
JOHN H. HOTSON*

"It is regrettable that economists make no use of the labor-saving device reductio ad absurdum, that is so dear to mathematicians. Undoubtedly this is due to the fact that they start by putting the absurd into their premises. From there, there is no place to go.

During the decades when they were proving from their equilibrium models that increased taxation was a means of keeping prices stable, there was an elegant, indirect way of proving that this could not possibly be the case. For were that true, all that would be necessary to "lock inflation" would be to increase taxes and apply the proceeds to subsidize producers to lower their prices. Prices would then be kept down on a double-count. Nonsense? But of course. It is in fact reductio ad absurdum. Had they reverted to such tory methods, economists could have saved themselves much labor and our economy many hundreds of billions of dollars of output."


That the rise of the government sector in recent decades is the root cause of the inflation which has plagued these same decades is not a thought which has occurred forcefully to many economists. Most economists have maintained that changes in taxes can change relative prices, but not the absolute price level—unless, of course, they somehow cause excessive money creation. However, such a link between an enlarged government sector and inflation is clear to Robert L. Heilbroner. He writes:

"When we look at the historical picture, the root cause of the recent inflationary phenomenon suggests itself immediately. It is a change that profoundly distinguishes modern capitalism from the capitalism of the prewar era—the presence of a government sector vastly larger and for more intimately enmeshed in the process of capitalist growth than can be discovered anywhere prior to World War II . . . If we wanted to stop inflation dead in its tracks, we would only have to turn off the government spigot for arms and welfare, and in all likelihood the price level would begin to fall. So would the economy as a whole, which is the reason why there is no possibility of such a massive disengagement from government."

[71, p. 42, 44]

However, the "tax push" or "tax diffusion" theory has not at present writing replaced the "good old" quantity theory in the minds of most economists. Indeed, such surveys of inflation theories as Laidler's [112] can still be written without betraying the slightest suggestion that a "tax push" theory exists. Of late, however, "left," "right" and "center" versions of the theory have been developed, with James O'Connor's, The Fiscal Crisis of the State, [135] the "Mundell-Laffer Hypothesis," [111, 130, 131, 171, 172], and Bacon and Eltis' Britain's Economic Problems: Too Few Producers, [10]. These theories are variations on the theme that the government is to blame for some/all of the inflation.

*Professor of Economics University of Waterloo
The level of the franc is going to be settled in the long run, not by speculation or the balance of trade, or even the outcome of the Ruhr adventure, but by the proportion of his earned income which the French taxpayer will permit to be taken from him to pay the claims of the French rentier. [33, p. 372]

When Keynes wrote the above in 1922 taxation exceeded 25% of French national income and interest payments on the public debt alone exceeded 1% of national income. Keynes nowhere generalized that such high taxation leads to inflation, but Clark saw the data he had gathered for varying periods for 17 countries as supporting such a generalization. He wrote:

"The data appear to give very considerable support to the hypothesis that once taxation has exceeded 25% of the national income (20% or less in certain countries), influential sections of the community income willing to support a depression of the value of money, while so long as taxation remains below this critical level, the balance of forces favours a stable, or occasionally an increasing, value of money." [32, pp. 379-80]

When Clark expanded his argument in 1950 using post-war data, in a popular article in Harper's Magazine [34] and in a lecture at Australia, [35] his efforts set off a spate of articles... [61, 80, 84, 141, 155, 158, 184, 186] Basically, these articles are dismissive of Clark's supposed "limits," and negative towards the theoretical arguments and evidence he marshalled to support his conclusion. However, most critics accepted the basic point that at some point high taxation could become inflationary while doubting that it was the cause of inflation. Thus Peckman and Meyer [141] showed the weakness of Clark's political forces argument regarding the debt burden. Specifically, in the French case public debt is at one point reached 11% of national income, but such a percentage is unheard of elsewhere; in the U.S. it is never exceeded 3%. They showed that, given a progressive tax structure, the taxpayer could only increase the burden of taxation by supporting inflation (that is, unless everyone cheats). Further, they showed that Clark's economic incentive arguments that a high marginal rate of taxation may 1) cause disincentives to work, 2) lessen employer reponsibility to wage hikes, and 3) cause wasteful business practices, may go either way. However, they concede that "tax increases can lead to wage increases through the "cost-push," and conclude:

Clearly, there are limits to taxation, but they cannot be determined by rule of thumb." [141, p. 242]

Dan Throop Smith's note [155] was a particularly worthy addition to the discussion. Indeed, it contains a sketch of several of the arguments brought forward by latter day "tax push" theorists and empiricists. Smith wrote:

"1. The higher the level of taxation in a country, the more likely it is that additional taxation to finance an equal amount of additional government expenditures will fail to maintain a balance between total spending and the total flow of goods and services. It appears preferable to refer to government expenditures rather than taxation as the proximate cause of the inflation and to recognize simply that tax increases may be abortive as an offset to inflation arising from a very high level of government spending. 2. Increases in taxation may fail as anti-inflationary devices for three reasons: (a) The tax increase may be responsible for more or less commensurate income increases, i.e., when a change in tax is reflected in a cost-of-living index which is in turn in the basis for wage increases, or when a rise in income tax is followed by wage increases to maintain take-home pay ... (b) The tax increases may so reduce incentives as to lead to actual reductions in either activity or efficiency ... (c) The tax increases may not lead to commensurate decreases in private spending. Consumption may be continued in spite of tax reductions in private incomes, by using liquid balances, and investment may also be financed by drawing on liquid balances or by credit expansion ... high marginal tax rates on corporate income may even increase inflationary pressures by encouraging business outlays which would not otherwise be undertaken." [155, pp. 243, 245]

Several of the arguments developed by Smith were later cited by Eisner [47, 49] and Maital [119] as explaining the failure of the "new economics" to contain the Vietnam war inflation. However, the debate over Clark's "limit" had virtually no effect upon the development of macroeconomic theory and policy in the 1950's and 1960's. That is, when the "new economics" began increasingly to fail in the late 1960's the "tax push" argument had to be re-invented de novo! As to why economists, having conceded that high taxation could be inflationary, but having satisfied themselves that no universal 25% limit existed, thereupon dropped the whole subject, I can only speculate. I believe the very thought of "too much government" causing inflation goes against the grain of a whole set of economists' preconceptions and ingrained habits of thought. The most formidable of these is the "classical dichotomy," which implies that white wages, interest, and taxes are important, as costs of production in determining supply cost and thus microeconomic relative prices, they are of no importance in determining the macroeconomic absolute price level, which is determined by the quantity of money relative to the quantity of goods. Keynes

*Note to Merger's 1965 book On Taxes and Inflation, (129) appears to be the only one inspired by Clark's tax limit thesis.

In fact the "ratio of money to goods" and the price level diverge widely as can be easily calculated. Thus for the 15 years from 1867 to 1966 the U.S. money supply (M) grew at a slower pace than real output so that the M/Qt ratio fell from 180 in 1947 to 71 in 1960, while the price level (GNP deflator) rose from 100 to 132. From 1960 the M/Qt ratio rose to equal its 1947 level by 1975, at which time Pt equalled 250. The 1971 figures are M/Qt = .357, P = .306. If we broaden the definition of money to Mt the results are as follows: Mt/Qt in 1947 = 100, 1966 = 105, 1976 = 181, 1976 = .85. All figures calculated from Council of Economic Advisers, Economic Report of the President, February 1970, January 1977, 1979.
raised against this pernicious doctrine [105, pp. 292-3] which goes back at least to Adam Smith, and proposed instead to build his price level theory out of the "homy but intelligible concepts" of micro theory. But in vain! His disciples perpetuated the classical schizophrenia and thus most saw no macro economic implication in the entire debate over whether full "forward" shifting of the corporate profits tax, like indirect taxes, was the general rule.\[15, 32, 38, 39, 43, 64, 109, 110, 132, 134, 149, 150, 160, 161, 165, 168].

The Past Decade and a Half—Or Paradigm Regained

Johansen's Model

In 1965 L. Johansen published an examination of the price level impact of direct and indirect taxes which reached the conclusion that an income tax increase would necessarily reduce output but might raise or lower the price level depending upon the shape of the production function. [95] Johansen's model, based on yet earlier work by Bent Hansen, incorporated income and indirect taxes into a model containing a diminishing returns production function, a producer's objective function, and an aggregate expenditure function. He assumed pure competition in the product market and (traditional) U shaped cost curves.

For a single industry its particular price level depends partly on the rate of remuneration of the factors of production which enter into its marginal cost, and partly on the scale of output. There is no reason to modify this conclusion when we pass to industry as a whole. "Keynes, General Theory, p. 294.

A rare perfect example of the classical dictionary is to be found in Charles E. McClure's 1858 "Tax Incidence, Macroeconomic Policy, and Absolute Prices." (92). McClure sets up a Waltzing world of nine equations in which the first eight equations determine relative prices and incomes and these are affected by taxes. However, the ninth equation, which determines the absolute price level, in the quantity theory with constant velocity.

Hotson's Model

In 1967, J. H. Hotson published two articles (86, 87) analyzing interest and tax push inflation in a Keynes-Weintraub macro model. He concluded that "anti" inflationary interest and tax hikes were contractionary, but probably inflationary.

Peacock and Williamson's "Hybrid" Model

Peacock and Williamson set up a "hybrid" of cost-push and demand-pull model in which demand pull forces enter through the labor market but the price of commodities is assumed to be determined by a mark-up over costs. An appendix undertakes to prove that full forward shifting of indirect taxes according with individual maximizing behaviour in imperfectly competitive markets. They make a distinction between "disinflation," which is the "opposite of inflation" and "deflation" which they take to mean a decrease in real output. Since they conclude that an indirect tax increase raises the price level and reduces real output, they conclude, "It is therefore possible for a [tax] change to be both inflationary and deflationary." [138, p. 32] They concluded that, within their model, an increase in indirect taxes would initially increase but eventually decrease the rate of inflation toward a new equilibrium rate (because of the Phillips curve assumption built into their wage adjustment equation). A direct tax increase of equal deflationary impact (i.e., one that reduces real output by the same amount as the indirect tax) will from its imposition work to reduce the rate of inflation. For similar conclusions within a comparative statics analysis of Canada's situation in 1969 see my [89, 93].

For an earlier recognition that high interest rates could be inflationary see James W. Elliot, (32). Keynesian model was developed by Sidney Weintraub (176, 177) and Paul Wellin (183). See also my (93 pp. 34-46, 95-104) for the application of this model to "interest and tax push" inflation.

Brennan and Auld's Dynamic Model

In 1968 G. Brennan and D. A. L. Auld presented a simple dynamic model which demonstrated the "possibility that the sales tax may be subject to cumulative shifting: first shifted forward to customers . . . then . . . back on firms in higher income claims to match the higher costs of living—then forward . . . and so on." [24, p. 521]

Brennan and Auld also analyzed the inflationary effect of an increase in income taxes. They assumed that workers were interested in take-home pay and seek to pass on the tax in higher pretext wages and conclude that an income tax increase will cause prices to rise. Their formulation ignores the demand changing effects of changing taxes, a deficiency over come in Pitchford and Turnovsky's 1975 paper [145] discussed below.

Harrod's Dictionary

In 1969 Sir Roy Harrod suggested that "anti" inflationary fiscal, and monetary, policy moves may in some circumstances cause inflation rather than cure it. He wrote:

"The 'dictionary' is as follows: If aggregate demand in running ahead of supply potential, this will tend to pull prices up. In these circumstances deflationary policies, designed to reduce aggregate demand, will have the effect of reducing, or, in the absence of wage push troubles eliminating, any price increase . . . But, if initially aggregate demand is not above supply potential, it is no longer clear that deflationary policies, so called, will have the effect of reducing or eliminating any price inflation that is occurring. It may even be the other way round." [78, p. 624]

Figure 1 is a visual aid to Harrod's argument.

The curve Pt represents the relationship between the rate of change of the price level and the level of employment for a given year. Its initial downward slope reflects Harrod's contention that imperfectly competitive firms face downward sloping marginal cost curves so that increased demand may cause them to raise their prices. As Pt is drawn, the economy will experience some inflation whatever the level of employment. Suppose that the authorities attempt to "fight" inflation by raising taxes or interest rates without increasing government spending to reduce demand (D). The price and employment level effects of these moves depend upon the shapes of the D and P functions and the degree of their shift. Figure 2 explores the range of possibilities from a pure diastinflationary effect (D, to D', where the P curve is vertical and therefore the upward shift from Pt to Pt', occasioned by the tax/income hike is irrelevant) through a neutral effect upon the rate of inflation but a contracyclonic effect on employment (D, to D', to Pt) to the "inverse" side of Harrod's Dictionory in which the "anti" inflationary

Note: See Gatteaux, Michael, "The Administered-Price Thesis Reconsidered," (172) for the finding that "industrial prices in recent years have declined many cases in which price behavior has been the reverse of that to be expected from classical theory, the price rising with recession and falling with recovery." (p. 297) See also John M. Blair (19) and Robert E. Smith (156) for theoretical reevaluations of such firm behavior. Steven Lautzenheiser (11) recently concluded that "... the administered inflation hypothesis is not supported by either theory or empirical evidence (for 1958 through 1970)." (p. 205) Leonard W. Weiss (180), however concludes, "These does appear to be such a thing as an administered price." (p. 619)
more proves inflationary though depressiv-
ization-
effect (D, P, 0, P).}

Analysis by Hothan and Halibaghii [72, 92] demonstrated that the "conventional wisdom" regarding the price level effects of fiscal and monetary policy depend upon the implausible assumption that higher taxes and interest rates do not affect marginal cost (dMCT/dr - 0; dMCP/dr = 0). As soon as the assumption of the cost neutrality of tax increases is relaxed, the price and interest rate impact of tax increases become ambiguous. Assuming dMCP/dr > 0, likewise causes monetary policy to become ambiguous. Further analysis involving average cost pricing turned up plausible cases in which "conventionally wise" policy moves had unambiguously perverse consequences. The clear implication is that the way out of "stagflation" is to cut taxes (particularly indirect taxes) and judiciously increase the rate of monetary growth to drive down interest rates, i.e., to attempt to move the economy from P,i, to P,D. The possibility, much confirmed by sad experience, that increasing the money supply increases the rate of interest was not explored.

Jump and Wilson's Simulations

These theoretical conclusions are interest-
ingly confirmed in an empirical piece published in 1972 by Jump and Wilson [101]. They analyzed the effects of unemployment and price levels in Canada of three policy options: a 10% reduction in the personal income tax, a 50% reduction in the building materials tax, and a 50% reduction in all federal sales taxes. The policies were projected over seven quarter year periods from 1974 through 1973.2 by means of the University of Toronto Quarterly Econometric Forecasting Model. Jump and Wilson con- cluded that the 50% cut in the sales tax would have the greatest and most continuing beneficial impact on both employment and price level. They also estimate that the 10% income tax cut would be roughly similar impacts upon employment, the income tax cut somewhat increases the rate of inflation while the cut in the sales tax more powerfully reduces it.

Dynamics of Harrod's and Galbraith's Dichotomies

The Hothan, Lermer, and Halibaghii paper, "Some Dynamics of Harrod's and Galbraith's Dichotomies," [93, Chapter 7] is an attempt to explore some of the complexi-
ties and uncertainties implicit in Harrod and Galbraith's visions of the economy. Following J. K. Galbraith [57, 58] who maintains that economists are divided into "market system" and the "planning system" these authors undertake to model "planning system" behavior as "price maker" behavior ("Model A") and "market system" behavior as "price taking" ("Model B"). Although the dynamics of models A and B are quite different, they reduce to the same static model if equilibrium is assumed. The conclu-
sions are as follows: If Model A best describes the world, then a fiscal policy of reducing direct taxes or increasing govern-
ment expenditures is the expansionary policy which is most likely to have initially anti-
inflationary effects under less than capacity conditions. If Model B ("market") holds, this fiscal policy is the least likely to be anti-
inflationary. For Model A, indirect tax reduc-
tions are second best, and monetary expansion is the worst, given that the criterion of "best" is expansion of real output without inflation. For Model B, an increase in government expenditures is the worst policy; indirect tax reductions are second best, and monetary expansion appears most likely to be initially anti-inflationary. Galbraith's dichotomy thus presents an additional dilemma to the policy maker, (and to the policy taker). What is anti-inflationary policy for one half the econ-
omy may be causing inflation in the other half with the net outcome uncertain indeed!

Tax "Pump" as a Struggle For Net Income Shares

In its Ninth Annual Review, The Years Ahead [46] the Economic Council of Canada argued that imperfect perception of the cost and benefits of a rising government sector can contribute to inflation. As the Council put the matter:

... a rising role of government may result in an inflationary bias in the economy. In our opinion, this danger originates in the adjustments in nominal incomes induced by tax increases. Traditional-
ly, this adjustment has been largely neglected by economists. Experience throughout the world seems to show that ... desired incomes are adjusted ... to maintain disposable income. ... In short, people want to obtain increases in nominal incomes that will be sufficient to compensate them for both increases in price and increases in taxes, and to protect their real disposable incomes." [46, p. 101]

The Economic Council's insight may be illustrated by a model similar to one developed two decades ago by Holzman. [85]

\[ Y_1 = V_1 = F_1 + T_1 \]
\[ V_1 = nY_1 + F_1 \]
\[ F_1 = F_0 \]
\[ T_1 = 0 \]
\[ P_1 = Y_i / Q_0 \]
\[ n = \text{Ratio of variable income rise to price rise; thus} \]
\[ n = \frac{Y_1 / Y_0}{Y_i / Q_0} \]
\[ b = \text{Rate of taxation (indirect taxes)} \]
\[ Q_0 = \text{Real Income} \]

Suppose, for simplicity, \( n = 1 \) and the rate of taxation is increased from \( b \) to \( b^* \). If, again for simplicity, real income \( Q \) remains constant, the price level must increase until the fixed income share has been decreased by \( b^* - b \). Thus if \( Y_1 = Q_0 = 100, n = 0.5, a = 1, b = 2, F_0 = 30 \), and in period 1 taxation is increased to \( b^* = 3 \), the price level will increase in successively smaller tax-income spirals until \( F_1 = 2Y_1 \); thus until \( Y_i = 30 / 2 = 15 \).

Clearly, if \( n < 1 \) the degree of inflation accompanying a given rise of the government share is lessened. Thus if \( n = 0.9 \) so that \( an = 0.45 \) inflation need only continue until \( F_1 = 25 \), thus until \( Y_i = 120 \).

Robert Eisner on "What Went Wrong?"

In a series of articles from 1969 through 1978 [47, 48, 49, 50, 51] Robert Eisner has contributed a number of insights concerning the shortcomings of mainstream macroeco-

(85) Holzman’s model involves a struggle over income shares, thus “Type II” inflation in Aitch Lerner’s parlance (112). In Holzman’s model, the struggle is between labor (the aggressors), profit (the largely unsuccessful, defenders) and the fixed income victims. The inflation, set off by a rise in the wage share, comes to an end when the fixed plus profit shares are so reduced that the three shares sum to 100 per cent.

In a country with a progressive tax structure, the existence of inflation increases b as more incomes rise. Canada now removes this government inflation bias in the personal income tax through indexing of incomes.
monic theory and policy. His 1971 article "What Went Wrong" [49] listed nine factors to which he attributed the failure to stop the Vietnam War inflation. These are:

1. higher tax rates inducing higher government expenditure
2. limitations of counter-cyclical tax changes; predictable from the permanent income hypothesis
3. perverse effects of certain tax changes on investment demand
4. tax increases, especially but not exclusively of the excise variety, which raised prices by reducing supply
5. a liquidity trap, analogous to the liquidity trap, which sharply limits the impact of tight money
6. inelastic interest-rate expectations which limit real long-term movements, while permanent changes in long rates rule out intertemporal substitution effects
7. the cost element in higher interest charges, which raises supply prices
8. possibly decreasing elasticity of lower demand in an imperfectly competitive world, and
9. lags which may be variable as well as long.

In his 1978 article, "Government and Inflation" [51] Eichner argues that high interest rates can be inflationary on balance [pp. 104-5]. He also reviews the tax push arguments [pp. 103-8] and indicates a number of ways in which government regulations and interferences with prices and wages have driven up the price level. For further discussion of the role of government policies to reduce the price level see Crandall [40], Maynard and van Ryckeghem [120], Okun [136], and Bailey and Hall [12].

Pitchford and Turnovsky's Theoretical Contributions

In a series of articles [145, 146] Pitchford and Turnovsky have built on earlier work by Pitchford [144] to analyze the inflationary effects of higher taxation. In 1974 Turnovsky [169] emphasized the interaction of inflationary expectations with a progressive tax structure. He showed that, given a progressive tax structure, a one percent increase in expected prices would require more than a one per cent increase in money wages, if workers are to maintain their after-tax real wage. He also showed that when tax revenue depends upon current income:

"... it is new possible for an expansionary monetary policy, or an increase in real government expenditure, simultaneously to have an expansionary effect on income and a deflationary effect on prices, provided the interaction of (taxes and prices expectations) is sufficiently strong. Moreover, increases in the base and marginal tax rates also give rise to offsetting effects, making it possible for tax increases to be actually inflationary." [169, 336].

In their 1975 collaboration, [145] Pitchford and Turnovsky studied income distribution and taxes in an inflationary context. In their 1976 article [147] they are concerned, not only that increased taxes may well lead to inflation, but that they may destabilize the system by increasing the inconsistency of income claims and offers. The result is to make difficult the maintaining of a stationary price level because with excessive income claims excess supply at the stationary level may be intolerably high. They conclude with a plea for tax cuts balanced by government expenditure cuts as the way out of "stagflation."

A Two-Party Politics Approach to Public Sector Inflation

D. Auld and C. Southerly suggest an inflexion curve approach to public sector inflation [7]. Their analysis posits an electorate which prefers a large fraction of total income in the form of private goods and services and a small volume of publicly provided goods and services and a government with the reverse preferences. They show that the attempts of government and the electorate to impose their mutually inconsistent social preference function with a progressive tax structure. He showed that, given a progressive tax structure, a one percent increase in expected prices would require more than a one per cent increase in money wages, if workers are to maintain their after-tax real wage. He also showed that when tax revenue depends upon current income:

"... it is new possible for an expansionary monetary policy, or an increase in real government expenditure, simultaneously to have an expansionary effect on income and a deflationary effect on prices, provided the interaction of (taxes and prices expectations) is sufficiently strong. Moreover, increases in the base and marginal tax rates also give rise to offsetting effects, making it possible for tax increases to be actually inflationary." [169, 336].

The essence of Auld and Southerly's model [145, pp. 120-6].

Two Dissenting Views—Blinder and Beck

Two dissenting views to the "tax push" or growing government theories have been offered by A. S. Blinder and M. Beck. The first is that of Blinder who argues [20] that an income tax increase is unlikely to be, on balance, inflationary; Beck [14] shows that the government's share of GNP has been declining in real terms in a majority of industrial countries. Blinder demonstrates that an increase in the income tax will reduce aggregate supply, since labour supply is a function of the after-tax real wage. The conditions which favor an income tax increase having the desired deflationary effect are set forth as follows:

(A) a high income-tax multiplier
(B) a low share for labour in total output
(C) a low tax rate
(D) a small (positive) elasticity of supply of labour and small (negative) elasticity of demand.

He concludes that: "All of these are in accord with common sense." [20, 297] and "I conclude that for plausible values, at least in this simple model, the income tax rate increase is very likely to have its desired deflationary effect." [p. 299].

Auld [5] has recently attacked Blinder's conclusions, maintaining that a small income tax multiplier is likely in an open economy or where consumption is determined by other than the absolute income hypothesis. Furthermore, the labour market is hardly purely competitive, as Blinder assumes.

Indeed, Blinder rather quickly came to doubt his own conclusions, as is evidenced by his co-authorship of the following from Blinder and Solow [21]:

"... most taxes are, in the short or long run, incorporated into business costs, and therefore (at least partially) passed on to the consumer in higher prices. Therefore, if the contradiction thus mediates administered to cure inflation takes the form of higher taxes it may well have the desired deflationary impact on aggregate demand, but also an unintended cost-push inflationary impact on aggregate supply. The net result is, in many cases, unclear on purely theoretical grounds. The salient example of an inflationary tax hike is probably an increase in excise taxes. A similar argument can be made with respect to the corporate income tax. . . . an analogous argument applies to increases in personal income tax as a tool to curb inflation. . . . We conclude then that tax raising may not be the best way to curb inflation." [21, 98-100].

The abstract of Beck's article states his conclusions as follows:

"In real terms government's share of gross domestic product declined between 1950 and 1976 in a majority of thirteen developed countries studied. Elasticity coefficients below unity were obtained for nine of the thirteen countries at the level of government consumption (resources-absorbing expenditure), and for eight of the thirteen, at the level of total current expenditure, including transfer payments. In every country examined the price (cost) index of government services rose by a greater margin than the price index. For GDP allowing for data inadequacies, the study suggests that real size of the public sector may have peaked in many mature economies." [14, 15].

As Beck shows, in each of the thirteen countries he studied, the price (cost) index of government services rose by a greater margin than the price index for GDP as a whole largely because of a rise in government wages. For GDP the median price rise between 1950 and 1976 was 44%; for government services it was 240%. Maital [119], Gusterson [71] and Bindand Foot [18] also examined these matters.

Tax Inflation—Phillips Curve Analysis

A number of articles have explored the question of tax push inflation in a "Phillips Curve" framework [2, 4, 28, 31, 44, 63, 65, 66, 82, 83, 93, 98, 117, 162, 164, 165, 184]. The general result has been to confirm the
insight that a higher level of taxation per unit of priced output is among the causes of the inflation of recent decades. It also appears to be evident that the "tax push" effect on wages and prices has been more powerful in the more recent period, 1966-75, than in the decade, 1956-65.

In 1972 the Canadian Prices and Incomes Commission sponsored an important study [164] of inflation by I. D. Taylor, S. J. Turunovsky, and T. A. Wilson which took an exploratory look at the possibly "perverse" effects of high tax, and interest rates. The authors tested average and marginal tax rates, current and lagged one quarter as determinates of wage change in manufacturing and concluded:

"Virtually all of the equations estimated are consistent with the view that the level of taxation—whether measured by the average rate of tax or by the marginal rate of tax or both—has a significant positive effect on rates of increase in wages." [164, 59]

In a follow up paper to the above study, [183] Thomas A. Wilson showed that over the period 1964-71 period direct and indirect taxes "accounted for slightly more than one-half of the increase in total unit costs which occurred." He concluded "that the disproportionate growth of indirect taxes and of direct taxes on labour income over the 1964-71 period played a major contributing role in worsening the inflation-unemployment trade-off in the period." [p. 183] Wilson's estimates of the importance of taxes in accounting for increased unit wage costs, may be usefully compared with Arris' 1973 estimate (2) that in the 1967-8 period roughly one third of the increase in consumer prices in the U.K. was attributable to increased indirect taxes, while in the following year the figure was one-half.

A further 1973 contribution to the literature is the Johnston and Timbell test of a model of wage determination in which changes in personal income taxes are captured in a "retention ratio." [98] These authors concluded that tax changes had played an important role in wage determination in the U.K. during the 1960's.

In 1974 D. A. K. Auld attempted to measure the degree to which increasing direct and indirect taxes have produced higher prices and wages in Canada over the period 1949-1970. [4]. Auld's equation for the rate of wage change included the personal income tax rate on wages as an explanatory variable, and his equation for the rate of price change included total indirect taxes collected as an explanatory variable. His study led to the conclusion that perhaps 20 per cent of direct taxes, and virtually all indirect taxes were shifted forward in higher wages and prices. His estimate that one-fifth of wage taxes are shifted forward in Canada compares with Gordon's estimate [63] that about one-seventh of the increase in employee taxes are shifted forward in higher wages.

In 1975 C. J. Bruce [28] examined the "wage-tax spiral" in five Canadian industries (forestry and mining, manufacturing, construction, trade, and services and finance). He concluded that:

"... significantly, positive correlations exist between changes in wage deductions (for income and unemployment insurance taxes) and changes in money wages in three of the five industrial sectors considered." [28, p. 334]

Hutton's 1976 effort [92, pp. 136-48] also investigated taxes and interest rate changes in a Phillips curve model. The tax variables performed as well as the remaining variables commonly used to "explain" wage and price movements. However, J. C. R. Rowley and D. A. Wilson [151] called into question all the usual "Phillips curve" estimates as containing serious autocorrelation leading to "pseudoregression." James O'Connor's, The Fiscal Crisis of the State, [135] examines U.S. "public" finance from a Marxist perspective and in the light of Marx's dictum that, "tax struggle is the oldest form of class struggle." O'Connor's premises are:

"that the capitalist state must try to fulfill two basic and often mutually contradictory functions—accumulation and legitimization... the state must try to maintain or create the conditions in which profitable capital accumulation is possible and conditions of social harmony... State expenditures have a two fold character... social capital and social expenses. Social capital... is required for profitable private accumulation; it is indirectly productive... social expenses, consist of projects and services... required to maintain social harmony... they are not even indirectly productive. The best example is the welfare system." [pp. 6-7]

O'Connor sees the U.S. economy as consisting of essentially three sectors—the competitive sector, the monopoly sector, and the state sector. He shows the state sector has grown relatively to the other two sectors so that they are now each roughly one-third of the economy. His "first basic thesis" is that "the growth of the state is both a cause and effect of the expansion of monopoly capital." [p. 8].

His "second basic thesis" is that the accumulation of social capital and social expenses is a contradictory process which creates tendencies toward economic, social, and political crises..." [p. 9]. Among the symptoms of this crisis is the present inflation which comes out of an "interesting contradiction" of the tax system...

"... on the one hand, the tax burden falls most heavily on the working class; on the other, the working class requires more and more expenditures (social consumption and social expenses) precisely because of its working class status. It may be true that the greater the level of tax exploitation, the higher the level of government expenditures, and hence the need for even greater tax exploitation..." [p. 211]

The increased tax exploitation leads to increased frustration and to "tax revolts" as the realization sinks in that, given progressive taxes, higher wages automatically increase the tax bite. Therefore, O'Connor maintains, only political action, by workers, rather than collective bargaining can improve their lot—political action with a "socialist perspective." [pp. 228-9, 255-6]

Mundell-Laffer-Waninski-Perkins

R. A. Mundell has long been known for the views that fiscal and monetary policy are wholly separate instruments and that, in a world of fixed exchange rates, monetary policy should be used to seek balance of payments targets and fiscal policy to seek employment level targets. Since 1971 he has further advocated that a country suffering from both a rising price level and excessive unemployment should adopt a policy "mix" of monetary restraint and fiscal ease in the form of major tax cuts and bond issues. As Mundell put it in 1971,

"... we should use monetary instruments to affect monetary targets and real instruments to affect real targets. We should use tighter money in order to control inflation and an easier budget policy in order to reduce unemployment when both are occurring simultaneously. Tighter money puts a more severe discipline on labour unions and monopolies, thereby reducing inflationary tendencies, while... a tax reduction, by encouraging the use of idle resources, will tend to increase employment and aggregate supply..." [130, pp. 113-4]

In recent years Mundell's heterodox ideas have been supported by the empirical studies of A. B. Laffer [111] and developed into the "Mundell-Laffer Hypothesis," of "Global Monetarism." Mundell is considered the intellectual father of the Kemp-Mott tax cut proposals which have come before the U.S. Congress.

"As taxes cut, inflation will subside. Lower taxes will lead to lower interest rates and lower inflation. Lower inflation will lift output and employment. The "tax cut" is thus a stimulus to the economy. As taxes are cut, the economy will be stimulated..."
Central to Mundell-Lafferianism is the "Laffer Curve," which purports that "there are always two tax rates that yield the same revenue." That particular tax rates may be set so high as to reduce tax revenues is undoubtedly true—the U.S. tariff in the late 19th century is often cited as an example. Thus there is nothing new or controversial about the proposition that tax functions are elastic over a certain range, so that cutting the rate could increase revenues. Mundell, Laffer and particularly Wanniski [171, 172] are willing to claim, however, that tax rates are now so high—relative to people and business' toleration of taxes—that taxes can be slashed wholesale—Mundell has advocated tax cuts in the $30 to $60 billion range in the U.S. in recent years—with only temporary increases in deficits (if indeed any). If this hypothesis is correct it is very good news for the "world electorate" if not for the prestige of the world's "experts" on public finance. Laffer entertained the hope that Margaret Thatcher's government would move England drastically down "the" curve. England is the country Mundell-Laffer (and Bacon-Elts) have most in mind as being over taxed. Unfortunately, the econometric tests one would expect Mundell, Laffer et al to have made have not been done, or at least, have not been published.

For tax cuts to result in increased tax revenue requires more than proportionate increases in employment and output and, perhaps, a decrease in tax evasion and avoidance. See 8, 25, 26, 59, 60, 70 and 154 for studies generally supportive of an inelastic response of labor supply to tax changes or that the income effect out weights the substitution effect upon which the Laffer curve, in part, depends. The demand for labor, the supply and demand for investment funds, and expectations of prices, demand, and profits are all important to Laffer's claim. The answers are by no means in. L. Kaelhi—PepsiColastrut [104] has recently argued that in the presence of nominal tax progressiveexpansivity, the expansionary fiscal policy can lead to stagnation. He also holds that in the absence of tax indexing, tax reduction is preferable to increased expenditures when expansionary fiscal policy is required for, like Laffer, he assumes a negative tax rate elasticity of aggregate supply.

J. N. Perkins', 1979 book The Money Economic Mix to Stop Stagflation [142] elaborates and extends Mundell's prescription. Perkins assumes that tax cuts will shift the aggregate supply curve downward, while expansionary monetary policy will shift it upward. [pp. 178-80] Much of his argument depends upon the differing expectations about the two policy moves. Much also depends upon the relationship between the rate of change of "the" money supply and "the" interest rate. Does an increase in the money supply lower the rate of interest ("Keynesian assumption") leave it unchanged ("classical assumption") or raise it as Mundell and Perkins assume?

Mundell, Laffer, Wanniski and Perkins may well be right that massive tax cuts combined with monetary restraint are the best "mix" in a stagflationary world whether or not the "Laffer Curve" argument is correct. However, if massive tax cuts increase government deficits, even temporarily, the competition for available funds in Mundell's( and Wanniski's) tight money world may raise interest rates considerably and "crowd out" much investment, thus thwarting some of the increase in aggregate supply which was the purpose of the exercise. Mundell has not met this difficulty and it is interesting that William Krehm, in whom we turn next, has.

Krehm's Social Lien, Aggregate Shift Function and Tax-Head Proposal
In his Price in a Mixed Economy: Our Record of Disaster [106] William Krehm

takes the economics profession to task for misunderstanding inflation and sets up an alternative analysis. Krehm sees price as made up of two components, only one of which economic theory analyzes. He states:

"We should . . . regard the value of aggregate output . . . as consisting of two major components: 1) core value—corresponding to costs and profits net of all taxes that directly or indirectly have found its way into price; 2) the social lien—representing the sum of all taxes levied on the private sector, including those on its production factors."[106, p. 54]

The rapid growth of government taxation and expenditure has imposed a growing "social lien" component in the prices charged by the market sector. These prices in turn feed back in higher prices of the goods the government buys, requiring still higher taxation which only make matters worse. As real output falls the social lien per unit of output rises. Furthermore, recession leads to demands for increased government transfer payments and stepped up government sector employment, all of which go to swell the social lien, currently or eventually.

A further force Krehm sees as generating our secular inflation: he deems "social revolulzation"—the non or extra market pulling and hauling by which relatively disadvantaged groups increasingly attempt to raise their share of the economic pie.

Krehm offers a partial remedy to the price climb of our time—the amortization of the public capital represented by the existing stock of public and human capital. Society's present investment in public structures, roads, education, etc., was largely financed on a "pay as you go" basis—something no home owner, or private business would be expected to do, and its rapid growth in recent decades has been made (unnecessarily) in the price rise, he argues. By borrowing against this "hump" of assets, governments could greatly reduce their current taxation and reverse the "shift and countershift" multipliers at work on the price level. Krehm proposes the "forced sale" of "tax-bonds" in lieu of taxes at below market interest rates, to businesses and individuals. The bonds could be varied in maturity and coupon rate according to the industry or people purchasing them. The argument recalls several of Keynes' points in How to Pay for the War regarding the differing morals and incentive effects engendered by bonds and tax receipts. The corporate liquidity squeeze would be much relieved by the gentler "tax-bond" way of finance, as the bonds could be sold (at a discount because of their low interest rate) to raise funds for expansion. Furthermore, if the price level continues to climb, as Krehm expects it to, the real cost to society of refinancing its bonds is much ameliorated. Further, as the public debt is increasingly refinanced with ordinary business and households, the banking and insurance system would compete down the rate of interest charged private borrowers, setting in motion further forces to moderate the price level climb.

In his second book Babel's Tower: The Dynamics of Economic Breakdown Krehm also usefully extends his price level analysis by appeals to systems dynamics and carries the concept of social entropy and neointrapy far beyond the applications of the second law of thermodynamics made by Georgeantze-Rogen. He also extends his deflation and tax-hording proposals. He notes that tax-bonds might do more harm than good if they merely become a "soft" form of finance for further disproportionate government spending.

Warsh and Minard—Diffusion and Conflation
In their Loech prize winning article, Memo to President Carter: Inflation. Now Too Serious A Matter to Leave to the Economists,"[173] D. Warsh and L. Minard nominate the late Clark Gable as most worthy to receive the next Nobel Prize in economics.
Inflation & the Rise of the Government Sector

High pre-tax incomes. Johnston [99] altered the focus of attention from the relative size (and change of) the "private" VS "public" sector to the "market" VS "non-market" sector.

Turner writes that:

"...our study indicates (fairly decisively, one might think) that 'orthodox' (local) policy against inflation, which as it was practised in Britain in the 1960's was conceived as mopping up excess demand by increasing taxation—or, even more, by allowing direct tax receipts to rise proportionately to income—had in fact a perverse effect. Increases in indirect taxation (of several kinds) raised prices and increased the pressure behind wage-demands; and that was particularly the impact of increasing marginal rate of deduction, by income tax and other levies, from wage income." [181, p.115]

Turner concludes with the startling suggestion that the only way for British unions to increase the real incomes of their workers faster than productivity growth without engineering a shift from profits which would result in increased unemployment, would be for them to demand—in concert—both price and wage-reductions. The success of such a program would depend on the degree to which lower British prices would increase Britain's exports versus the extent that higher British real incomes would boost her export demand.

Johnston, Bacon and Ellis trace much of Britain's woes to the rapid growth of her "non-market" sector which, when coupled with slow productivity growth, has undermined her ability to invest and export. As Bacon and Ellis put it:

"In Britain the growth of non-market expenditure as a ratio of marketed output from 41.1% in 1960 to 62.6% percent (before tax) has had all these effects, explosive wage inflation, a squeeze on investment in the market sector and balance of payments deterioration... All exports and everything on which money is spent must be produced by an economy's market sector... almost all the civilised activities of a modern society are wholly or largely non-market... Defence is also non-market... If its people are prepared to give up a marketed output to the government on the necessary scale it will manage... but if... people are not prepared to part with as much of their marketed output as the government wants the three great difficulties from which British suffers must occur in some combination or other. Wages and prices will be pushed up sharply, investment in the market sector will be curtailed, and the balance of payments will deteriorate." [10, pp. 29, 31-32]

Bacon and Ellis see two possible solutions to England's difficulties. The "right" solution is to cut public service spending and the raises and subsidies of nationalized industries. When coupled with tax cuts, especially those directed toward industrial investment, such measures could reverse the relative growth paths of the market and non-market sectors. The "left" solution would be to use all the powers of the government to achieve an industrial based economy with a large non-market sector by financing at the expense of private services and the upper classes. They point out that Sweden, Norway, and Denmark undertook as rapid a shift into the public sector during the 1960's and 1970's as did Britain, but without serious difficulties because of the investment led rise in real incomes.

The Johnston and Timbrell, Bacon and Ellis, view of British inflation is supported in an empirical paper by Henry, Sawyer, and Smith [83]. The authors re-estimated several of the main econometric models of inflation in the U.K. to investigate the reliability of each model. The authors see their results as showing...
progress, but it also means that, to date, this concept has not been subjected to the gauntlet of criticism which supposedly refines and purifies scientific work. One of the few attempts to show that a hike in the income tax is unlikely to be inflationary was Blander’s 1973 article [20]. But, by 1974, he had become convinced to the opinion that “tax raising may not be the best way to curb inflation.” [21, p. 100] Most of the profession, however, has taken virtually no notice of the “tax push” hypothesis of inflation. “Tax inflation” theory is a basically middle of the road theory; it is “radical” only in its destructiveness of monetarist and fiscalist ideas. Its basic conservatism is attested to by its increasing appearance in economics textbooks [13, 29, 42, 115, 140] and, as Paul Samuelson once noted, “once an idea gets into these, however bad it may be, it is practically immortal.”

Do the insights garnered from this survey of inflation and the rise of the public sector lend useful policy insights toward ending “stagflation”? The answer, I believe, is a clear “yes.” Recognition that the rising prices of our era are, in part, a reflection of the increasing importance of the unpriced public services we receive, should make us more willing to tolerate a price creep, instead of attempting to “end inflation” by choking off aggregate demand. Further, recognition of the inflationatory consequence of a rising government sector should help refine our cost-benefit calculations of such expressions and, hopefully, lead to a more revenue dependent public sector and a cut back of the less useful projects. Recognition of the importance of tax shifting in business pricing and bargaining behaviour might also add new dimensions to the formulation and administration of incomes policies. I believe, that the studies surveyed contain insights which can constitute a whole new departure in macroeconomic policy—nothing less than a post-Keynesian revolution to end the second Great Depression. See [27, 91] for further exploration of these possibilities.

References


