number of factors. As stressed by Pechman (1987), businesses only know their tax liability ex post, and, therefore, the immediate shifting of the profits tax through markup changes is unlikely; and inter-firm rivalry may inhibit the degree to which the tax is shifted forward or backward. These sentiments are also expressed by Sylos-Labini (1979) in that nondirect costs may not be passed along due to "interfirm" differences.[24] However given data on the U. K., Coutts,

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[24]Ed Slattery has pointed out to me that the corporate profits tax is not either a direct cost or an overhead cost. It is not a direct cost because it is not known at the time of production. It is not an overhead costs because, in all likelihood, it varies with production.

Godley and Nordhaus (1978), in analyzing the relationship between profit margins and corporate taxes, have indicated that little shifting occurs in the short period (a year or less), and that there is some full or more than full shifting in the medium and long runs respectively. Even if full shifting or more than full shifting is the result, then the extent to which such shifting impacts on the level of aggregate post-tax corporate profits depends upon: 1) the change in aggregate income with respect to the change in profit margins; and 2) the extent to which personal savings changes with respect to the change in aggregate income. Again if the marginal propensity to save is relatively small, the change in corporate profits with respect to a change in corporate markups is expected to be relatively small. Moreover, if the marginal propensity to save is negative, the change in corporate post tax profits with respect to the change in corporate markups is negative when shifting through the markup is present. With the private sector effects relatively minute, the incidence of the corporate profits tax depends largely upon the government budget stance, and the economic incidence of the corporation profits tax is determined politically as reflected in the government's budget stance!

The major economic policy issue associated with the corporation profits tax is whether such a tax should exist at all. One of the arguments against the corporate profits tax is that it results in the double taxation of income which distorts capital resource allocation. Clearly if the government takes an appropriate budget stance with respect to the corporate profits tax, then such double taxation of income, for the corporate sector as a whole, need not arise.

Another important issue is whether the corporate profits tax should be reduced while government is downsized as a means to end the current era of stagnation (for example, see Norton, Fortune, 9/16/93, p. 34 - 48). As implied by the discussion above, such a policy is not likely to have much impact on corporate profits, and it may actually reduce corporate profits if the government, as a result, reduces the size of its deficit. Furthermore, the process of downsizing is likely to reduce aggregate income through a balanced budget multiplier effect.

In the same context, there have been calls to reduce or replace the corporate profits tax with some other type of tax--like a value-added tax. The discussion above indicates that there may be only small benefits from doing so. Taxes, in most forms, if not accompanied by government spending have a depressing effect on corporate profits. This depressing effect may be increased if the imposition of the value-added tax results in an increase in the marginal propensity to save. However, some gains could be derived from replacing the corporate profits tax with a value-added tax. First, the introduction of the value-added tax is more likely to generate a certain private sector shifting effect --as value-added tax is more like a direct cost than is the profits tax.[25] As a consequence the incidence of the tax will be better understood than the incidence of the corporate profits tax. Second, the value-added tax may result in a more efficient allocation of resources within the corporate sector. A more efficient allocation of resources can come about as relatively small corporations and large corporations have the same shifting basis, and investment and financial decisions are no

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[25]I am grateful to Tom Karier for pointing this out to me.

longer based upon tax considerations but upon economic considerations. However, whether these changes would result in additional future investment and higher corporate profits remains to be seen. Moreover, the impact on aggregate income of replacing the corporate profits tax with the value added tax is unknown. As shown in equation 24, the determinants of the aggregate income multiplier include the wage share and the average indirect business tax rate. With the introduction of the value-added tax, the average indirect business tax rate will increase, raising the size of the multiplier, but the wage share will decline reducing the size of the multiplier, if business markups are insensitive to the elimination of the corporate profits tax. The relative strengths of these opposing effects determine the change in the income multiplier with respect to the introduction of the value-added tax.[26]

Whatever the possibilities for the future, if we accept the old adage referred to by Stiglitz (1988) that "the best tax is an old tax," then the corporate profits tax is here to stay in some form. The question then is what can be done with the corporate profits tax to ensure economic growth. The realization that the economic incidence of the corporate profits tax is determined politically leads to some policy questions. For example:

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[26]To more formally illustrate this point, let $\alpha = 1/k$; where k is the markup. The markup by definition is: $k = po(1+ti)/wo(N/Q)$; where po = the initial price level; N = units of labor; Q = units of output. Differentiating the aggregate income multiplier with respect to a change in the indirect business tax rate yields: $[1/(1- \alpha o-ti)^2][1-(po(wo)(N/Q)/(po(1+ti))^2] > = < 0$.

1) Should the government make use of the corporate profits tax to finance public projects -- to build and rebuild infrastructure? If so, given a positive marginal propensity to save, how much of a deficit should the government run to ensure that the economic incidence of the corporate profits tax is zero?

2) Should the government use the corporate profits tax as a means to reduce poverty? If the recipients of government transfer payments have a marginal propensity to save equal to zero, then the tax incidence issues will be the same as in 1.

3) Should the corporate profits tax be earmarked for specific purposes--for example projects with a high degree of publicness within the corporate sector like research and development, job training and education. The private costs of these goods may be too high for individual corporations to bear. If the government makes provisions for these goods, by spending the corporate profits tax, then the economic incidence of the tax will be slight in the short run and negative in the long run as corporations benefit from the resulting productivity gains.

Finally this study has considered the determinants of the economic incidence of corporate sector as a whole and it has ignored the economic incidence of the corporate profits tax for an individual corporation. When government plays a large role in determining the economic incidence, it is the government distribution of spending and taxation across corporations that determines by and large individual corporation's tax incidence. The winners are those corporations that receive the benefits of government spending (directly or indirectly) in excess of their tax payments. The losers (and even some winners) may attempt to shift the tax through altering markups. Insofar as these individual corporations are able to adjust their markups, the corporate incidence of the profits tax may be negative. In contrast, if

government plays a passive role, where the budget process is totally ad hoc, where corporate profit taxes are unrelated to the rest of the budget, then the economic incidence of the corporate profits tax on individual corporations rest with individual corporation's ability to shift the tax through altering markups.

References

Arestis, Philip and Driver Ciaran (1988), "The Macrodynamics of the US and UK Economies through Two Post Keynesian Models," in Post Keynesian Monetary Economics, ed. Philip Arestis, Aldershot: Edward Elgar Publishing, 11 - 40.

Asimakopulos A., and Burbidge, J. B. (1974), "The Short-Period Incidence of Taxation." Economic Journal, 84, 267 - 288.

Asimakopulos A., and Burbidge, J. B. (1979), "Harberger and Kalecki on the Incidence of Taxation: A Critical Comparison." Greek Economic Review, 70 -81.

Burbidge, J. B. (1976), "Internally Inconsistent Mixtures of Micro- and Macrotheory in Empirical Studies of Profit Tax Incidence." Finanzarchiv, 35, 218 - 234.

Coutts, K., Godley, W. and Nordhaus, W. (1978) Industrial Pricing in the United Kingdom. Cambridge: Cambridge University Press.

Damania, Richard, and Mair, Douglas (1992), "The Short-Period Incidence of Taxation Revisited," Cambridge Journal of Economics, 16, 2, 195 -206.

Eichner, A. S. (1979), "A Post-Keynesian Short-Period Model," Journal of Post Keynesian Economics, 1, pp. 38 - 63. Reprinted in Malcolm C. Sawyer, ed. Post Keynesian Economics. England: Edward Elgar Publishing Limited, 1988.

Friedman, M. (1957) A Theory of the Consumption Function. Princeton, N. J.: Princeton.

Kalecki, M. (1937), "A Theory of Commodity, Income and Capital Taxation." Economic Journal, 47, 444 -450. Reprinted in Selected Essays on the Dynamics of a Capitalist Economy 1933 - 1970. Cambridge: Cambridge University Press, 1971.

Kalecki, M. (1968), "Trend and the Business Cycle." Economic Journal. Reprinted in Selected Essays on the Dynamics of a Capitalist Economy,1933 - 1970. Cambridge: Cambridge University Press, 1971.

Kalecki, M. (1968), Theory of Economic Dynamics. New York: Monthly

Review Press.

Laramie, Anthony J. (1991), "Taxation and Kalecki's distribution factors," Journal of Post Keynesian Economics, 4, 583-594.

Laramie, Anthony J. and Mair, Douglas (1993), "The incidence of business rates: A post Keynesian Approach." Review of Political Economy, 5, 55 - 72.

Levy, S. Jay and Levy, David A (1983) Profits and the Future of American Society. New York, New York: Harper and Row Publishers.

The National Income and Product Accounts of the United States, 1949 - 1993 Statistical Tables, United States Department of Commerce, Bureau of Economic Analysis.

Peacock, A. T. and Wiseman J. (1961) The Growth of Public Expenditure in the United Kingdom, National Bureau of Economic Research, New York.

Pechman, Joseph A. (1987) Federal Tax Policy, Washington, D. C.: The Brookings Institution.

Stiglitz, Joseph (1988) Economics of the Public Sector, second edition, New York, New York: W. W. Norton and Company.

Sylos-Labini, P. (1979),"Industrial Pricing in the United Kingdom." Cambridge Journal of Economics, 3,153 - 63. Reprinted in Malcolm C. Sawyer, ed. Post Keynesian Economics. England: Edward Elgar Publishing Limited, 1988.

Toporowski, Jan (1993), "Profits in the U. K.: some Kaleckian models." Review of Political Economy, 5, 40 - 54.

Appendix

Deriving the Corporate Profits Identity from the National Income and Product Accounts

In the National Income and Product Accounts the following relationships are defined:

GDP (expenditures) = Personal Consumption Expenditures (**C**)
+ Gross Private Investment (**I**)
+ Net Exports (**XNET**)
+ Government Purchases (**G**)

GNP = GDP
+ Receipts of factor income from the rest of the world (**XSF**)
- Payments of factor income to the rest of the world (**MSF**)

GDP = GNP
- Receipts of factor income from the rest of the world (**XSF**)
+ Payments of factor income to the rest of the world (**MSF**)

National Income (**NI**) = GNP
- Consumption of Fixed Capital (**NCCAJ**)
- Indirect Business Taxes (**NBTAX**)
- Business Transfer Payments (**NBTRAN**)
- Statistical Discrepancy (**NBSTAT**)
+ Subsidies less current surplus of government enterprises (**NGSUB**)

or:

National Income (**NI**) = Compensation to Employees (**YLE**)
+ Proprietors' Income (with capital consumption and inventory valuation adjustments) (**YOP**)
+ Rental Income (with capital consumption adjustment) (**YRI**)
+ Corporate Profits (with inventory valuation and capital consumption adjustments) (**YCP**)
Corporate Profits with IVA (**YCVA**)
Profits before tax (**YCBT**)
Profits tax liability (**YCTL**)
Profits after tax (**YCAT**)
Dividends (**YCAD**)
Undistributed Corporate Profit (**YCAU**)
Inventory Valuation Adjustment (**YCIVA**)
Capital Consumption Adjustment (**YCCA**)
+ Net interest (**YNI**)

Given these definitions, GDP is rewritten as:

(1A) GDP = YLE + YOP + YRI + YCP + YNI + NCCAJ + NBTAX + NBTRAN + NBSTAT - NGSUB - XSF + MSF;

or as:

(2A) GDP = C + I + XNET + G

Setting 1A equal to 2A and by defining consumption of fixed capital as:

(3A) NCCAJ = BALO + SANCALO;

where BALO = corporate consumption of fixed capital; and SANCALO = noncorporate consumption of fixed capital, and by solving for the sum of after tax corporate profits with inventory valuation and capital consumption adjustments and the corporate consumption of

fixed capital, yields:

(4A) YCAT + YCIVA + YCCA + BALO = C + I + XNET + G + NGSUB - YCTL - NBTAX- SANCALO - YLE - YOP - YRI - YNI -NBTRAN - XSF + MSF -NBSTAT

In order to derive the profit identity in the text, the following are added and subtracted on the right hand side of the equal sign in equation 4A: dividends (**YCAD**); personal tax receipts (**GRPTX**); government transfer payments (**GEXTR**); net interest paid by government (**GNETI**); dividends received by government (**GDIVC**); government wage accruals less disbursements (**GWAGE**); contributions for social insurance (**GRCSI**); wage accruals less disbursements (**WAGE**); personal transfer payments to foreigners (**PTPF**); capital grants received by the U. S. (net) (**XG**); and net corporate interest (**YCNINT**). This process yields:

(5A) YCAT + YCIVA + YCCA + BALO = C + I + XNET - GBAL + NGSUB - YCBT - NBTAX - SANCALO - YLE - YOP - YRI - YNI -NBTRAN - XSF + MSF -NBSTAT + YCAD - YCAD + YPX + GRCSI - GEXTR - GNETI + GDIVC + GWAGE + SAWA - WAGE + PTPF - PTPF + XG - XG + YCNINT - YCNINT;

where GBAL = the government budget surplus, and it is defined as:

(6A) GBAL = (YPX + YCTL + NBTAX + GRCSI) -(G + GEXTR + GNETI + GDIVC - GSUB + GWAGE)

Given the following National Income and Product Account definitions, the expression for corporate profits can be derived.

(7A) YCAD = YCDV + GDIVC;

where YCDV = personal dividend income; and GDIVC = dividend payments to government;

(8A) SAWA = GWAGE + WAGE;

where SAWA = total wage accruals less disbursements;

(9A) NBTRAN = NBTRNP + NBTRNF;

where NBTRNP = business transfer payments to persons; and NBTRNF = business transfer payments to foreigners;

(10A) GEXTR = GEXTRP + GEXTRF;

where GEXTRP = government transfer payments to persons; and GEXTRF = government transfer payments to foreigners;

(11A) GNETI = (GIPD - GIREC) + GIPDF;

where GIPD = interest paid by government to persons and business; GIREC = interest received by government; and GIPFD = net interest paid by government to the rest of the world;

(12A) YNI = YPIN - (GIPD - GIREC) - YNICB;

where YPIN = personal net interest; and YNICB = interest paid by consumers to businesses;

(13A) YP = NI - YCP - YNI - GRCSI - SAWA + YPIN + YPDV + GEXTRP + NBTRNP;

where YP = personal income;

(14A) YPD = YP - YPX;

where YPD = disposable personal income;

(15A) YPSV = YPD - C - YNICB - PTPF;

where YPSV = personal savings;

(16A) MINET = XNET + XG + XSF - MSF - GEXTRF - PTPF - GIPDF - NBTRNF.

Combining expressions 5A through 16A yields:

(17A) YCAT + YCIVA + YCCA + BALO = (I + MINET) - GBAL + YCAD + YCNINT - YPSV - SANCALO - SAWA - XG - RBS - YCNINT.

To derive the expression for gross post-tax profits, the inventory valuation adjustment and the capital consumption adjustment are subtracted from both sides of 17A and corporate net interest is added to both sides of 17A; i. e.:

(18A) YCAT + BALO + YCNINT = (I + MINET - YCIVA - YCCA) + YCAD + YCNINT - YPSV - SANCALO - SAWA - XG - RBS

The Comparative Statics of Corporate Profits Tax Incidence

The model described in the text (equations 1, 2' 3 - 14) can be condensed into 5 equations:

(19A) $P = I(P_{t-T}, \delta(tc)P_{t-T}, \Delta P_{t-T}) + Xo + G(Yp,tc, Pg,Y) - Tp(Yp) - Tc(tc,Pg) - Ti(Y) + D(P) - Sp(Yd, Spt-1) - Zo;$

(20A) $Y = Y[\alpha(tc),Pg)];$

(21A) $Yd = Y - CCAo - Ti(Y) - Tc(tc,Pg) - Tp(Yp) + P - D(P);$

(22A) $Pg = P + Tc(tc,Pg);$

(23A) $Yp = Yd + Tp(Yp).$

By differentiating this system of equations with respect to a change in the corporate profits tax rate, tc, and by using Cramer's Rule, the short-run incidence of the tax can be determined; i.e.:

(24A) $dP/dtc = \{e44(e26)\{e55(e32(e13) - e12) - ((e12)(e35)-e15(e32))\}$

$$+ e46\{e24(e12(e35)-e32(e15)) - e14(e35)\}$$

$$+ e55\{e46(e12(e24) - e14) + e44(e16) - e32(e46)(e13)e24\}$$

$$+ e44(e16)e35\} \;/\; \{e14(e35) - e24(e12(e35) - e32(e15))$$

$$+ e44(e11(e35) - e31(e15)) + e55\{e14 - e24(e12-e31(e13))$$

$$+ e44(e11 - e31(e13))\}\};$$

where:

$e11 = 1 - \partial D/\partial P > 0;$

$e12 = -\partial G/\partial Y + \partial T'/\partial Y >=< 0;$

$e13 = \partial Sp/\partial Yd > 0;$

$e14 = -(\partial G/\partial Pg) + \partial Tc/\partial Pg >=< 0;$

$e15 = -\partial G/\partial Yp + \partial Tp/\partial Yp >=< 0;$

$e16 = \partial G/\partial tc - \partial Tc/\partial tc >=< 0;$

$e24 = -\partial Y/\partial Pg < 0;$

$e26 = (\partial Y/\partial \alpha)(\partial \alpha/\partial tc) < 0;$

$e31 = (-\partial Yd/\partial D)(\partial D/\partial P)\ ;$

$e32 = (-\partial Yd/\partial Y) - (\partial Yd/\partial T')(\partial T'/\partial Y) < 0$

$e35 = (-\partial Yd/\partial Tp)(\partial Tp/Yp) > 0$

$e44 = 1 - \partial Tc/\partial Pg > 0$

$e46 = \partial Tc/\partial tc > 0$

$e55 = 1 - \partial Tp/\partial Yp > 0.$

If government purchases and the distribution coefficient remain constant with respect to changes in net taxes, then e12 > 0, e14 > 0, e15 > 0, e16 < 0, and e26 = 0. Under these assumptions, the numerator is strictly negative and the denominator is strictly positive. If e26 < O, the first term in the numerator is positive. This term shows the effect of tax shifting through changes in corporate markups as reflected in the distribution coefficient.

If government follows a balanced budget stance and the distribution coefficient remains constant with respect to changes in net taxes, then e12 = 0, e14 = 0, e15 = 0, e16 = 0, and e26 = 0. Again the numerator is strictly negative and the denominator is strictly positive. In this case the numerator reduces to -e24(e32)e46(e55)e13 < 0. If e26 <0, then the numerator is given by: e55(e32)e13[e44(e26) - e24(e46)] >=< 0. The numerator is positive, if e44(e26) > e24(e46).

Table 1A. Real Gross Post-Tax Corporate Profits and Sources (Constant (1987 Dollars) Source: THE NATIONAL INCOME AND PRODUCT ACCOUNTS, Statistical Tables 1946 - 1992.

Year	Real Gross Post-Tax Corporate Profit(1)	Percent Change	Real Gross Investment, Adjusted(2)	Percent Change
47.000	159.358	.	283.957	.
48.000	169.000	0.061	279.500	-0.016
49.000	152.764	-0.096	194.472	-0.304
50.000	183.663	0.202	299.010	0.538
51.000	167.136	-0.090	308.920	0.033
52.000	165.116	-0.012	264.651	-0.143
53.000	168.636	0.021	265.909	0.005
54.000	173.874	0.031	253.153	-0.048
55.000	198.690	0.143	312.227	0.233
56.000	204.661	0.030	334.322	0.071
57.000	203.279	-0.007	320.492	-0.041
58.000	191.165	-0.060	269.076	-0.160
59.000	212.109	0.110	307.422	0.143
60.000	208.462	-0.017	317.308	0.032
61.000	211.407	0.014	310.266	-0.022
62.000	225.651	0.067	329.368	0.062
63.000	236.765	0.049	347.059	0.054
64.000	258.123	0.090	379.783	0.094
65.000	289.789	0.123	422.887	0.113
66.000	306.463	0.058	444.898	0.052
67.000	309.901	0.011	420.792	-0.054
68.000	314.465	0.015	439.623	0.045
69.000	310.778	-0.012	468.563	0.066
70.000	302.557	-0.026	443.750	-0.053
71.000	325.337	0.075	476.011	0.073
72.000	352.442	0.083	524.422	0.102
73.000	395.157	0.121	645.278	0.230
74.000	423.451	0.072	639.823	-0.008
75.000	421.951	-0.004	540.650	-0.155
76.000	448.566	0.063	615.296	0.138
77.000	486.941	0.086	674.061	0.096
78.000	532.007	0.093	765.506	0.136
79.000	569.055	0.070	824.848	0.078
80.000	536.541	-0.057	756.346	-0.083
81.000	553.992	0.033	778.707	0.030
82.000	519.809	-0.062	627.446	-0.194
83.000	535.247	0.030	585.304	-0.067
84.000	549.835	0.027	659.934	0.128
85.000	528.496	-0.039	572.775	-0.132
86.000	523.323	-0.010	538.700	-0.059
87.000	580.700	0.110	562.200	0.044
88.000	632.177	0.089	634.104	0.128
89.000	644.015	0.019	665.746	0.050
90.000	651.015	0.011	631.509	-0.051
91.000	631.691	-0.030	625.404	-0.010

(1) Gross post-tax corporate profits equals the sum of after-tax corporate profits, net corporate interest and the corporate consumption of fixed capital.
(2) Gross investment adjusted equals the gross investment (business gross investment and net foreign investment) less the corporate capital consumption and inventory valuation adjustments.

Real Government Budget Surplus	Percent Change	Real Dividends & Net Corporate Interest (1)	Percent Change Savings	Real Personal	Percent Change
77.005	.	33.690	.	26.738	.
47.000	-0.390	33.500	-0.006	54.500	1.038
-16.583	-1.353	34.171	0.020	35.176	-0.355
35.149	-3.120	41.584	0.217	60.891	0.731
26.291	-0.252	37.559	-0.097	77.934	0.280
-16.279	-1.619	37.209	-0.009	80.000	0.027
-25.909	0.592	38.182	0.026	82.273	0.028
-32.883	0.269	40.090	0.050	72.973	-0.113
12.664	-1.385	44.105	0.100	69.432	-0.049
22.881	0.807	45.763	0.038	90.254	0.300
3.279	-0.857	46.721	0.021	93.033	0.031
-43.775	-14.351	46.988	0.006	96.787	0.040
-12.109	-0.723	48.438	0.031	85.938	-0.112
13.846	-2.143	50.769	0.048	79.231	-0.078
-11.407	-1.824	55.894	0.101	94.677	0.195
-10.781	-0.055	58.364	0.044	96.283	0.017
5.882	-1.546	61.765	0.058	90.809	-0.057
-5.776	-1.982	68.592	0.111	113.718	0.252
4.577	-1.792	78.169	0.140	121.831	0.071
-3.061	-1.669	82.653	0.057	123.810	0.016
-45.545	13.878	91.749	0.110	151.155	0.221
-14.465	-0.682	96.226	0.049	138.050	-0.087
29.940	-3.070	97.605	0.014	129.641	-0.061
-32.670	-2.091	98.011	0.004	163.352	0.260
-51.752	0.584	95.418	-0.026	176.280	0.079
-10.026	-0.806	95.373	-0.000	153.728	-0.128
16.707	-2.666	98.547	0.033	208.475	0.356
-9.956	-1.596	109.735	0.114	206.637	-0.009
-131.707	12.229	102.642	-0.065	203.862	-0.013
-73.231	-0.444	98.470	-0.041	177.820	-0.128
-30.054	-0.590	107.692	0.094	157.245	-0.116
4.975	-1.166	120.564	0.120	178.773	0.137
14.482	1.911	137.957	0.144	187.957	0.051
-49.233	-4.400	143.236	0.038	214.644	0.142
-38.403	-0.220	176.426	0.232	243.093	0.133
-129.594	2.375	177.446	0.006	238.067	-0.021
-160.505	0.239	179.449	0.011	193.685	-0.186
-119.429	-0.256	187.925	0.047	243.688	0.258
-132.733	0.111	195.975	0.043	200.530	-0.177
-151.496	0.141	218.163	0.113	193.498	-0.035
-111.700	-0.263	218.500	0.002	142.000	-0.266
-94.701	-0.152	224.855	0.029	150.000	0.056
-71.363	-0.246	257.919	0.147	140.055	-0.066
-122.242	0.713	261.165	0.013	150.044	0.071
-166.695	0.364	225.234	-0.138	171.198	0.141

(1) The series, net corporate interest, is unrevised.

Noncorporate Consumption of Fixed Captial	Percent Change	Corporate Profits Tax Liability	Percent Change	Profit Share of GDP	Percent Change
44.920	.	60.428	.	0.127	.
48.500	0.080	62.500	0.034	0.130	0.021
52.764	0.088	51.256	-0.180	0.117	-0.108
55.941	0.060	88.614	0.729	0.129	0.093
61.033	0.091	106.103	0.197	0.107	-0.204
64.651	0.059	90.233	-0.150	0.102	-0.058
66.364	0.026	92.273	0.023	0.100	-0.012
68.468	0.032	79.279	-0.141	0.104	0.037
70.306	0.027	96.070	0.212	0.113	0.075
74.153	0.055	93.220	-0.030	0.113	0.007
75.410	0.017	87.705	-0.059	0.111	-0.025
76.305	0.012	76.305	-0.130	0.105	-0.056
76.953	0.008	92.578	0.213	0.110	0.047
78.846	0.025	87.308	-0.057	0.106	-0.041
79.848	0.013	86.692	-0.007	0.105	-0.010
80.669	0.010	89.219	0.029	0.106	0.015
82.721	0.025	96.324	0.080	0.107	0.006
84.838	0.026	101.083	0.049	0.110	0.032
87.676	0.033	108.803	0.076	0.117	0.058
90.816	0.036	114.626	0.054	0.117	-0.001
94.389	0.039	107.921	-0.058	0.115	-0.015
97.799	0.036	123.899	0.148	0.112	-0.025
103.593	0.059	118.862	-0.041	0.108	-0.039
105.966	0.023	97.443	-0.180	0.105	-0.027
110.243	0.040	101.887	0.046	0.110	0.042
119.794	0.087	107.455	0.055	0.114	0.032
124.697	0.041	119.370	0.111	0.121	0.061
130.752	0.049	114.602	-0.040	0.131	0.078
136.992	0.048	103.455	-0.097	0.131	-0.002
140.727	0.027	122.753	0.187	0.133	0.013
148.122	0.053	130.590	0.064	0.138	0.038
157.711	0.065	138.474	0.060	0.144	0.040
168.598	0.069	134.146	-0.031	0.150	0.042
176.848	0.049	118.271	-0.118	0.142	-0.056
181.242	0.025	102.788	-0.131	0.144	0.015
185.442	0.023	75.298	-0.267	0.138	-0.043
184.615	-0.004	88.749	0.179	0.137	-0.010
183.754	-0.005	103.293	0.164	0.133	-0.032
187.182	0.019	102.225	-0.010	0.124	-0.074
190.299	0.017	109.907	0.075	0.119	-0.040
194.500	0.022	127.100	0.156	0.128	0.071
198.844	0.022	131.985	0.038	0.134	0.045
209.945	0.056	130.110	-0.014	0.133	-0.005
206.973	-0.014	122.330	-0.060	0.133	-0.002
206.287	-0.003	110.365	-0.098	0.130	-0.024

Profit Tax Share of GDP	Percent Change
0.048	.
0.048	-0.004
0.039	-0.181
0.062	0.585
0.068	0.093
0.055	-0.186
0.055	-0.011
0.047	-0.135
0.054	0.147
0.052	-0.052
0.048	-0.076
0.042	-0.124
0.048	0.148
0.044	-0.078
0.043	-0.030
0.042	-0.021
0.043	0.035
0.043	-0.006
0.044	0.018
0.044	-0.004
0.040	-0.083
0.044	0.103
0.041	-0.066
0.034	-0.180
0.034	0.015
0.035	0.005
0.037	0.055
0.036	-0.028
0.032	-0.096
0.036	0.131
0.037	0.019
0.037	0.011
0.035	-0.055
0.031	-0.114
0.027	-0.145
0.020	-0.251
0.023	0.133
0.025	0.097
0.024	-0.041
0.025	0.044
0.028	0.122
0.028	-0.001
0.027	-0.037
0.025	-0.071
0.023	-0.092

REGRESSION OUTPUT

1947:Q3 to 1960:Q4

FIRST-ORDER SERIAL CORRELATION OF THE ERROR
MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE
CONVERGENCE ACHIEVED AFTER 2 ITERATIONS

FINAL VALUE OF RHO = -0.282055
STANDARD ERROR OF RHO = 0.132604
T-STATISTIC FOR RHO = -2.12705

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GROSS POST-TAX PROFITS**

SUM OF SQUARED RESIDUALS = 151.563
STANDARD ERROR OF THE REGRESSION = 1.72390
MEAN OF DEPENDENT VARIABLE = 234.158
STANDARD DEVIATION = 28.3898
R-SQUARED = 0.996452
ADJUSTED R-SQUARED = 0.996313
DURBIN-WATSON STATISTIC = 2.0051
F-STATISTIC(2, 51) = 7161.50
LOG OF LIKELIHOOD FUNCTION = -104.529
NUMBER OF OBSERVATIONS = 54

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	0.3819478	1.679602	0.2274037
REAL EXPENDITURES*	1.016481	0.1966982E-01	51.67720
(Net Corp Interest+Div.)(-1)	0.9417928	0.5742398E-01	16.40069

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* Defined as corporate profits less the sum of net corporate interest and dividends

1948:Q1 to 1960:Q4

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 4 ITERATIONS

FINAL VALUE OF RHO = 0.952739
STANDARD ERROR OF RHO = 0.375187E-01
T-STATISTIC FOR RHO = 25.3937

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL FIXED NONRESIDENTIAL INVESTMENT**

SUM OF SQUARED RESIDUALS = 1782.88
STANDARD ERROR OF THE REGRESSION = 6.03202
MEAN OF DEPENDENT VARIABLE = 9.28674
STANDARD DEVIATION = 7.38434
R-SQUARED = 0.389176
ADJUSTED R-SQUARED = 0.364245
DURBIN-WATSON STATISTIC = 1.5693
F-STATISTIC(2, 49) = 13.7154
LOG OF LIKELIHOOD FUNCTION = -166.879
NUMBER OF OBSERVATIONS = 52

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	123.2382	24.55139	5.019601
Corp. Profits(-2)	0.2070622	0.1125467	1.839789
Change Corp. Profits(-2)	-0.9099487E-01	0.9197517E-01	-0.9893416

1947:Q3 to 1960:Q4

FIRST-ORDER SERIAL CORRELATION OF THE ERROR
MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE
NOTE: Lagged dependent variable(s) present
****
COCHRANE-ORCUTT ITERATIVE TECHNIQUE
CONVERGENCE ACHIEVED AFTER 2 ITERATIONS

FINAL VALUE OF RHO = 0.547231
STANDARD ERROR OF RHO = 0.141500
T-STATISTIC FOR RHO = 3.86736

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****
DEPENDENT VARIABLE: **REAL GOVERNMENT PURCHASES**
SUM OF SQUARED RESIDUALS = 3109.99
STANDARD ERROR OF THE REGRESSION = 7.88668
MEAN OF DEPENDENT VARIABLE = 142.667
STANDARD DEVIATION = 36.2634
R-SQUARED = 0.954520
ADJUSTED R-SQUARED = 0.952701
DURBIN-WATSON STATISTIC = 2.1354
F-STATISTIC(2, 50) = 524.694
LOG OF LIKELIHOOD FUNCTION = -183.114
NUMBER OF OBSERVATIONS = 53

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	9.643686	11.30340	0.8531672
Real Net Tax Receipts	0.1271077	0.6353034E-01	2.000739
Real Gov't Purch(-1)	0.8558099	0.6049842E-01	14.14599
RHO(-1)	0.5472314	0.1414999	3.867362

NOTE: STANDARD ERRORS ARE CONSISTENT IN THE PRESENCE OF LAGGED DEPENDENT VARIABLE(S).

METHOD OF ESTIMATION = ORDINARY LEAST SQUARES

NOTE: Lagged dependent variable(s) present
DEPENDENT VARIABLE: **REAL PERSONAL SAVINGS**
SUM OF SQUARED RESIDUALS = 8411.69
STANDARD ERROR OF THE REGRESSION = 12.8427
MEAN OF DEPENDENT VARIABLE = 73.4187
STANDARD DEVIATION = 21.0143
R-SQUARED = 0.640602
ADJUSTED R-SQUARED = 0.626508
DURBIN-WATSON STATISTIC = 2.0494
F-STATISTIC(2, 51) = 45.4520
LOG OF LIKELIHOOD FUNCTION = -212.929
NUMBER OF OBSERVATIONS = 54

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	-23.74793	15.66487	-1.516000
Real Disposable Income	0.5826453E-01	0.1809712E-01	3.219548
Real Pers. Savings(-1)	0.4071675	0.1193095	3.412699

DURBIN(1970) T-STAT FOR AR(1) = -0.497426

1947:Q4 to 1960:Q4

FIRST-ORDER SERIAL CORRELATION OF THE ERROR
MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE
CONVERGENCE ACHIEVED AFTER 2 ITERATIONS

FINAL VALUE OF RHO = 0.997977
STANDARD ERROR OF RHO = 0.282666E-02
T-STATISTIC FOR RHO = 353.058

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GDP**

SUM OF SQUARED RESIDUALS = 17047.2
STANDARD ERROR OF THE REGRESSION = 18.4647
MEAN OF DEPENDENT VARIABLE = 17.9273
STANDARD DEVIATION = 21.7972
R-SQUARED = 0.622143
ADJUSTED R-SQUARED = 0.607029
DURBIN-WATSON STATISTIC = 0.9250
F-STATISTIC(2, 50) = 11.2320
LOG OF LIKELIHOOD FUNCTION = -230.956
NUMBER OF OBSERVATIONS = 53

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	1332.056	286.7502	4.645355
Real Pre-Tax Corp Profits	0.8412800	0.1620965	5.189994
Yt(Tc/(Yc - Pg)(-2)**	0.4388025	0.1443620	3.039598

**Yt(Tc/(Yc - Pg)(-2) = GDP in time t times the ratio of the corporate tax liability to corporate cost in time t - 2.

1961:Q1 t0 1972:Q4

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 1 ITERATIONS

FINAL VALUE OF RHO = 0.196613
STANDARD ERROR OF RHO = 0.146486
T-STATISTIC FOR RHO = 1.34220

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GROSS POST-TAX PROFITS**

SUM OF SQUARED RESIDUALS = 113.652
STANDARD ERROR OF THE REGRESSION = 1.58921
MEAN OF DEPENDENT VARIABLE = 231.941
STANDARD DEVIATION = 33.2370
R-SQUARED = 0.997813
ADJUSTED R-SQUARED = 0.997716
DURBIN-WATSON STATISTIC = 1.9781
F-STATISTIC(2, 45) = 10256.4
LOG OF LIKELIHOOD FUNCTION = -88.8154
NUMBER OF OBSERVATIONS = 48

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	1.940919	2.110359	0.9197102
REAL EXPENDITURES	1.018009	0.1738686E-01	58.55044
(Net Corp Interest+Div.)(-1)	0.9424383	0.3028257E-01	31.12148

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 3 ITERATIONS

FINAL VALUE OF RHO = 0.810949
STANDARD ERROR OF RHO = 0.824588E-01
T-STATISTIC FOR RHO = 9.83459

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL NONRESIDENTIAL FIXED INVESTMENT**

SUM OF SQUARED RESIDUALS = 1008.27
STANDARD ERROR OF THE REGRESSION = 4.73349
MEAN OF DEPENDENT VARIABLE = 54.0144
STANDARD DEVIATION = 12.2173
R-SQUARED = 0.861287
ADJUSTED R-SQUARED = 0.855122
DURBIN-WATSON STATISTIC = 1.5430
F-STATISTIC(2, 45) = 134.050
LOG OF LIKELIHOOD FUNCTION = -141.720
NUMBER OF OBSERVATIONS = 48

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	-25.00005	17.98532	-1.390026
Corp. Profits(-2)	1.034817	0.6350072E-01	16.29615
Change Corp. Profits(-2)	-0.5203142	0.1040627	-5.000009

METHOD OF ESTIMATION = ORDINARY LEAST SQUARES
NOTE: Lagged dependent variable(s) present
DEPENDENT VARIABLE: **REAL GOVERNMENT PURCHASES**

SUM OF SQUARED RESIDUALS = 2054.04
STANDARD ERROR OF THE REGRESSION = 6.75614
MEAN OF DEPENDENT VARIABLE = 531.683
STANDARD DEVIATION = 77.6659
R-SQUARED = 0.992755
ADJUSTED R-SQUARED = 0.992433
DURBIN-WATSON STATISTIC = 1.5294
F-STATISTIC(2, 45) = 3083.00
LOG OF LIKELIHOOD FUNCTION = -158.262
NUMBER OF OBSERVATIONS = 48

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	13.50708	6.927372	1.949812
Real net tax receipts	0.2721152E-01	0.4242011E-01	0.6414770
Real Gov't Purch(-1)	0.9564725	0.4016715E-01	23.81231

DURBIN(1970) T-STAT FOR AR(1) = 1.60378

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE
NOTE: Lagged dependent variable(s) present
****

COCHRANE-ORCUTT ITERATIVE TECHNIQUE
CONVERGENCE ACHIEVED AFTER 12 ITERATIONS

FINAL VALUE OF RHO = 0.586487
STANDARD ERROR OF RHO = 0.265350
T-STATISTIC FOR RHO = 2.21024

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL PERSONAL SAVINGS**
SUM OF SQUARED RESIDUALS = 5445.83
STANDARD ERROR OF THE REGRESSION = 11.1251
MEAN OF DEPENDENT VARIABLE = 55.0811
STANDARD DEVIATION = 15.6916
R-SQUARED = 0.519194
ADJUSTED R-SQUARED = 0.497339
DURBIN-WATSON STATISTIC = 1.8403
F-STATISTIC(2, 44) = 23.7565
LOG OF LIKELIHOOD FUNCTION = -178.373
NUMBER OF OBSERVATIONS = 47

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	-68.20455	40.70181	-1.675713
Real Disposable Income	0.1016151	0.4021839E-01	2.526582
Real pers. savings(-1)	0.1031568	0.3179762	0.3244167
RHO	0.5864870	0.2653502	2.210237

NOTE: STANDARD ERRORS ARE CONSISTENT IN THE
PRESENCE OF LAGGED DEPENDENT VARIABLE(S).

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 3 ITERATIONS

FINAL VALUE OF RHO = 0.997838
STANDARD ERROR OF RHO = 0.303098E-02
T-STATISTIC FOR RHO = 329.213

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GDP**

SUM OF SQUARED RESIDUALS = 22676.3
STANDARD ERROR OF THE REGRESSION = 22.4481
MEAN OF DEPENDENT VARIABLE = 33.1642
STANDARD DEVIATION = 24.5622
R-SQUARED = 0.682418
ADJUSTED R-SQUARED = 0.668303
DURBIN-WATSON STATISTIC = 1.3096
F-STATISTIC(2, 45) = 5.63483
LOG OF LIKELIHOOD FUNCTION = -218.620
NUMBER OF OBSERVATIONS = 48

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	1525.324	366.7848	4.158636
Real Pre-Tax Corp Profits	2.403477	0.3236073	7.427141
Yt(Tc/(Yc - Pg)(-4)	0.6054058	0.3843984	1.574943

1973:Q1 to 1980:Q4

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 3 ITERATIONS

FINAL VALUE OF RHO = 0.433582
STANDARD ERROR OF RHO = 0.163016
T-STATISTIC FOR RHO = 2.65976

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GROSS POST-TAX PROFITS**

SUM OF SQUARED RESIDUALS = 311.391
STANDARD ERROR OF THE REGRESSION = 3.27683
MEAN OF DEPENDENT VARIABLE = 277.718
STANDARD DEVIATION = 38.6693
R-SQUARED = 0.993289
ADJUSTED R-SQUARED = 0.992826
DURBIN-WATSON STATISTIC = 1.8252
F-STATISTIC(2, 29) = 2144.02
LOG OF LIKELIHOOD FUNCTION = -81.9152
NUMBER OF OBSERVATIONS = 32

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	-12.59136	7.484259	-1.682379
REAL EXPENDITURES	1.063203	0.2337581E-01	45.48303
(Net Corp Interest+Div.)(-1)	0.9266788	0.5524253E-01	16.77474

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 3 ITERATIONS

FINAL VALUE OF RHO = 0.944693
STANDARD ERROR OF RHO = 0.431245E-01
T-STATISTIC FOR RHO = 21.9062

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL NONRESIDENTIAL FIXED INVESTMENT**

SUM OF SQUARED RESIDUALS = 3476.90
STANDARD ERROR OF THE REGRESSION = 10.9496
MEAN OF DEPENDENT VARIABLE = 29.8400
STANDARD DEVIATION = 19.0643
R-SQUARED = 0.697796
ADJUSTED R-SQUARED = 0.676954
DURBIN-WATSON STATISTIC = 1.1725
F-STATISTIC(2, 29) = 32.4872
LOG OF LIKELIHOOD FUNCTION = -121.531
NUMBER OF OBSERVATIONS = 32

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	226.7373	67.23203	3.372460
Corp. Profits(-5)	0.4222344	0.1399804	3.016381
Change Corp. Profits(-5)	-0.9599514E-01	0.1594154	-0.6021698

METHOD OF ESTIMATION = ORDINARY LEAST SQUARES

NOTE: Lagged dependent variable(s) present
DEPENDENT VARIABLE: **REAL GOVERNMENT PURCHASES**

SUM OF SQUARED RESIDUALS = 958.994
STANDARD ERROR OF THE REGRESSION = 5.75054
MEAN OF DEPENDENT VARIABLE = 661.378
STANDARD DEVIATION = 24.9361
R-SQUARED = 0.950250
ADJUSTED R-SQUARED = 0.946819
DURBIN-WATSON STATISTIC = 1.7776
F-STATISTIC(2, 29) = 276.956
LOG OF LIKELIHOOD FUNCTION = -99.8084
NUMBER OF OBSERVATIONS = 32

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	2.494827	28.01962	0.8903857E-01
Real net tax receipts	0.2955210E-01	0.1934704E-01	1.527474
Real gov't purch(-1)	0.9720210	0.4488803E-01	21.65434

DURBIN(1970) T-STAT FOR AR(1) = 0.447508

FIRST-ORDER SERIAL CORRELATION OF THE ERROR
MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE
NOTE: Lagged dependent variable(s) present
****
COCHRANE-ORCUTT ITERATIVE TECHNIQUE
CONVERGENCE ACHIEVED AFTER 4 ITERATIONS
FINAL VALUE OF RHO = -0.395115
STANDARD ERROR OF RHO = 0.203115
T-STATISTIC FOR RHO = -1.94528

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****
DEPENDENT VARIABLE: **REAL PERSONAL SAVINGS**
SUM OF SQUARED RESIDUALS = 13619.7
STANDARD ERROR OF THE REGRESSION = 22.0549
MEAN OF DEPENDENT VARIABLE = 267.709
STANDARD DEVIATION = 31.7634
R-SQUARED = 0.550021
ADJUSTED R-SQUARED = 0.517879
DURBIN-WATSON STATISTIC = 1.9424
F-STATISTIC(2, 28) = 17.1125
LOG OF LIKELIHOOD FUNCTION = -138.309
NUMBER OF OBSERVATIONS = 31

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	10.68683	64.37038	0.1660208
Real disposable income	0.1224711E-01	0.1998432E-01	0.6128357
Real pers. savings(-1)	0.7917941	0.1569059	5.046298
RHO	-0.3951149	0.2031151	-1.945276

NOTE: STANDARD ERRORS ARE CONSISTENT IN THE PRESENCE OF LAGGED DEPENDENT VARIABLE(S).

FIRST-ORDER SERIAL CORRELATION OF THE ERROR
MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE
CONVERGENCE ACHIEVED AFTER 4 ITERATIONS

FINAL VALUE OF RHO = 0.984010
STANDARD ERROR OF RHO = 0.198014E-01
T-STATISTIC FOR RHO = 49.6939

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GDP**

SUM OF SQUARED RESIDUALS = 23010.3
STANDARD ERROR OF THE REGRESSION = 28.1684
MEAN OF DEPENDENT VARIABLE = 89.3604
STANDARD DEVIATION = 98.4071
R-SQUARED = 0.936313
ADJUSTED R-SQUARED = 0.931921
DURBIN-WATSON STATISTIC = 1.5302
F-STATISTIC(2, 29) = 174.673
LOG OF LIKELIHOOD FUNCTION = -152.379
NUMBER OF OBSERVATIONS = 32

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	2557.759	198.3943	12.89230
Real Pre-Tax Corp Profits	1.461619	0.2066495	7.072938
Yt(Tc/(Yc - Pg)1	0.3953789	0.2327287	1.698883

1981:Q4 to 1993:Q1

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 3 ITERATIONS

FINAL VALUE OF RHO = 0.641827
STANDARD ERROR OF RHO = 0.108639
T-STATISTIC FOR RHO = 5.90788

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GROSS POST-TAX PROFITS**

SUM OF SQUARED RESIDUALS = 992.129
STANDARD ERROR OF THE REGRESSION = 4.64414
MEAN OF DEPENDENT VARIABLE = 214.287
STANDARD DEVIATION = 37.2580
R-SQUARED = 0.985126
ADJUSTED R-SQUARED = 0.984479
DURBIN-WATSON STATISTIC = 1.9710
F-STATISTIC(2, 46) = 1521.68
LOG OF LIKELIHOOD FUNCTION = -143.490
NUMBER OF OBSERVATIONS = 49

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	30.27686	18.04622	1.677739
REAL EXPENDITURES	0.9766373	0.4387188E-01	22.26112
(Net Corp Interest+Div.)(-1)	0.9043116	0.5611870E-01	16.11426

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 3 ITERATIONS

FINAL VALUE OF RHO = 0.925888
STANDARD ERROR OF RHO = 0.473589E-01
T-STATISTIC FOR RHO = 19.5505

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL NONRESIDENTIAL FIXED INVESTMENT**

SUM OF SQUARED RESIDUALS = 5512.25
STANDARD ERROR OF THE REGRESSION = 10.9468
MEAN OF DEPENDENT VARIABLE = 39.9795
STANDARD DEVIATION = 24.5488
R-SQUARED = 0.810605
ADJUSTED R-SQUARED = 0.802371
DURBIN-WATSON STATISTIC = 1.1197
F-STATISTIC(2, 46) = 97.6983
LOG OF LIKELIHOOD FUNCTION = -186.213
NUMBER OF OBSERVATIONS = 49

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	331.4006	91.34218	3.628122
Corp. Profits(-2)	0.2881899	0.1544108	1.866384
Change Corp. Profits(-2)	-0.1118481E-01	0.1329056	-0.8415608E-01

METHOD OF ESTIMATION = ORDINARY LEAST SQUARES

NOTE: Lagged dependent variable(s) present
DEPENDENT VARIABLE: **REAL GOVERNMENT PURCHASES**
SUM OF SQUARED RESIDUALS = 3419.72
STANDARD ERROR OF THE REGRESSION = 8.62217
MEAN OF DEPENDENT VARIABLE = 842.652
STANDARD DEVIATION = 80.9691
R-SQUARED = 0.989133
ADJUSTED R-SQUARED = 0.988660
DURBIN-WATSON STATISTIC = 2.0621
F-STATISTIC(2, 46) = 2093.49
LOG OF LIKELIHOOD FUNCTION = -173.543
NUMBER OF OBSERVATIONS = 49

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	21.77728	12.91365	1.686377
Real net tax receipts	0.1151267E-01	0.2581629E-01	0.4459462
Real gov't purch.(-1)	0.9694887	0.2460736E-01	39.39833

DURBIN(1970) T-STAT FOR AR(1) = -0.382679

METHOD OF ESTIMATION = ORDINARY LEAST SQUARES

NOTE: Lagged dependent variable(s) present
DEPENDENT VARIABLE: **REAL PERSONAL SAVINGS**

SUM OF SQUARED RESIDUALS = 36448.0
STANDARD ERROR OF THE REGRESSION = 28.1487
MEAN OF DEPENDENT VARIABLE = 187.725
STANDARD DEVIATION = 42.2840
R-SQUARED = 0.575302
ADJUSTED R-SQUARED = 0.556837
DURBIN-WATSON STATISTIC = 2.0874
F-STATISTIC(2, 46) = 31.1562
LOG OF LIKELIHOOD FUNCTION = -231.518
NUMBER OF OBSERVATIONS = 49

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	213.8491	74.94920	2.853254
Real disposable income	-0.3897916E-01	0.1727945E-01	-2.255811
Real pers. savings(-1)	0.5285255	0.1299062	4.068517

DURBIN(1970) T-STAT FOR AR(1) = -1.05683

FIRST-ORDER SERIAL CORRELATION OF THE ERROR

MAXIMUM LIKELIHOOD ITERATIVE TECHNIQUE

CONVERGENCE ACHIEVED AFTER 2 ITERATIONS

FINAL VALUE OF RHO = 0.997934
STANDARD ERROR OF RHO = 0.289431E-02
T-STATISTIC FOR RHO = 344.792

STATISTICS BASED ON RHO-TRANSFORMED VARIABLES
****

DEPENDENT VARIABLE: **REAL GDP**

SUM OF SQUARED RESIDUALS = 53275.5
STANDARD ERROR OF THE REGRESSION = 34.0318
MEAN OF DEPENDENT VARIABLE = 38.8787
STANDARD DEVIATION = 44.3123
R-SQUARED = 0.721014
ADJUSTED R-SQUARED = 0.708884
DURBIN-WATSON STATISTIC = 0.7307
F-STATISTIC(2, 46) = 17.6901
LOG OF LIKELIHOOD FUNCTION = -243.563
NUMBER OF OBSERVATIONS = 49

VARIABLE	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTIC
C	3459.879	556.2708	6.219775
Real Pre-Tax Corp Profits	1.252338	0.2790415	4.488000
Yt(Tc/(Yc - Pg)(-2)	0.4608960	0.2508118	1.837617