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ESSAYS IN SUPPLY SIDE ECONOMICS

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SUPPLY SIDE ANALYSIS AND PUBLIC POLICY

by

NORMAN B. TURE

Norman B. Ture is Under Secretary of the Treasury for Tax and Economic Affairs and former president of the Institute for Research on the Economics of Taxation and Norman B. Ture, Inc. This paper was written while Dr. Ture was president of IRET and its publication was made possible by a grant from the Manhattan Institute for Policy Research.

Introduction: The Emergence of Supply Side Policies

SELDOM HAS A SET OF IDEAS SO CAPTURED THE THINKING OF policy makers and so dramatically altered policy prescriptions as has the so-called supply side economics in the last few years. To be sure, the concepts comprising supply side analysis and distinguishing it from a more conventional approach to public economic policy are not well understood by all, or even most, of its devotees, but its policy thrust is more widely accepted with every passing day. And despite its conceptual origins in the neoclassical theoretical traditions, hence, one might presume, its affinity for political conservatives, its policy applications have gained acceptance across virtually the entire spectrum of political positions. And all of this has occurred in less than half a decade – indeed since Congressman Jack Kemp first presented the supply side approach in connection with his Jobs Creation Act in 1975.

In the popular view, supply side economics appears to call for a focus of public policy on augmenting supplies of privately-provided productive services, hence the supply of output, in lieu of concentrating on aggregate demand. It is this aspect of supply side economics which probably accounts, for the most part, for its meteoric rise in popularity among policy makers. For roughly four decades, public economic policy in much of the western world, certainly in the United States, was guided by prescriptions derived, more or less rigorously, from *The General Theory of Employment, Interest, and Money* by John Maynard Keynes. In oversimplified terms, the Keynesian prescripts hold that unsatisfactory aggregate economic performance results from insufficient or excessive aggregate demand, i.e., the sum of the total spending by households for consumption goods and services plus the aggregate outlays by business for capital instruments of all sorts plus governments' purchases of goods and services. In the (oversimplified) Keynesian scenario, the conditions of supply are given, to all intents and purposes, in the short term and are substantially unresponsive to public policy in the long run. In other words,

the Keynesian analysis doesn't deny or ignore conditions of supply but rather treats them as determined by factors lying beyond the reach of public policy. To influence aggregate economic outcomes, therefore, the policy focus in the Keynesian approach is necessarily on aggregate demand. If there are apparently idle human and capital resources, public policy should augment aggregate demand until inflationary pressures emerge (i.e., until the aggregate supply curve begins to tilt upward from its horizontal position). If there is an unacceptable rate of inflation, aggregate demand must be depressed, implying a decrease in employment and output along with the decline in the price level (or more realistically its rate of increase).

This deeply entrenched view of an inherent trade-off between employment and output gain, on the one hand, and inflation containment, on the other, formalized in the Phillips curve, may well have afforded the springboard for the ready acceptance of the supply side view of things. Inflation, at varying rates, all of them unacceptably high, plagued the economy throughout the 1970s while unemployment persisted in the range of about 5 percent to about 8.5 percent and gains in productivity, output, and real income slowed, particularly in the last half of the decade. The coincidence of high unemployment and low output gains with high inflation urged either that there is in fact no necessary trade-off or that the trade can be made only at an extremely high unemployment rate. If the Keynesian view of things were to guide public policy, policy makers would face an impossible decision between accepting even higher unemployment rates to bring inflation down well below the double-digit rate of 1979 or accepting even higher double-digit inflation rates to get unemployment down to the 4 percent rate mandated in the Humphrey-Hawkins Act. No wonder wage and price controls appeared so alluring, despite their repeated failure to do anything but misallocate resources and create scarcities.

In this context there emerged a view which seemed to afford a way of breaking out of the dilemma. The supply side prescriptions called for restricting the growth in nominal aggregate demand by curtailing the expansion of government spending and by slowing the rate of increase in the stock of money while removing or mitigating tax disincentives for market-oriented effort and for saving and capital formation. This set of policies would, so it is argued, both expand employment and output and reduce inflation.

The signal feature of this policy approach is that it rejects the view that reducing the level – or rate of increase – of nominal aggregate demand necessarily results in a reduction in employment and output; in fact, it asserts that constraining the growth in nominal demand facilitates the growth in employment, output, and real income.

The principal impetus for accelerating the growth in real economic magnitudes, however, is seen as coming from easing the barriers thereto erected by the existing tax system.

The timing of the supply side policy prescription surely must have had much to do with the startlingly rapid pace of its acceptance. (On the other hand, the circumstances which led to so ready and eager an embrace of supply side economics must have been important factors in bringing these views and policy prescriptions forward in the policy forum.) As all too frequently happens under these conditions, enthusiasm for the supply side policies was sometimes inadequately constrained by careful reasoning; some proponents were inclined to claim too much. One of these excessive claims is that supply side tax reductions will so expand GNP as to generate larger tax revenues than will be realized without the tax cuts. This sort of fiscal alchemy elicited derision from many economists and policy-makers; fortunately, it has not diverted key participants in the policy forum from pursuit of supply side policies.[1] It has, however, misdirected much of the discussion about supply side economics.

Basic Concepts of Supply Side Economics

There have, to date, been few serious efforts to delineate the basic propositions which comprise supply side economics. This neglect is regrettable, since it has allowed die-hard critics of the policy positions which are derived from the supply side analysis to pin a snake-oil label on both the analysis and the policies. In fact, supply side economics affords no magical nostrums. Nor is it properly perceived as a new and revolutionary general theory.

Supply side economics is merely the application of price theory – so-called "microeconomics" – in the analysis of problems concerning economic aggregates – so-called "macroeconomics." Its conceptual antecedents are to be found in the work of the classical economists of the modern era from Adam Smith and J. B. Say through Milton Friedman and Gary Becker. As such, it presents no new body of theory; rather it entails addressing the neoclassical mode of analysis to public economic policies, whether these are focused on concerns of the economy as a whole or of particular groups therein.

[I] Nothing in the basic supply side analysis holds that tax cuts so expand output and income, hence tax bases, as to provide more revenue than would otherwise be generated. On the other hand, the supply side analysis can and does identify certain types of tax reductions which, in fact, are net tax revenue producers rather than losers. One such type of tax change consists of tax reductions which lie in the future but positively affect saving and investment behavior in the present in anticipation of reduced taxes on the future returns on the saving.

First-order price effects

The basic and distinctive characteristic of supply side economics is that it identifies the *initial* effect of government actions in terms of the changes in relative prices (explicit or implicit) confronting households and businesses which these actions entail. It is the response by these private sector entities to these relative price changes which determines the ultimate effects of the government actions. These responses involve changes in the allocation of existing production resources and claims on output which may result, more or less promptly, in changes in the total volume and/or composition of economic activity. Insofar as volume changes occur, aggregate real income is also changed, and this change in total real income will lead to further changes in economic activity. Since real aggregate demand is necessarily always equal to aggregate real income, these further changes in economic activity may be conveniently measured in terms of changes in the components of aggregate demand. This sequence of effects – the precedence of price over income effects – is one of the critically important premises of the supply side analysis. In a technical short-hand, the effect of government activities on relative prices is the "first-order" effect and the consequences of private-sector responses thereto for total income is the "second-order" effect.

Equivalently, the supply side analysis points out that government actions first affect the allocation of resources and that one of the consequences of any such allocative effect may be a change in the level of aggregate economic activity. This mode of analysis similarly holds that these allocative effects of fiscal actions also largely determine the distributional consequences of fiscal action.[2]

The basic supply side proposition denies the possibility that government action can initially and directly change the total real income of the economy. This denial of first-order income effects, the critically distinguishing feature of the supply side analysis, is the major obstacle to its acceptance. We have all been conditioned for ages past to look to the effects of tax changes on our disposable incomes and to perceive changes in government spending totals as directly increasing or reducing aggregate demand. And through all the sharp divergences in monetary theory, there runs a consensus that changes in monetary aggregates directly affect real output, at least in the short run. The challenge posed by supply side theory, therefore, is a substantial one.

[2] To appreciate the importance of this set of propositions, bear in mind that for several decades past the conventional wisdom has held that diverse public policies separately and independently determine the allocation of resources, the distribution of income and wealth, and the rate of increase in total economic activity, in both nominal and real terms.

The prevailing view that government actions do directly affect aggregate income derives from perceiving these actions as impacting initially and directly on aggregate demand, via effects on disposable income, the changes in which are deemed to result directly in changes in total production. The supply side analysis, on the other hand, holds that government actions have no direct initial impact on real aggregate demand and, indeed, affect nominal aggregate demand only as a consequence of changes in the stock of money. Changes in real aggregate demand, to be sure, would elicit increases in total output. The pertinent question is how changes in real aggregate demand can occur without a preceding change in total output. By definition, aggregate demand is the sum of purchases of all types by all economic entities – governments, businesses, households, etc. Also by definition, these outlays must exactly equal aggregate income which in turn, at every moment in time, must just equal the value of aggregate output. Changes in real income, therefore, occur only as changes in output occur. And changes in output occur only as a result of changes in the amount of production inputs or in the intensity or efficiency of their use. To have a first-order effect on income, therefore, government actions would have to alter directly the amount or effectiveness of production inputs committed to production. But government actions, in and of themselves, do not change the aggregate amount of production resources available in the economy or their productivity. Changes in the amount of production inputs committed to production will result only if the real rewards for their use, i.e., the real price received per unit of input, is changed.[3]

To assume the contrary requires one to believe that the opportunity costs for providing more labor or capital services are constant in the short run, i.e., that short-run supply curves are horizontal or infinitely price elastic. Clearly, an increase in nominal, rather than real, aggregate demand resulting from government action could elicit an increase in real output, hence real total income and real total demand, only if suppliers of production inputs mistake increases in nominal for increases in real rewards for these inputs.

To illustrate, assume that the government's budget is balanced at the outset and that taxes are then reduced without any reduction in government spending. Also assume that the fiscal change impels no change in the stock of money. The initial effect, in the conventional aggregate demand approach, is identified as an increase in disposable income which results in an increase in total private sector

[3] Changes in the effectiveness with which inputs are used may result directly from government actions which reallocate these inputs among private and public sector uses.

spending, principally for consumption. But no such increase in total private sector spending in fact can occur.

Since the tax cut, by assumption, is not matched by a government spending cut, the loss in tax revenues – which is just equal to the increase in disposable income – must result in an equal deficit.

In real terms, as measured in conventional national income accounting, aggregate saving, at this point, is reduced. But since the deficit must be financed by saving, either saving must increase in an amount equal to the increase in disposable income and the deficit, by assumption precluding any increase in consumption spending, or investment must decrease in an amount equal to the deficit. (To digress for a moment, this latter alternative is the conventional perception of the "crowding out" phenomenon, i.e., government deficits displace private capital formation. This perception is at odds with contemporary theory about the. determinants of investment. In highly abbreviated and oversimplified terms, investment is the process of adjusting the stock of capital from a former to a new optimum amount – or growth path – where the optimum amount depends on aggregate endowments, hence the marginal utility of an increment of income, and the opportunity cost – the amount of current consumption which must be foregone – to obtain any increment of income from capital. In this context, a government deficit would be relevant to the investment decision – would result in an equal decrease in investment – only if the deficit were perceived as entailing subsequent increases in the taxes on the future income stream to be produced by capital.) In either case, whether consumption or investment falls in an amount equal to the deficit, it is clear that no change in aggregate spending can occur as the initial effect of the tax reduction. If some people use their additional disposable income to finance additional spending for goods and services, then others will have to reduce their spending. Some redistribution of spending will occur in this case, but there is no increase in the total amount.

This rejection of an aggregate demand effect of a tax reduction does not mean that all tax reductions are perceived by the supply-side analyst to be inconsequential. On the contrary, since virtually every tax has some excise effect – alters the cost of something relative to the cost of other things – virtually every tax reduction will impel some response in the form of a change in the composition in the demands for the use of resources and in their allocation among their alternative use. A tax reduction which reduces the cost of market-oriented effort relative to "leisure" uses of one's time and resources will result in an increase in the supply of labor services, and other things equal, in an increase in real output, real income, hence aggregate real spending. It is not the effect of the tax cut on the deficit which generates this result but the effects on the relative costs of

work and leisure. Similarly, a tax reduction which reduces the cost of saving relative to consumption will lead to an increase in the supply of capital services, hence to an increase in output, real income, and real spending. In either case, the magnitude of the effect on real output and spending is not a function of the size of the deficit but of the nature of the tax cut and the magnitude of its effect on the respective relative costs of efforts and of saving.

Consider next an alternative expansionary fiscal action – holding taxes constant while increasing government outlays. Suppose first the increased spending is in the form of transfer payments, i.e., involves no direct increase in government demand for goods or services. As in the case of tax reductions, those whose disposable incomes are increased – the recipients of the additional transfer payments – may well seek to add to their total outlays, but others must reduce their spending and purchase the additional government debt instruments. The identity of the spending and the composition of the spending may well change, but the aggregate amount of real spending cannot, at the outset, be altered.

Suppose the increase in government outlays takes the form of purchases of goods or services. Parallel to the prior cases, these additional outlays cannot be deemed to expand aggregate demand since the matching deficit they generate must be financed in real terms by a decrease in private spending. Nor should the additional outlays be thought to increase the real or effective demand for production inputs, hence, to increase aggregate employment, output, and income. To repeat an earlier observation, only if the opportunity costs for providing more production inputs are constant in the short run – only if short-run factor supply curves are horizontal or infinitely price elastic – would an increase in nominal government demand for outputs or production inputs result in increases in total output. In the real world, government spending in the form of purchases of goods and services alters (explicit or implicit) relative prices by changing the composition of aggregate demand. Government purchases of any given product or service initially increase the nominal demand for those products, hence for the production inputs their output entails. This change in demand per se must increase the nominal price of the products or services, compared to the prices at which they would otherwise sell in the private sector. The consequence of this price distortion is a reduction in private sector purchases of these goods and services. The increase in the direct or derived demand for the particular inputs raises the market price faced by private sector purchasers of these inputs, hence reduces private sector purchases, thereby shifting their use from private sector to government sector outputs.

These changes in demand resulting from government purchases

do not *per se* entail any change in the productivity of the production inputs involved. The real rate of return for any given quantity of any such input is, therefore, not altered. By the same token, the supply of the production inputs is not increased, although the allocation clearly is changed. No change in aggregate output, accordingly, results on this score from the government purchases.

The reallocation of production inputs, on the other hand, may result in a change in total real output if the real productivity on the inputs is enhanced or diminished in the government's, as opposed to the private sector's, use. A change in the amount of government purchases does not change total output and income by altering aggregate demand; any such change in real total income results only from changes in the effectiveness with which the production inputs are used. Changes in total output of this sort, obviously, need not be positively correlated with the amount of government purchases.

Finally, consider a monetary expansion, whether or not associated with an increase in the government's deficit. In the supply side analysis, an increase in the stock of money implies an increase in nominal income but no corresponding increase in output and real income. As the preceding discussion urges, any expansion of real output depends on an increase in the amount of production inputs.(or in the efficiency of their use). In turn, this depends on an increase in the real rewards for supplying these inputs. But monetary expansion *per se* affords no increase in these real rewards, hence does not lead directly to an increase in the amount of inputs supplied nor, accordingly, to an increase in output. The expansion of nominal income resulting from an increase in the stock of money, therefore, reflects only an increase in the price level.

Policy Implications

This insistence on assigning first-order price effects to government action and on treating income effects as secondary in sequence--not in magnitude – is not a matter merely of abstract theoretical interest. Its implications for the practical aspects of public economic policy are enormous. At the outset, it requires identification of the way in which government actions affect relative prices.

Price effects of the tax system

First-order relative price effects are best illustrated in the case of tax policy. Every tax has the attribute of altering relative prices or costs. This is obvious in the case of selective excises: an excise on gasoline is seen by virtually everyone as raising the price the motorist must pay for gasoline compared with prices he or she must pay for other things. This price or cost effect, however, is not limited to

those taxes we call excises. Every tax has some "excise effect." A perfectly neutral tax, if one could be devised, would have no excise effect; it would increase in the same proportion all of the prices confronting any entity in the private sector. It would increase the cost of effort in the same proportion as the cost of leisure, of saving in the same proportion as the cost of consumption, of any one consumption good or service in the same proportion as all others, of using labor services in the same proportion as capital services, of any one kind of labor or capital service in the same proportion as any other, etc.

The present tax system very thoroughly violates this neutrality criterion. It imposes severe excises on effort and on saving, along with a host of differential excises on various types of labor services and various forms of capital income.

Payroll and income taxes fall on the returns for "effort" – the use of labor services to produce goods and services exchanged in the markets; these taxes are not generally imposed on the rewards for "leisure" – the use of one's time and resources in nonmarket activities for which no explicit measure of income is afforded.

Since income generated by effort is subject to payroll and income taxes whereas that produced in leisure activities is not, these taxes must raise the cost of the former relative to the cost of the latter.[4]

With 24 hours per day it is clear that for each hour in which one uses one's resources for effort there is an hour less of leisure available. The cost of a marginal hour of effort, then, is the value of the hour of leisure which must be foregone. For example, suppose a person were to earn $10 an hour in a particular job. Each hour the person could spend on the job but chooses instead to spend in leisure costs him or her $10. To optimize the person would allocate time between the two alternatives such that the value of the rewards for the last hour of leisure was just equal to $10. Then the marginal cost of the effort to the person is $10, the value of the foregone leisure; similarly, the marginal cost of leisure is $10, the foregone reward for effort. The cost of effort relative to the cost of leisure – the ratio of these costs – is 1:1.

A tax which is levied on the explicit rewards for effort but not on the returns for leisure uses of one's time clearly increases the cost of the former relative to the latter. For example, at a marginal rate of

[4] The concept of cost that is relevant for this purpose, as in the case of economic analysis generally, is that of opportunity cost – the value of that which must be foregone in using production resources in a particular way. The concept derives its pertinence from the rudimentary facts of economic life that production resources are scarce relative to the wants they may be used to satisfy and that with relatively few exceptions, the use of given quantities of given resources to produce particular outputs excludes their production of other outputs in that same period of time.

25 percent, an income tax raises the marginal cost of effort by a third relative to leisure and equivalently, reduces the marginal cost of leisure by 25 percent relative to effort.[5]

The excise effect on effort in the income tax is greater the higher the marginal rate of tax. A 50 percent marginal tax rate, for example, doubles the cost of effort relative to leisure. A graduated or progressive income tax, therefore, enhances this excise effect. On the appealing assumption that, for the most part, the higher the rate of compensation for effort the more productive the effort is, a graduated income tax increases the cost of effort relative to leisure more the more productive the effort. By the same token, graduation raises the cost of increasing one's productivity.

In the same vein, but perhaps not so obviously, the present tax system raises the cost of saving relative to the cost of current consumption. Just as effort and leisure exhaust one's available time, saving and consumption exhaust one's available income. The cost of saving a part of one's income, then, is the amount of current consumption that one must forego. Similarly, the cost of using part of one's income for current consumption is the amount of saving given up. Since saving is the purchase of a future income stream, the cost of any given amount of consumption is the future income which one must forego. An income tax of the sort levied in the United States raises the cost of saving relative to consumption, and this inherent income tax bias is accentuated by graduation and by the piling on of multiple layers of tax on the same income stream representing the returns on saving.

For example, suppose that with no tax one might use a marginal $1,000 of income to buy $1,000 worth of consumption goods and services now or buy an asset, say a bond, which at an interest rate of 10 percent, will produce $100 a year forever. Clearly, the cost of the $1,000 of additional current consumption is the foregone $100 per year; by the same token, the cost of an additional $100 of income every year is $1,000 of foregone current consumption.

With an income tax, the terms of this trade-off between current consumption and future income are altered. Again suppose one's marginal tax rate is 25 percent. Then one's marginal $1,000 of in-

[5] With the 25 percent marginal tax rate, the net reward tor an hour's effort is $7.50 – the amount of the hourly wage left after paying the tax. The marginal cost of an hour's leisure falls, therefore, from $10.00 to $7.50, while the marginal cost of an hour's effort – the value of the foregone leisure – remains at $10.00, in absolute terms. The cost of leisure relative to the cost of effort becomes $\frac{7.50}{10.00} = .75$, and the cost of effort relative to the cost of leisure becomes $\frac{10.00}{7.50} = 1.33$.

come is reduced by the tax to $750, with which one can buy $750 of consumption goods and services now or a future income stream of $75.00 per year, assuming the interest rate remains at 10 percent. But the $75.00 of future income will also be subject to income tax, let us assume at the same marginal rate of 25 percent. Then the net-of-tax future income is $56.25. Before the tax was imposed, one had to give up $1,000 of current consumption to obtain $100 per year of additional income; the marginal cost per dollar of future income was $10. With the tax, one must forego $750 of current consumption to obtain $56.25 of additional income per year; the marginal cost with the tax is $13.33 per dollar of future income. The 25 percent income tax increases the cost of future income relative to current consumption by 33⅓ percent.[6]

With graduation of income tax rates, the tax increases the cost of future income relative to consumption more than in proportion to the amount and/or productivity of saving. Since the marginal tax rate depends in large part on the amount of one's income, and since the amount of one's current income, is likely to reflect in some part the amount one has saved in the past, the excise effect of the tax on saving is likely to be greater the greater the amount one saves. Similarly, the greater the return per dollar of saving – the more productive one's saving – the higher is likely to be the marginal tax rate and, therefore, the greater the cost of additional saving relative to additional consumption.

To an even greater extent than in the case of the effort-leisure trade-off, the existing tax system is biased against saving and in favor of consumption. The basic bias, as shown, derives from the fact that the individual income tax is levied both on the amount saved and on the future income generated by the saving. But severe as this tax penalty itself may be, it is only the base of a pyramid of taxes resting on the same income stream. In the federal tax system, the corporation income tax constitutes another major tier of taxes on the returns to individuals' saving. The amount an individual saves is taxed as part of his current income, as shown above. If the saving takes the form of purchase of corporate stocks, the returns on the

[6] An equivalent way of looking at this effect is that prior to the tax, with an interest rate of I0 percent, the capitalized value of the $100 per year of additional income is $1,000 ($= \frac{\$100}{.10}$). With the income tax, the capitalized value of the after-tax additional income per year is $562.50 ($= \frac{\$56.25}{.10}$). Before the tax, the ratio of the marginal outlay on consumption to the present worth of the future income is $1,000:$1,000 = 1; with the tax, the ratio becomes $750:$562.50 = 1.333. The cost of future income relative to the cost of consumption increases by one-third; equivalently, the cost of consumption relative to saving falls by 25 percent.

saving will be taxed initially under the corporate income tax. Insofar as the corporation pays dividends to the individual saver-shareholder, the individual pays tax again, further reducing the return to him per dollar of saving.

Another layer of tax on the returns to saving is provided by the tax on capital gains. A capital gain is the market's capitalization of an increase in the expected future income attributable to an asset. In an efficient market, corporate retained earnings will be reflected in increases in the market value of the company's shares. This capital gain, obviously, is the capitalized value of the expected increase in earnings per share generated by the investment of the retained earnings. Imposing a tax on the gains realized if the shares are sold or exchanged is to lay an additional "one-shot" tax on the same stream of future income which the shareholder bought with the initial investment.

The source of the capital gain is the amount of earnings retained after the corporate tax was paid. At the time the gain is realized, it is the capitalized value of the expected increase in future earnings, which will in turn be taxed as they accrue. The tax on capital gains, thus, is an *additional* levy on an income stream subject to several layers of tax in any event.

The same returns on saving are also subject to the income taxes imposed by all but a few of the states. And insofar as the saving takes the form of real property, the same income stream is likely to be subject to state and local government property taxes, which though levied on the assessed value of the assets may be usefully perceived as imposts on the explicit or imputed income they generate.

Federal and state taxes on property transfers by gift or at death are akin to capital gains taxes with respect to their effects on the cost of future income compared with present consumption. The base of such taxes is the market value of the transferred property, which in turn equals the present value of the future income the property is expected to produce. That future income will, in the ordinary course of events, be taxed as it materializes over time. Taxing its capitalized amount on the occasion of the property transfer is an additional levy on the same income stream.

Moreover, the property may also be perceived as the accumulated amount of past income which had been reserved from consumption. Again, in the ordinary course of events, that past income had been taxed as it was received. Taxes on the value of the property on the occasion of its transfer are a further layer of tax on the same income stream. [7]

[7] The extra burden on saving of these transfer taxes is mitigated by the various tax provisions which reduce the taxable amount of the property. It is also moderated by the fact that for

The tax laws, particularly the income taxes, contain numerous provisions which somewhat ameliorate the effects of the multiple layers of tax on the rewards for saving. For example, if saving takes the form of depreciable property used in a trade or business, depreciation deductions and the investment tax credit mitigate the additional income tax burden entailed in taxing both the amount saved and the subsequent income generated by the saving. But unless the present value of the depreciation deduction and investment credit equals the present value of the costs incurred to acquire the depreciable property – i.e., the amount saved, at least some of the additional cost of saving imposed by the income tax remains. To eliminate completely the extra tax on saving, the amount saved (equivalently, capital outlays) would have to be expensed – that is, deducted in full in the year in which the saving occurs – while the gross returns on the saving are included in taxable income as they are realized.

Apart from capital recovery deductions, a wide array of special provisions are generally noted as reducing the aggregate burden of the income taxes. These so-called "tax expenditures" are often characterized as subsidies, but are more appropriately to be seen as mitigations of the effects of the income tax in increasing the cost of saving and of effort relative to the cost of consumption and of leisure, respectively. Whatever case may be made for eliminating or reducing these "tax expenditures," doing so would raise the relative cost of effort and saving.

Price effects of government spending

It is frequently asserted that the real tax government imposes is to be found in its expenditures rather than in its tax levies *per se*. The reasoning is that these expenditures preempt the production resources of the nation for purposes determined in the political forum rather than in the marketplace, thereby depriving the private sector of these resources, the outputs they would produce, and the income claims generated by the production of these outputs. In a very broad sense, this view is correct: The resources transferred to government use and subject to its direction are not available for use as determined in the private sector. The pertinent question is how this preemption is effectuated. The answer to that question illustrates the nature of the impact of government spending on the economy.

many individuals the tax liability lies in the relatively remote future; the present value of the tax liability as it enters saving-consumption choices is relatively low except for the elderly or those contemplating inter-vivos transfers in the relatively near future. Notwithstanding, these taxes must be seen as incremental burdens on the returns to saving, hence as increasing the cost of saving relative to current consumption.

In the supply side analysis, the effects of government spending derive from the change in relative prices resulting from these outlays and the allocative responses to these price changes.

This proposition is most readily illustrated in the case of transfer payments to individuals. For example, unemployment compensation is usefully perceived as a negative tax on leisure, which reduces the cost of not working and raises the cost of employment. The response thereto is a shift in the use of the time and resources away from market-directed uses and toward leisure activities on the part of those persons for whom the unemployment compensation "hourly rate" more or less closely approximates the hourly pay rate net-of-taxes, and other costs of working (e.g., commuting costs, extra costs of meals, if any, etc.). Accordingly, unemployment compensation tends to accentuate reductions in employment during a business downturn and to inhibit employment gains after the cycle trough.

This conclusion contrasts sharply with the conventional notion that transfer payments of this sort tend to moderate the severity and shorten the duration of recessions. These favorable effects of such government outlays are based on the assumption that they augment aggregate demand, hence output and income, compared to the levels to which they would fall in the absence of these payments. But as shown earlier, while these payments may be effective in redistributing spending in the private sector, they cannot increase real total outlays. And by inhibiting renegotiation of wage rates and employment terms in order to make feasible the maintenance of employment levels, these transfer payments perversely accentuate the sharpness of decline and prolong recession.

This analysis applies, obviously, with respect to many transfer programs, including most of the payments under the welfare system. The effect of Medicaid in reducing the perceived cost of medical services to the beneficiaries, hence in increasing the amount of such services demanded at the real price of these services, has long been noted. Programs such as Aid for Families with Dependent Children obviously reduce the cost to the beneficiaries of being unemployed, as well as the cost of raising children.

Obviously, the supply side analysis of these government outlays does not address the humanitarian aspects of these programs. It does, however, explicate how these programs impact on the level and/or composition of economic activity. In particular, it shows that these programs should be seen as having none of the expansionary consequences attributed to them by the standard aggregate demand view of things. Indeed, the effects are to constrain the supplies of production inputs, particularly labor, to enhance downward rigidity of wage rates, and to distort relative prices of subsidized services.

These programs may nonetheless be deemed to be worthwhile; obviously they are since they continue to expand rather than to contract or disappear.

Government spending in the form of purchases of goods and services alters (explicit or implicit) relative prices by changing the composition of aggregate demand. Government purchases of any given product or service initially increases the demand for those products or services. This change in demand *per se* must increase the nominal price of the products or services, compared to the prices at which they would otherwise sell in the private sector. The consequence of this price distortion is a reduction in private sector purchases of these goods and services. The same sort of process, depending on the same kind of relative price changes, occurs in response to government purchases of production inputs, rather than products or services. In this case, the increase in demand occurs in the markets for the particular inputs, raising the market price faced by private sector purchasers of these inputs, hence reducing private sector purchases, thereby shifting their use from private sector to government sector outputs.

These changes in demand resulting from government purchases do not per se entail any change in the productivity of the production inputs involved. The real rate of return for any given quantity of any such input is, therefore, not altered. By the same token, the supply of the production inputs is not increased, although the allocation clearly, is changed. No change in aggregate output, accordingly, results on this score from the government purchases.

The reallocation of production inputs, on the other hand, may result in a change in total real output if the real productivity of the inputs is enhanced or diminished in the government's, as opposed to the private sector's, use. A change in the amount of government purchases does not change total output and income by altering aggregate demand; any such change in real total income results only from changes in the effectiveness with which the production inputs are used. Changes in total output of this sort, obviously, need not be positively correlated with the amount of government purchases.

These relative price and allocative consequences of government spending are, clearly, of precisely the same character as those identified in the discussion of the price effects of taxation. It is in this sense that it is perfectly appropriate to delineate government spending as taxation. Identifying government outlays in this way, moreover, urges that their effects on the aggregate performance of the economy are of the same nature as those of taxation. This focus, clearly, is in sharp contrast with the conventional aggregate demand view which treats taxes as drains on aggregate income flows and government expenditures as additions thereto.

Price effects of monetary policy

In the supply side analysis, the analysis of the direct and initial effect of a change, particularly an unexpected change, in monetary aggregates focuses on the change in relative prices resulting therefrom. The basic assumption is that any such change disturbs portfolio equilibrium: the marginal utlity of the additional money falls below that of the other elements in the portfolio, impelling efforts to reduce the quantity of money and to increase the holdings of other goods and assets. This effort portends an increase in the level of prices at a rate greater than that anticipated prior to the (unexpected) acceleration of the monetary expansion.

The allocative response to the expected change in the future price level relative to the present resulting from changes in the pace of expansion of the money stock is, as one would expect, an opposite change in the allocation of current income between exercises of claims on output in the present vs. the future. A speedup of monetary expansion, implying an accelerating rate of gain in the price level in the future, induces an increase in the current demand for goods and services, at least for those which can be inventoried. This allocative effect, then, takes the form of increases in the proportion of current income used to purchase consumer durables and semidurables and a reduction in the portion of income that is saved.

The question is whether this unanticipated increase in nominal aggregate demand results as well in an increase in real output. If any such expansion of real output is to occur, there must be an increase in the amount of production inputs supplied. To obtain this result, one must either assume that suppliers of production inputs confuse increases in *nominal* for increases in *real* supply prices or that somehow the increase in the money stock reduces the cost of effort relative to leisure and/or the cost of saving and investing relative to consumption. But the increase in the money stock has no such relative price effect. Indeed, to the extent that it is identified as leading to an increase in the price level, it is far more likely to be seen as increasing the real cost of effort relative to leisure and of saving-investment relative to current consumption by way of its effects on real marginal tax rates. This perception, of course, would lead to a decrease in inputs supplied, hence to *cuts* in output.

These supply side hypotheses about the consequences of unexpected changes in the stock of money presuppose no significant institutional impediments to prompt changes of prices. In fact, various institutional factors are widely deemed to preclude prompt adjustment of contract terms and specific prices. The allocative adjustment, accordingly, may be impeded, taking the form of changes in the use of production inputs, hence in output, in response to the

change in nominal aggregate demand. But notice that these real changes are functions of institutional rigidities and lead to temporary rather than long-term or permanent adjustments. Supply siders and monetarists are in perfect accord that in the long run, monetary magnitudes do not determine real output and income.

Supply side economic policies: dos and don'ts

The application of supply side analysis entails major changes in budgetary, fiscal, and monetary policies. A fundamental implication of the supply side analysis is that there is no pay-off in focusing fiscal policy on the control of aggregate demand. A corollary conclusion is that there is no valid purpose to be served by attempting to set government spending targets by reference to the supposed contribution of these outlays to aggregate demand. Similarly, a policy focus on the total amount of tax revenues is inappropriate as a means of influencing the level or change in total economic activity. In the same connection, the size of the deficit should not be perceived as a relevant variable for policy manipulation in the interests of attaining designated levels – or rates or growth in – employment, output, income, etc.

In denying the possibility of first-level income effects of fiscal actions, the supply side analysis also rejects the multiplier fiscal arithmetic as a basis for assessing the desirability of any given amount of taxes, government expenditures, or changes therein. Fiscal or budget policies predicated on the existence of a multiplicative relationship between changes in total taxes or total government outlay and total output and income are likely to fail of their explicit objectives – or succeed only by peradventure – and just as consequentially, are often likely to generate unintended and undesirable economic effects.

One of the major implications of these conclusions is that public economic policy should substantially forego short-run economic stabilization as a policy objective and focus, instead, on more attainable and more relevant concerns. These include reducing, if not eliminating, government-induced misallocation of the economy's production capacity resulting from the distortions of relative prices produced by taxation, spending, and regulatory policies. In consequence, the policy focus should shift to facilitating more efficient functioning of the private market system and to allowing the economy to achieve over the long run that rate of expansion of its total production potential and output which would result in the absence of existing constraints on supply.

Rejection of the aggregate demand approach in favor of the supply side analysis leads necessarily to a change in the appraisal of the effects of fiscal actions on the price level. In the aggregate demand analysis, tax and expenditure changes generate changes in aggregate

demand which, since conditions of supply are deemed to be unchanged by fiscal actions, lead to increases or decreases in inflationary pressures. It is this point of view which leads those entertaining it to denounce tax reductions of the Kemp-Roth variety involving significant reductions in marginal tax rates as extraordinarily inflationary. In contrast, the supply side analysis delineates fiscal actions as impacting on aggregate demand in real terms only insofar as it first affects aggregate output by way of first-level price effects. Thus, an income tax rate reduction, by virtue of its relative price effects, generates increases in the supplies of labor and capital services and in output; increases in demand of equal magnitude are necessarily associated with the increase in output. In this analysis, accordingly, no increase in inflationary pressures results. Any such increase would have to be the consequence of an unnecessary increase in the rate of expansion of the stock of money. Indeed, if the growth in the stock of money were maintained at the same rate as if the tax rate reductions were not enacted, the increase in output resulting from the tax reduction would lead to a reduction in any upward pressure on the price level. It is this perception of how fiscal actions take effect that warrants characterizing Kemp-Roth as an anti-inflationary, supply side tax cut.

A collateral directive for tax policy strategy, which comes from adopting the supply side analysis is to shift attention away from the level of tax liabilities in relation to income and toward marginal tax rates. In this connection, consider efforts to cancel or at least mitigate the effects of inflation on taxpayers' tax situations. In the past the standard response of the others opposing indexing of the tax system is that *effective* tax rates have been periodically reduced by discretionary tax changes, thereby cancelling the effects of inflation on real disposable income. Whether or not this is correct, it does not address the point which the supply side analysis identifies as at issue: that inflation raises the real *marginal* rates of tax and thereby discourages work and saving. The appropriate policy question is whether the discretionary tax changes of recent years have, in fact, cancelled the effects of inflation on real marginal tax rates.

Rigorous application of the supply side analysis leads to rejection of the view that budget deficits *per se* are inflationary or that increases in government outlays are the root cause of inflation. The pseudoscientific view of budget deficits as a source of inflation rests on the observation that those deficits tend to be monetized. This is not an inherent or necessary consequence of budget deficits. Much depends on how the deficit originates. Insofar as it results from tax or spending actions which depress or inadequately stimulate private-sector saving, and is financed by a greater monetary expansion than would

otherwise occur, this in turn may result in accentuation of inflationary pressures (depending on what the thrust would have been absent the deficit). On the other hand, some fiscal actions, in particular supply side tax reductions which reduce the relative cost of saving, are likely to generate a sufficient increase in private sector saving to obviate the need for any monetary expansion to finance the deficit such tax cuts produce.

A major policy prescription which flows from this analysis is that the traditional institutional link between monetary expansion and government deficits should be broken. Monetary policy should take the form of slow and steady growth in the stock of money, substantially oblivious to budget prospects or outcomes.

Growth in government spending, even at very rapid rates, is not necessarily the cause of inflation. Government spending patterns, and the rate of spending expansion, are properly assessed in terms of their allocative effects and their consequent implications for the efficiency with which markets can operate. The tie between growth in spending and inflation is to be found in an excessively accommodating monetary policy. To repeat, this relationship should be terminated.

One of the principal analytical outputs of supply side economics is the rejection of the so-called "Phillips-curve" relationship between inflation and unemployment. By the same token, it rejects the view that price-level stability can be purchased only at the cost of unacceptably high levels of "unemployment" or that acceptable growth in employment depends on pursuit of fiscal and monetary policies likely to spur inflation.

On the contrary, the supply side analysis shows that public policy actions which are correctly designed to remove the impediments to employment and to saving and capital formation will constrain, not enhance, inflationary pressures. The root cause of inflation – increases in the overall level of prices – has always been too fast a growth in the stock of money relative to the growth in real output. It should be obvious that with any given rate of increase in the stock of money, the more effective tax measures are in increasing the supply of labor and in reducing tax bias against saving and investment, the less will be the upward pressure on the price level.

The corollary is that a monetary policy which succeeds in curbing inflation will enhance expansion of supplies of labor and capital services and total output and income. Inflation augments the existing tax bias against effort and saving by increasing the real marginal rates of income tax, thereby reducing the real after-tax returns for use of labor and capital services, hence constricting the expansion of labor and capital inputs and total output. Pursuit of a "tight" monetary policy, i.e., one which holds firmly to a steady, moderate rate of in-

crease in the stock of money, accordingly, is not at odds with high rates of growth in output and employment. On the contrary, an anti-inflationary monetary policy enhances the prospects for successful pursuit of those objectives.

Another major conclusion from the application of the supply side analysis of fiscal policy is that tax measures to promote higher rates of saving and capital formation are not at the expense of advancing the productivity and real wage rates of labor. On the contrary, effective implementation of these supply-side tax policies would enrich the capital:labor ratio, hence accelerate labor's productivity advance and increase the demand for and supply of labor services. Labor is likely to get some 75-80 percent of the gain in real GNP resulting from tax changes aimed at reducing constraints on saving and capital formation.

Conclusion

The intellectual origins of supply side economics are ancient, as the calendar of economics would date it, and are found in the works of Adam Smith, J. B. Say, and Alfred Marshall, to name only a few of the titans of the discipline. Its newness is to be found only in its applications to the public economic policy issues of contemporary American society. At this juncture, it affords a major addition to policy-makers' knowledge about how government actions interact with the economy. It offers great promise, therefore, for vastly improving public economic policies in the interests of more efficient functioning of the private market system, more rapid and solid growth in the stock of capital, steadier and stronger advances in labor's productivity, and more rapidly expanding total output and income.

THE THEORETICAL HERITAGE OF SUPPLY SIDE ECONOMICS

by

DAVID G. RABOY

David G. Raboy is Director of Research at the
Institute for Research on the Economics of Taxation
and former Associate Director of Tax Analysis at the
National Association of Manufacturers.

BEFORE THE PASSAGE OF THE ECONOMIC RECOVERY TAX ACT of 1981, there was a great deal of handwringing in the press, in Congress, and among the experts over the efficacy of the policy precepts behind the "new" supply side economics. Critics argued that the policy proposals were too drastic because the theoretical underpinnings were untested. Once the tax act passed, a second wave of critics charged that supply side economics was the product of journalists and politicians, not economists, and that, in fact, there were no theoretical underpinnings.

Do supply side policies flow from logical, consistent, empirically verifiable economic theories or are they merely the whims of fanciful, fast-talking political operatives? In order to answer this question, one must decide just what brand of supply side economics one is considering. As is pointed out elsewhere in this volume, there is a wide spectrum of self-proclaimed supply side schools of thought. And, as is generally the case, the popular press has seized on the fringe ideas that stem from different sources to produce one giant, seemingly bizarre set of theories. If one derived all of one's information about supply side economics from the popular press and made a kind of composite supply sider, one would have to conclude that a supply sider categorically rejects monetarism and considers Milton Friedman to be the most dangerous heretic since Keynes; believes not only that tax cuts are self-financing, but that the cutting of taxes can cure any economic ill; and, most astonishing of all, that taxes can explain any event from the Great Depression to Third World Revolution.

Nothing quite as exotic as all that will be used to define supply side economics here. In fact, this body of thought, as defined here, is surprisingly mainstream, having as its forbears the men from earlier times who first described the free market system. To consider oneself a supply side economist, one only has to agree with most of the following empirical and theoretical statements:

1. The market system provides the most efficient vehicle for the allocation of resources.

2. The market is a stable mechanism because the forces of supply and demand guarantee that markets clear.

3. The market adjusts to price changes relatively quickly.

4. Explicitly incorporating information costs in the market mechanism, it is recognized that the economy is more or less in continuous equilibrium.

5. Individuals and firms are rational and engage in normal optimizing behavior.

Add to these some beliefs about the responsiveness of investors and workers to after-tax rewards, and you have a supply side economist. It should be clear from all this that the terms neoclassical and supply side are synonymous, and thus the heritage of supply side economics is the heritage of modern neoclassical theory.

The purpose of this essay is to trace the development of free-market economics from early times to the present. The obvious conclusion is that today's supply side theory is the culmination of over two-hundred years of an evolutionary process, beginning with Adam Smith and J. B. Say, continuing through the marginalist revolution and the birth of neoclassicalism, embodied in the works of Alfred Marshall as well as the writings of A. C. Pigou and Vilfredo Pareto. In modern times the process has been furthered by such men as Arnold Harberger, Milton Friedman, and Martin Feldstein, as well as by the multitude of young writers who have contributed to the "optimal taxation" and "public choice" literature, such as Michael Boskin.

Adam Smith

No discussion of free market economics would be complete without a review of the teachings of Adam Smith. Although he wrote long before the application of rigorous mathematical methods to economic concepts, his teachings established, heuristically, the basis for much of what was to follow concerning the efficient functioning of an economy. Smith, who lived from 1723 to 1790, was influenced by the great "natural law" philosophers of his day. His major contribution to economic thought, *An Inquiry into the Nature and Causes of the Wealth of Nations*, twelve years in the making, was published in 1776.

The *Wealth of Nations* was a response to mercantilism, then the economic theory in England. Proponents of the mercantile view believed that the mother country was supreme and that government should play an activist role in trade. They advocated protective tariffs, the establishment of monopoly trading companies, and other protectionist schemes as the best way to insure a healthy domestic economy.

Smith countered that, in fact, an economy could only reach its pinnacle in the presence of two ingredients – unbridled expression of

individual self-interest, and the existence of an unencumbered free market system. Smith's argument was not just that individual satisfaction could be maximized in this manner, but that the welfare of society as a whole would be, too.

Although primarily a response to mercantilism, Smith's arguments have become the basis of many economic models in many different areas, from theories of the benefits of international trade to the specification of an efficient tax system in the realm of Public Finance Economics. In fact, these seminal thoughts became the basis for the unified theory of overall societal welfare developed by later neoclassicists.

For the moment, taking the existence of a free market as a given, it is individual self-interest that dictates the ebb and flow of economic activity:

> Give me that which I want, and ye shall have this that you want.., it is in this manner that we obtain from one another the far greater part of those good offices which we stand in need of. It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own self interest.[1]

The prevailing theories of the period stressed the benevolence of an activist government or, at least, the benevolence of powerful members of society as necessary for the economic well being of a nation. Smith disagreed. Clearly, individuals will seek that which they desire. Since some individuals may possess more or less of a given commodity than they desire relative to some other commodity, individual satisfaction can be improved through exchange. This holds true for any economic entity – a physical product, labor, or even the exchange of command over goods now for command over goods in the future. Thus, free trade, involving either one's labor or on the international scene, translates wants and desires into economic growth and the highest level of societal welfare. Such growth, a result of the division of labor:

> ... from which so many advantages are derived, is not originally the effect of any human wisdom, which forsees and intends that general opulence to which it gives occasion. It is the necessary, though very slow and gradual consequence of a certain propensity in human nature which has in view no such extensive utility; the propensity to truck, barter, and exchange one thing for another[2]

As an example, consider the case of Roberts and Jones. Roberts springs full blown into this world with an endowment of a thousand

[1]Adam Smith, *The Wealth of Nations*, (London: J.M. Dent and Sons, Ltd. 1937), p. 13.
[2]*Ibid.*, p. 12.

pancakes, while Jones is bequeathed several cases of maple syrup. Now Roberts could attempt to eek out his life forcing wads of dry pancakes down his throat while Jones quaffs endless snifters of gooey syrup. Each, in his own meager way, would survive and reach some level of well being. But they would be much better off if they bartered pancakes and syrup. The overall level of satisfaction of each is improved simply due to the reallocation of resources affected by unencumbered trade. In a diverse economy with a multitude of products, including the services of labor, ratios of exchange can be set up through this trading mechanism until everyone is more satisfied than they were with their initial endowment alone.

This theme dominated the writings of classical economists; if only exchange were free, then people would be free to sell their labor in an optimal manner, and the economy could operate efficiently. Of course, this view was predicated on the belief that not only was free exchange possible, but the market is inherently stable. Trade and self interest would be ineffectual if the economy oscillated widely, never reaching an equilibrium of supply and demand. Thus, a second condition for economic efficiency is that markets clear. Adam Smith was confident that this would happen at what he called the "natural price" of a commodity. No other price could exist for very long because the natural forces of supply and demand would operate until the natural price was reached:

> When the quantity brought to market falls short of the effectual demand, all those who are willing to pay.., cannot be supplied with the quantity they want. Rather than want it altogether, some of them will be willing to give more...
>
> When the quantity brought to market exceeds the effectual demand, it cannot be sold to those who are willing to pay.., in order to bring it thither. Some part must be sold to those who are willing to pay less, and the low price which they get for it must reduce the price of the whole...
>
> When the quantity brought to market is just sufficient to supply the effectual demand, and not more, the market price naturally comes to be... the same with the natural price. The whole quantity upon hand can be disposed of for this price, and cannot be disposed of for more. The competition of the different dealers obliges them all to accept of this price, but does not oblige them to accept of less.[3]

Thus, it is competition that guarantees the stability of the economy, according to Smith. With individuals following their own self-interest, competition insures an equilibrium because, for instance,

[3] *Ibid.*, pp. 49-50.

should a price be higher than warranted, someone would make a profit by undercutting it.

A corollary, then, involves the role of government and the effects of government actions on the expression of self-interest and competition. Far from increasing commerce, in Smith's view, controls and subsidies had distorted the allocation of resources, resulting in a net loss to society. Government intervention, monopoly, or other interferences with the free flow of market information could only work to the detriment of society. Having rejected benevolence as a necessary condition for the betterment of society, Smith believed that the benefits of trade, competition, and self-interest would permeate all sectors of society with the result that "a general quantity diffuses itself to all the different ranks of society."[4]

To Smith, the general morality of a nation and individual self-interest, far from being incompatible, were complementary. Smith was very concerned in his writing with less fortunate social classes, and considered the betterment of such classes a priority.

> Is this improvement in the circumstance of the people to be regarded as an advantage or an inconvenience to the society? The answer seems at first sight abundantly plain. Servants, labourers, and workmen of different kinds, make up the greater part of every great political society. But what improves the circumstances of the greater part can never be regarded as an inconveniency to the whole. No society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable. It is but equity, besides, that they who feed, clothe, and lodge the whole body of people, would have a share of the produce of their own labour as to be themselves tolerably well fed, clothed, and lodged.[5]

The existence of "perfect liberty," which Smith held so important, would then result in the development of the two key ingredients which would guarantee "that universal opulence which extends itself to the lowest ranks of people."[6]

Actually, these two ingredients are interrelated. The first is widespread division of labor which Smith believed resulted in "the greatest improvement in the productive powers of labour."[7] But the division of labor cannot occur in the absence of a steady rate of growth in the accumulation of physical capital. Capital was viewed as the key to labor productivity in that "labour is facilitated and abridged by the application of proper machinery."[8] Thus, it is in the entrepreneur's

[4] *Ibid.*, p. 10.
[5] *Ibid.*, p. 70.
[6] *Ibid.*, p. 10.
[7] *Ibid.* , p. 4.
[8] *Ibid.*, p. 9.

interest to invest. But laborers, too, have an interest in investment, according to Smith, because the demand for labor varies directly with the rate of capital accumulation:

> The demand for those who live by wages.., necessarily increases with the increase of the revenue and stock of every country, and cannot possibly increase without it.[9]

Capital accumulation represented increases in wealth to Smith and was crucial to productivity, employment, division of labor, and thus, to the betterment of the lower classes. Economic growth itself was inextricably linked to the rate at which the capital stock expanded. Because this variable was so crucial to Adam Smith, a great deal of his writing concerned the determinants of a healthy rate of capital formation in the economy.

Capital accumulation, of course, is impossible without saving. To Smith, a high rate of economic growth was dependent on modest consumption and a healthy rate of saving. The Keynesians would later turn this theory on its head, but it is interesting to note that this debate occurred even in Smith's day. Of course, in the Keynesian view, consumption leads to increases in aggregate demand, which leads to increases in investment via the accelerator principle. Implicit in Smith's writing is the idea that saving is the driving force behind investment in that "whatever industry might acquire, if parsimony did not save and store up, the capital would never be the greater."[10]

Smith stressed this again and again in his writings. And latter-day economists have often echoed Smith's observation that the process of capital accumulation is merely the process of deferring consumption from one period to another. Whatever a person does not consume, he adds to his "capital." If everyone saves, the stock of capital will increase for the entire economy. Saving is the key because, "Capitals are increased by parsimony, and diminished by prodigality and misconduct."[11]

It is the lack of saving that is responsible for economic problems, according to Smith, not a lack of the desire to consume:

> The proportion between capital and revenue, therefore, seems everywhere to regulate the proportion between industry and idleness. Wherever capital predominates, industry prevails: wherever reve-

[9] *Ibid.*, p. 61.
[10] *Ibid.*, p. 301.
[11] *Ibid.*, p. 301.

> nue, idleness. Every increase or diminution of capital, therefore, naturally tends to increase or diminish the real quantity of industry, the number of productive hands, and consequently, the exchangeable value of the annual produce of the land and labour of the country, the real wealth and revenue of all its inhabitants.[12]

In the period following World War II, when the Keynesian-neoclassical synthesis was taking shape, much was written about the relationship between the rate of profit and the wage rate, and their relationship to the rate of investment. The "neoclassical parables" stated that as the capital stock expanded, the rate of profit would fall and the real wage rate would increase. The explanation for this will become clear when other latter-day economists are discussed, but it is interesting to note that Adam Smith also argued along these lines. In Smith's view, workers had a vested interest in a high saving rate because this would lead to increased capital formation and higher real wages. Profit, however, was not a dirty word because, given the risks inherent in investment, a healthy profit rate was necessary to induce investment, in the absence of which labor would stagnate.

The debate over the role of government is the same today as it was in the time of Adam Smith. Economists continue to argue the pros and cons of self-interest, to fight over the stability of the market, and to stress saving over consumption or vice versa. Of course, the mode of analysis of classical economists such as Smith involved intuition as opposed to rigorous application of mathematical logic. Yet, it is of more than passing interest that Smith's intuition was fully supported by the work of later neoclassicists.

Of course, the writings of Adam Smith have not been taken seriously by most contemporary policy makers in the United States. But this is not cause to worry, if one accepts Smith's optimism, because individuals will prosper despite the meddling of government:

> This frugality and good conduct, however, is upon most occasions, it appears from experience, sufficient to compensate, not only the private prodigality and misconduct of individuals, but the public extravagance of government. The uniform, constant, and uninterrupted effort of every man to better his condition, the principle from which public and national, as well as private, opulence is originally derived, is frequently powerful enough to maintain the natural progress of things towards improvement, in spite both of the extravagance of government and the greatest errors of administration. Like the unknown principle of animal life, it frequently restores health and

[12] *Ibid.*

vigor to the constitution, in spite, not only of the disease, but of the absurd prescriptions of the doctor.[13]

This, some would argue, explains the amazing resiliency of the American economy despite the "extravagance of government."

Jean Baptiste Say

The job of systematizing Adam Smith's concepts fell to a man who was only nine years old when *Wealth of Nations* was first published. That man was Jean Baptiste Say, who lived from 1767 to 1832, and founded the French classical school of economics. Say's most famous work was *A Treatise on Political Economy*, which was published in 1803 and was much in demand in the United States during the first half of the nineteenth century.[14]

One of the most misunderstood and misquoted concepts in the history of economic thought has become known as Say's Law. The popular perception of Say's Law is actually John Maynard Keynes' interpretation of Say's writing. Thus, Say's Law has become known as the proposition that "supply creates its own demand," and the corollary, that there cannot be any overproduction of any single good. "Post-Keynesian"[15] writers echoed Keynes' interpretation. For instance, Luigi Pasinetti once wrote that Say "stated that any production generates *its own* demand" (my emphasis) defining "what has then become universally known as *la loi des debouches* or 'Say's Law.' "[16] Statements like this misrepresent the contribution of J. B. Say.

As a backdrop to Say's writing, consider a conflict, important in Say's period, that would become dormant for a long time, only to flare up in Keynes' day and continue to this day. On one side of the conflict was Robert Malthus, who argued that Adam Smith's belief that competition would automatically guarantee economic welfare and full employment was wrong.[17] In a long running debate with the classical economist David Ricardo, Malthus, responding to the writings of Say and John Stuart Mill, questioned the desirability of industrial expansion and argued that unrestrained investment would lead to overproduction and economic stagnation;[18] this distrust of saving and investment was later embodied in the "paradox of thrift" beliefs of Keynes. Indeed, Keynes traces theories of "effective de-

[13] *Ibid.*, p. 306.
[14] Charles W. Needy, *Classics of Economics*, (Moore Publishing Company, Inc. 1980), p. 18.
[15] "Post-Keynesian" is the label attached to supporters of Keynes opposed to neoclassical analysis, who wrote in the post-World War II period. Included are Joan Robinson, Luigi Pasinetti, and Nicholas Kaldor.
[16] Luigi L. Pasinetti, *Growth and Income Distribution* (Cambridge University Press, 1974), p. 30.
[17] Everett Burtt, Jr., S*ocial Perspectives in the History of Economic Theory* (New York: St. Martin's Press 1972) p. 89.
[18] *1bid.*

mand" to Malthus. In retrospect, post-Keynesians have also cited the views of Malthus as seminal:

> Among the views that Malthus attacked was the traditional one that 'every frugal man is a public benefactor.' He retorted that 'the principle of saving, pushed to excess, would destroy the motive of production.' And he added that 'if production is in great excess above consumption, the motive to accumulate and produce must cease from the want of will to consume.' On this basis, Malthus defended the unproductive consumption of the landlords as remedy to 'market gluts,' and warned against the dire consequences of 'parsimony and thrift.'[19]

Thus, in direct response to Say's law, what was to become the Keynesian theory of effective demand found its roots, and a classic confrontation over the efficacy of saving versus consuming began. But before turning to Say's concepts, a digression on "effective demand" is necessary.

The basic principle of "effective demand" goes something like this: In a modern industrial society, the actual productive potential of an economy may exceed actual demand, leading to under-utilization of resources, unemployment, and economic stagnation. In this view, the government should intervene to stimulate consumption and thus bring the level of effective demand up to the level of productive potential. This view is predicated on the belief that overall gluts can occur for significant periods in an economy.

Say did not believe that general gluts could occur, nor did he believe in the efficacy of government-stimulated consumption:

> It is common to hear adventurers in the different channels of industry assert, that their difficulty lies not in the production, but in the disposal of commodities; that products would always be abundant, if there were but a ready demand, or market for them... But ask them what peculiar causes and circumstances facilitate the demand for their products, and you will soon perceive that most of them have extremely vague notions of these matters;.., that they treat doubtful points as matters of certainty, often pray for what is directly opposite their interests, and importunately solicit from authority a protection of the most devious tendency.[20]

In Say's view, demand was not constrained by the desire to consume, but rather by the level of wealth or production in society. In modern microeconomic theory, economists explain this as a lack of "absolute satiation." Theoretically, there may be some point where individuals have consumed so much that they have no desire to con-

[19]Luigi L. Pasinetti, *op. cit.*, pp. 29-30.
[20]J. B. Say, *A Treatise on Political Economy*, (New York: Augustus M. Kelly, 1964), p. 132.

sume further. But any realistic observer of the world will immediately realize that society is nowhere near the point of absolute satiation, has never been there in the past, and is not likely to reach that point in the forseeable future. In fact, wants and desires can be said to be unlimited. Then it becomes clear that consumption is limited not because of any lack of desire to consume, but rather because of a lack of means. This was Say's contribution:

> A man who applies his labour to the investing of objects with value by the creation of utility of some sort, can not expect such a value to be appreciated and paid for, unless where other men have the means of purchasing it. Now, of what do these means consist? Of other values of other products, likewise the fruits of industry, capital, and land. Which leads us to a conclusion that may at first sight appear paradoxical, namely, that it is production which opens a demand for products.[21]

Say's law of markets does not claim that a supply of a specific good creates a demand for that specific good, but rather that the overall level of demand in the economy is dependent on the level of output, and that as production and capital accumulation accelerate, so will demand.

The second challenge facing Say was the flip side of the previous argument: the belief that investment would lead to overproduction and economic stagnation. Say, antedating the neoclassical tradition, believed that, due to the interworkings of supply and demand in the marketplace, prices were flexible. An excess of any particular item could exist at a specific point in time, but no general glut in the economy could exist. Say also argued that the glut of a particular good is caused "either because it has been produced in excessive abundance, or because production of other commodities has fallen short."[22] This latter cause is restated as "people have bought less because they have made less profit."[23] Say noted that a glut of one commodity is paralleled by an identical scarcity of another. Such scarcities, he believed, indicate that consumers prefer the scarce commodity. If the market is allowed to function, resources will naturally flow in the direction of the preferred activity, eliminating both glut and scarcity. It is when the market is interfered with that disequilibrium is maintained:

> It is observable, moreover, that precisely at the same time that one commodity makes a loss, another commodity is making an excessive profit. And, since such profits must operate as a powerful stimulus to

[21] *Ibid.*, p. 133.
[22] *Ibid.*, p. 135.
[23] *Ibid.*

> the cultivation of that particular kind of product, there must needs be some violent means, or some extraordinary cause, a political or natural convulsion, or the avarice or ignorance of authority, to perpetuate this scarcity on the one hand, and consequent glut on the other. No sooner is the cause of this political disease removed, than the means of production feel a natural impulse towards the vacant channels, the replenishment of which restores activity to all the others. One kind of production would seldom outstrip every other, and its products be disproportionately cheapened, were production left entirely free.[24]

At the close of Say's chapter "Of the Demand or Market for Products" in his *Treatise on Political Economy*, four conclusions are offered. The first is that in any area profits will rise "the more numerous are the producers, and the more various their production,"[25] as well as the more extensive the markets. Thus, there is agreement between Say and Adam Smith on the relationship between competition and prosperity. In his second conclusion, Say reiterates that "the success of one branch of industry promotes that of all others,''[26] and in the third, he quarrels with those that would interfere with the normal flow of international trade. In his fourth conclusion, J. B. Say argues that the unnatural encouragement of consumption "is no benefit to commerce,"[27] and states that "it is the goal of good government to stimulate production, of bad to encourage consumption.''[28]

Say also attempted to eliminate the confusion surrounding the role of money in society. The concept of "the neutrality of money," or whether or not money affects real values in the economy, has been a source of debate throughout the history of economic thought. In Say's time, insufficient demand was often blamed on a shortage of money. But to Say, "sales cannot be dull because money is scarce, but because other products are so."[29] Money, in Say's view, was nothing mystical and merely "performs but a momentary function in this double exchange; and when the transaction is finally closed, it will always be found, that one kind of commodity has been exchanged for another."[30]

Once again, Say echoed Smith's view that a free, competitive society would allocate resources to their most efficient uses. The analysis held that "the natural wants of society" would lead to relatively higher demand for preferred products and that in these indus-

[24] *Ibid.*
[25] *Ibid.*, p. 137.
[26] *Ibid.*
[27] *Ibid.*, p. 139.
[28] *Ibid.*
[29] *Ibid.*, p. 134.
[30] *Ibid.*

tries "productive services are somewhat better paid than in the rest.[31] Higher profits would attract additional producers "and thus the nature of the products is always regulated by the wants of society."[32] This concept would become the cornerstone of the unified theory of the neoclassical school: All activities in the economy flow from the domain of "consumer sovereignty"; that is, investment, production, and all other activities in the society could be traced to the sum of the rational, subjective wants and desires of the populace.

J. B. Say also had a thing or two to say about taxes, and was rather opinionated on the subject. He stated that "[i]t is a glaring absurdity to pretend that taxation contributes to national wealth . . . Indeed, it would be trifling with my reader's time, did not most governments act upon this principle."[33] As early as 1803, Say rejected the ancestor of a backward bending labor supply curve by refusing to accept "that the pressure of taxation impels the productive classes to redouble their exertions."[34] He argued that taxation retarded capital formation because "capital is but an accumulation of the very products that taxation takes from the subject."[35] Capital, he believed, was the key to increases in the nation's wealth, and, as others still argue today, suggested that taxes should be levied "[s]uch as are least injurious to reproduction."[36]

The Marginalists

The work of Adam Smith and J. B. Say went a long way in describing the conditions under which an economy would thrive and reach its productive potential. But much of the argument rested purely on intuitive reasoning and many analytical questions remained unanswered. Just what was it that guaranteed maximum well-being under a system of "perfect liberty"? Could it be proven in a logical, rigorous fashion that the forces of competition and self interest moved the economy, via the "invisible hand," towards the production of output with the highest value to society? And, by the way, just what is this thing called value?

A hallmark of supply side economics is the assertion that economic decision making occurs at the margin: A worker determines how much he will work after observing the after-tax wage rate on additional hours of work, not by referring back to hours already worked. With that information, he will decide whether to spend his extra

[31] *Ibid.*, p. 143.
[32] *Ibid.*, p. 144.
[33] *Ibid.*, p. 447.
[34] *Ibid.*
[35] *Ibid.*
[36] *Ibid.*, p. 449.

hours at work or at leisure. It is, as stated earlier in this volume, the relative costs facing economic actors that determines their behavior, and in a broader sense, the way in which scarce resources are distributed in society.

In the mid-nineteenth century, a group of economists that was to become known as the "marginalists" advanced economic theory a great deal with their theories of value and resource allocation. Indeed, marginalist theory, involving concepts of relative scarcity and prices, is the basis for modern microeconomic theory. Simultaneously, but independently, three economists developed theories explaining the determination of prices and economic value. These three were Carl Menger, William Stanley Jevons and Leon Walras.

Carl Menger (1840 to 1921) received his education in Krakow, Poland, and was credited with being the leader of the so-called Austrian school. His two most famous works were *Principles of Economics*, published in 1871, and *Problems of Economics and Sociology*, published in 1883. Jevons (1835 to 1882) was born in Liverpool, England and educated in London. Leon Walras (1839 to 1910), who was largely self-taught, was born in France, but taught at the Academy of Lausanne in Switzerland. In addition to these three, important contributions were made by others on both sides of the Atlantic. Antoine-Augustin Cournot was one of the first to mathematize economic concepts. Frederick von Weisser, a student of Mengers, would actually coin the phrase, "marginal utility," so familiar to students of microeconomic theory. The United States was not entirely absent from the marginalist revolution. John Bates Clark (1847 to 1938), educated at Brown University and Amherst college, also made important additions to economic theory.[37]

During the development of early classical economics, one of the big topics of debate concerned determination of economic value. Just how might an economist decide what contributed to the value of a commodity and what didn't? This, of course, was crucial because such a determination was a prerequisite to the determination of the types of systems and government activities that would lead to a maximization of economic value. Adam Smith and David Ricardo argued that the amount of labor used in the production of a commodity determined the value. Say quarreled with this "labor theory of value," and pointed out that the prices of certain goods did not reflect their labor content. Instead, he believed that value depended on something he called "utility," but his definition was too loose to be satisfying.

That the classical theories of value, both utility and labor, were in-

[37]Charles W. Needy, *op. cit.*, pp. 109-112.

sufficient was illustrated by what was known as the "water-diamond paradox." Water, though essential to human life, was considered to be much less valuable than, say, diamonds. This caused considerable consternation among economic thinkers, who were hard pressed to explain the paradox scientifically. In the writings of the marginalists, the explanation became apparent.

In Carl Menger's view, what was lacking in economic theory was a unified explanation of value. Economic theory, according to Menger, should be totally divorced from subjectivity. Instead, he felt that economics must assume the characteristics of '"pure" sciences like chemistry, biology, or physics.[38] Thereafter, economic concepts should be "positive" rather than "normative."

Menger's jumping off point was his belief that all value could be traced back to the individual wants and desires of the citizenry. In the later, neoclassical period, this would be known as the belief in "consumer sovereignty."

Given individual wants, what determined which goods would be produced? Menger set four criteria: There had to be a human need for the good in question, there had to be the physical possibility of fulfilling that need, humans had to be cognizant of the source of satisfaction, and they had to have the power to direct the knowledge.[39]

But how did individual wants and desires translate into the allocation of resources and the value of that allocation? Menger observed that within a given period, the consumption of successive units of goods provided different degrees of satisfaction. As more units are consumed, the pleasure associated with each additional unit declines. At some point, additional consumption provides no satisfaction whatsoever. Menger coupled this observation with the dilemma of an individual who desires to reach the highest level of satisfaction possible with limited means.[40] The calculus analogue to this problem is the classic case of constrained optimization. In pragmatic terms, identical problems confront an individual wishing to allocate his scarce time between work and leisure or to allocate his limited resources between saving and consumption in order that he may reach his highest level of satisfaction.

Assume that two goods yield the same price in the market, and that an individual has fully exhausted his income purchasing quantities of the two goods. If the utility derived from the last unit of good X is greater than that of good Y, the individual has not maximized his satisfaction. At the same price, given the same resources, the

[38]Everett Burtt, Jr., *op. cit.*, p. 182.
[39]*Ibid.*, p. 184.
[40]*Ibid.*, p. 185.

consumer can purchase X instead of Y and increase his enjoyment more. Further, as X is substituted for Y, the additional satisfaction gained from each additional purchase of X decreases. In fact, the sensible consumer will adjust his purchases to the point where, if both goods cost the same, the satisfaction from consumption of an additional unit of each good will be exactly the same. This result was intuitively obvious to Menger although he never used the phrase "marginal utility" (which refers to the additional satisfaction from consuming an additional unit).

It is the principle of marginal utility that leads to the free trade or exchange that was so important to Adam Smith. Consider the case where an individual is given an original endowment of two goods, the combination of which might not produce the highest possible level of satisfaction. Another individual may be endowed with a mix of goods that is also suboptimal – different people will value goods differently, and it is possible that marginal utilities for different goods, at some level, will vary across individuals. If the utility I assign a unit of good X is more than what I assign good Y, but you value Y more highly, the basis for a trade exists. I will be willing to give you units of Y in return for units of X. Remember that as a person consumes more of a good, additional units become less valuable. Thus, trading will continue until the marginal value we have placed on X just equals Y. At this point, both you and I will have reached the highest level of satisfaction possible given our original endowments.

This idea can be applied to any goods or services in the economy including capital, labor, leisure, or other items. If the means to exchange are unencumbered, individuals can trade commodities of low subjective utility for those that are high, and individuals can better themselves as a result. This concept provides the basis for later theories of economic efficiency.

At this point the water-diamond paradox is resolved. The relative values of goods are determined by their relative scarcities. The reason that water is valued less than diamonds is that it is much more abundant. In general, all our needs for water can be satisfied, while our desire for diamonds cannot; that is, the marginal utility from a "unit" of diamonds is much higher than that for water. We value them much more. Of course, on a desert, the valuation of diamonds relative to water may be considerably different – the last unit of water may be worth a thousand diamonds.

Menger's analysis provides a crucial building block for supply side economics. Economic choices are made on the basis of the value of incremental or marginal units – economic decision making occurs at the margin. Then the way in which taxes, monetary theory, or gov-

ernment spending will affect economic behavior depends on their effects at the margin, on the valuation of activities or commodities.

Another major contribution came from William Stanley Jevons, who further explained the concepts of marginal utility and the role of prices in allocating resources. Jevons stressed, as did Menger, that satisfaction would decrease as additional units of a good were consumed. In Jevon's terminology, marginal utility was the "variation of the final degree of utility."[41]

Utility, in Jevons view, could be either positive or negative; that is, concepts of marginal utility could be extended to things that were painful or involved exertion, such as work. Jevons came to the same conclusion as Menger, that distribution would cease when the additional satisfaction derived from one commodity equaled that of another.

Most important to an understanding of supply side economics, however, is Jevon's work concerning prices. He made the point, stressed earlier in this volume, that resource allocation is affected by changing relative prices. As the first building block, Jevons pointed out that in competitive markets, at any point in time, uniform goods must have exactly the same price:

> If, in selling a quantity of perfectly equal and uniform barrels of flour, a merchant arbitrarily fixes different prices on them, a purchaser would of course select the cheaper ones; and where there was absolutely no difference in the thing purchased, even an excess of a penny in the price of a thing worth a thousand pounds, would be a valid ground of choice. Hence follows what is undoubtedly true, with proper explanations, that in the same open market, at any one moment, there cannot be two prices for the same kind of article. Such differences as may practically occur arise from extraneous circumstances, such as the defective credit of purchasers, their imperfect knowledge of the market, and so on.[42]

This has been called the "Law of Indifference" and, in tandem with other concepts of marginalism, it leads to a very powerful theory of value and exchange. One more ingredient is necessary, the determination of the market price of a good. Jevons has the answer:

> Thus, from the self-evident principle, stated earlier, that there cannot, in the same market, at the same moment, be two different prices for the same uniform commodity, it follows that the last increments in

[41]William Stanley Jevons, "The Theory of Political Economy," in Charles W. Needy, *op. cit.*, p. 118.
[42]*Ibid.*, p. 126.

> an active exchange must be exchanged in the same ratio as the whole quantity exchanged.[43]

If, in a competitive economy, a commodity can command only one price, then it is obvious that that price represents the cost of additional consumption to the individual. A rational individual will make purchases up to the point where the additional cost is just justified by the additional benefit of consumption. If the benefit were higher, it would behoove the individual to consume more, but if the cost exceeded the benefit, the consumer would be happier if he decreased his purchases. Jevons illustrated one of the cornerstones of modern microeconomic theory – that an individual will consume up to the point where the price of an additional unit just equals its marginal utility.

If this is true for one good, it is true for all. If I apply this rule for goods X and Y, then it is obvious that the ratio of the marginal utilities of these two goods will equal the ratio of their prices, or in Jevon's words:

> The keystone of the whole theory of Exchange, and of the principal problems of economics lies in this proposition – the ratio of exchange of any two commodities will be the reciprocal of the ratio of the final degrees of utility of the quantities of commodity available for consumption after the exchange is completed.[44]

Jevon's idea is crucial to supply side theory, which also stresses the importance of relative prices. Should the price of one thing change in relation to another, economic behavior will change. If the price of X increases relative to Y, people will buy relatively more of Y. This is because, after the price increase, the cost of consuming X exceeds the benefit. People reduce their consumption of X until the satisfaction gained from the last unit has risen to the new price of X. As an example, should the cost of working increase (relative to not working) due to a tax increase, individuals will increase their leisure time until equilibrium is restored. Jevon's work was crucial because by analyzing the interrelationship of utility, scarcity, and prices, he provided strong ammunition to combat the classical labor theory of value. His unified theory resolved another paradox:

> The mere fact that there are many things, such as rare, ancient books, coins, antiquities, and etc., which have high value, and which are absolutely incapable of production now, dispenses the notion that

[43] *Ibid.*
[44] *Ibid.*, pp. 127-28.

> value depends on labour. Even those things which are producible in any quantity by labour seldom exchange exactly at the corresponding value.[45]

The unified theory can explain all value, not just that of manufactured goods. But Jevons also pointed out that while labor did not determine value, it contributed to it via the production process. The amount of labor input affected the supply of output which in turn affected scarcity and thus marginal utility.46

One final contribution by Jevons is notable, and that concerns the valuation of factors of production. Jevons turned the classical notion that labour determines value on its head to point out that it is the value of output that determines the value of labor. Jevons held labor to be "essentially variable, so that its value must be determined by the value of produce, not the value of produce by that of labour."[47] This concept, that the productivity of labor determines its real wage rate, is also part of the supply side view.

The relationship between value, marginal benefit, and prices has been discussed above. Leon Walras examined how these forces interact in the aggregate to produce an equilibrium yielding the highest level of social welfare possible. Today, he is viewed as the father of "general equilibrium" economics. Walras coined the term "rarete" to represent the satisfaction derived from the consumption of an additional unit. With Jevons, Walras concluded that "current prices or equilibrium prices are equal to the ratios of the raretes.''[48] Implicit is the assumption that trade or exchange is unencumbered, in which case "[v]alue and exchange... arises spontaneously in the market as the result of the competition."[49] Walras, like the neoclassicists after him, believed that economic efficiency could only result from the free market:

> The exchange of two commodities for each other in a perfectly competitive market is an operation by which all holders of either one, or of both, of the two commodities can obtain the greatest possible satisfaction of their wants consistent with the condition that the two commodities are bought and sold at one and the same rate of exchange throughout the market.[50]

Finally, we must consider the contribution of the American J. B. Clark to the marginalist revolution. The concepts reviewed here in-

[45] *Ibid.*, p. 130.
[46] *Ibid.*
[47] Ibid.
[48] Leon Walras, "Elements of Pure Economics," in Charles W. Needy, *op cit.*, p. 143.
[49] *Ibid.*
[50] *Ibid.*, p. 142.

volve an extension of the marginal utility concept to the theory of the demand for labor and the determination of wages. Clark applied the concepts to a slightly different question. The output produced by adding an additional worker, if all else is held constant, is referred to in today's jargon as the "marginal product of labor." Clark discussed what is now referred to as the "diminishing marginal productivity of labor." In basic terms, given a fixed supply of capital, as additional workers are applied to this stock of capital, total output will increase, but at a decreasing rate.

For example, if ten workers and five machines produce one hundred widgets, eleven workers and five machines produce one hundred and twenty, and twelve workers with the same machines produce one hundred and thirty, a pattern is identified. Adding an eleventh worker increased output by twenty (the marginal product of the eleventh worker is twenty) but adding a twelfth worker increased output by only ten units. The marginal product has decreased from twenty to ten; hence the phenomenon of diminishing marginal productivity. Clark's view was that the value of all labor was dependent on the value of the marginal unit:

> The effective value of any unit of labor is always what the whole society, with all its capital, produces minus what it would produce if the unit were taken away. This sets the universal standard of pay.[51]

This was Clark's law of wages which stated that "[e]ach unit of labor, then, is worth to its employer what the last unit produces.''[52]

That labor will receive such a wage is guaranteed if competition among employers is present. A relevant unit of labor "has in its hands a certain potential product, when it offers its services to employers. If one set of entrepreneurs will not give them the value of it, another one will, provided that competition is perfect."[53] Thus, wages are dependent on labor productivity.

The unified theory of value, and the relevance of comparing costs and benefits in economic decisionmaking, was summed up by Frederick von Weisser, who was a student of Carl Menger's. Von Weisser coined the term "marginal utility," and advanced the theory by considering disutility as well as utility.[54] An outgrowth of this was the concept of "opportunity cost." Any time resources are used in some capacity, the opportunity cost of their use is the utility or disutility of their use elsewhere. The opportunity cost of one hour's work is the utility associated with an hour's leisure. Thus the benefit of working

[51]J. B. Clark, "The Distribution of Wealth," in Charles W. Needy, *op. cit.*, p. 148.
[52]*Ibid.*
[53]*Ibid.*
[54]Everett J. Burtt, Jr., *op cit.*, p. 176.

(after-tax wages) must exceed the opportunity cost to justify the effort.

Clearly, this concept of opportunity cost is crucial to the supply side analysis. In fact, the entire marginalist contribution is paramount to modern microeconomic price theory. It sets the stage for the contributions of the neoclassicists regarding the determination of economic efficiency and welfare.

Alfred Marshall

Probably the most influential economist during the latter part of the nineteenth century and early portion of the twentieth century was Alfred Marshall, who was associated with the neoclassical school of economic analysis. His most famous work was *Principles of Economics*, published in 1890. Marshall defended the contributions of the classical economists, but incorporated marginalist principles; thus he provided a unified theory of value, incorporating marginal utility on the one hand, and costs on the other.[55]

Marshall was influenced by Charles Darwin's *Origin of Species*. Although he quarreled with the Social Darwinists, he believed that the development of an economy was a slow, evolutionary process, not one subject to quantum leaps. In fact, the slogan for *Principles of Economics* was "Natura non facit satum," or nature does not leap.[56] The best vehicle for this evolutionary process – the only vehicle that would not retard technological progress – was the free market system.

Marshall's father intended for him to have a career in religion despite his obvious talents in the field of mathematics. But, Marshall went to Cambridge and obtained a degree in mathematics anyway. His religious upbringing, however, continued to affect him, and, in fact, he turned to economics as a means to consider ethical questions.[57] In Marshall's view, economics "is on the one side a study of wealth; and on the other, and more important side, a part of the study of man."[58] He reasoned that "man's character has been moulded by his everyday work,"[59] and the returns to effort "more than by any other influence unless it be that of his religious ideals."[60]

Marshall's work is permeated with tremendous optimism about the possibility of eradicating poverty. He wondered if it was time "to inquire whether it is necessary that there should be any so-called 'lower classes' at all."[61] To Marshall, poverty was degrading to the nation,

[55]Everett J. Burtt, Jr., *op cit.*, p. 202.
[56]Alfred Marshall, *Principles of Economics* (London: MacMillan and Company, Ltd., 1964), pp. xiii, 248-49.
[57]Everett J. Burtt, Jr., *op. cit.*, p. 203.
[58]Alfred Marshall, *op. cit.*, p. 1.
[59]*Ibid.*, p. 1.
[60]*Ibid.*
[61]*Ibid.*, p. 3.

and it was technological progress that provided the means for eliminating poverty:

> This progress has done more than anything else to give practical interest to the question whether it is really impossible that all should start in the world with a fair chance of leading a cultured life, free from the pains of poverty and the stagnating influences of excessive mechanical toil; and this question is being pressed to the front by the growing earnestness of age.[62]

Enterprise drew as much bad press in Marshall's time as it does today. Noting that the "term 'competition' has gathered about it evil savour,"[63] Marshall wrote that the positive side of the modern era is "a certain independence and habit of choosing one's course for oneself, a self-reliance,"[64] echoing the teachings of Adam Smith. Marshall also reiterated that it is "Freedom of Industry and Enterprise, or more shortly, Economic Freedom'"[65] that yields the greatest potential for economic growth.

Marshall made several seminal contributions to economics and revised and up-dated some existing concepts. Several of them have a direct bearing on modern supply side economics and will be described here.

Any contemporary reader of economic literature might notice the heavy use of economic buzzwords. Marshall spent many chapters assigning carefully thought-out definition to words common in the economists' lexicon. He reaffirmed concepts of diminishing marginal utility of consumption and applied them directly to rigorous analysis of consumer demand.

Diminishing marginal utility implies, again, that as additional units are consumed, less satisfaction will be derived. This implies that an individual would be willing to pay less and less for additional units. If offered one hamburger, a hungry man will pay a certain price equal to the value he places on that hamburger. A second unit will not yield the same utility and thus the consumer would not pay as much. Additional hamburgers will be worth even less to him. The concept of diminishing marginal utility, then, directly implies the specter of negatively sloped demand curves – more is demanded only at lower prices. From this concept, Marshall developed a measure of the overall welfare of an individual and the basis for later quantification of the effects of taxes on that welfare. This measure became known as the "consumer surplus."

[62] *Ibid.*, p. 4.
[63] *Ibid.*, p. 6.
[64] *Ibid.*, p. 5.
[65] *Ibid.*, p. 10.

As stated by both the marginalists and Marshall, a given commodity will be consumed up to the point where the additional satisfaction derived (marginal utility) just equals the price of the unit of the commodity. Suppose this occurs at the point where ten units are consumed: This implies that the value assigned to the consumption of that tenth unit just equals the price. But given the concept of diminishing marginal utility, we know that the values of units one through nine are at least the same, and probably higher than that of the tenth, and yet, since the market will bear only one price for a given commodity, units one through nine cost less than they were valued – their marginal utilities exceeded their price. Thus, the consumers total expenditure (the price of each unit times the quantity purchased) is less than he would actually be willing to pay:

> We have already seen that the price which a person pays for a thing can never exceed, and seldom comes up to that which he would be willing to pay rather than go without it: so that the satisfaction which he gets from its purchase generally exceeds that which he gives up in paying away its price; and he thus derives from the purchase a surplus of satisfaction. The excess of the price which he would be willing to pay rather than go without the thing, over that which he actually does pay, is the economic measure of this surplus satisfaction. It may be called consumer's surplus.[66]

Clearly, if an individual is willing to pay much more for a quantity of a good then he actually has to, he is very well off indeed. Thus, the consumer surplus presents a measure of how well off an individual is. To make the concept clearer, consider an example provided by Marshall. "Let us take the case of a man, who, if the price of tea were 20s. a pound, would just be induced to buy one pound annually,..."[67]; he would buy two pounds if the price were 14s., three at 10s., four at 6s., five at 4s., six at 3s., and seven at 2s. Given a price of 2s., the consumer actually purchases seven pounds. But note that the "fact that he would just be induced to purchase one pound if the price were 20s., proves that the total enjoyment or satisfaction which he derives from that pound is as great as that which he could obtain by spending 20s. on other things."[68] Similarly, each unit is worth (in terms of satisfaction) what he would be willing to pay for it. Since he would have, at 14s., bought two pounds, the marginal unit is worth exactly that amount. Thus his total enjoyment is the sum of the marginal utilities or 20s. + 14s. + 10s. + 6s. + 4s. + 3s. + 2s. = 59s. But he only had to pay 14s. for the whole lot. Thus his consumer surplus

[66] *Ibid.*, p. 124.
[67] *Ibid.*, p. 125.
[68] *Ibid.*

is 45s.; "he derives this 45s. worth of surplus enjoyment from his conjuncture."[69]

Clearly, society as a whole is better off the higher is the total of surplus value. This measure, then, also provides a means of quantifying the effects of taxes. In Marshall's previous example we can add an excise tax on tea of, say, 4s. Now the price increases to 6s. and the consumer will purchase four pounds. The total value to the consumer is 20s. + 14s. + 10s. + 6s. = 50s., and his expenditure is 24s. Because of the tax, the consumer surplus has dropped from 45s. to 26s.; that is, solely because of the implementation of the tax, total enjoyment has decreased.

This concept can be applied to any economic activity or the purchase of any commodity; it can apply to the use of production inputs as well consumption. Thus, it is a powerful tool indeed, and has been used widely in analyses of the effects of government actions on economic well being.

It is one thing to state that economic behavior will change in one direction or another due to government actions, but it is quite another to say by how much. Thus, Marshall's introduction of a "coefficient of elasticity" represents an important development. An elasticity is a numerical measure of the proportionate change in one thing caused by a proportionate change in something else. If one wonders how consumers will respond to a change in oil prices, an elasticity will provide the answer. Much of the debate over the recent tax legislation revolved around the responsiveness of investors and workers to after-tax rewards. Thus, the "elasticity of labor supply with respect to after-tax wages" and the "elasticity of saving with respect to after-tax rates of return" are crucial concepts, and it was Marshall who introduced the methodology by which we quantify this responsiveness to price changes.

Today, the responsiveness of saving to rates of return is a hotly debated topic, but in Marshall's day, it was a foregone conclusion that saving varied directly with after-tax rewards. Saving was viewed in terms of deferred consumption in that "the accumulation of wealth is generally the result of a postponement of enjoyment, or of a *waiting* for it."[70] And saving was considered to be interest elastic: "an increase in the future pleasure which can be secured by a present given sacrifice will in general increase the amount of present sacrifice that people will make."[71] Marshall allows for exceptions but notes that "none the less is it true that a fall in the distant benefits to be got by a

[69] *Ibid.*, p. 127.
[70] *Ibid.*, p. 233.
[71] *Ibid.*, p. 234.

given amount of working and waiting for the future does tend on the whole to diminish the provision which people make for the future; or in more modern phrase, that a fall in the rate of interest tends to check the accumulation of wealth."[72]

In Marshall's writing is seen a more sophisticated explanation of the market mechanism and the role of prices in resource allocation. For the pricing mechanism to work, of course, the market has to be relatively unencumbered, but in Marshall's time, as today, economists argued vehemently about the efficacy of market allocation versus government allocation. Marshall strongly believed that only the market could guarantee innovation and that excessive government intrusion "would deaden the energies of mankind, and arrest economic progress.[73]

Vilfredo Pareto

Economic theory can be characterized as either "positive" or "normative." Normative theory incorporates subjective social valuations, whereas positive theory is purely scientific and ethically neutral. Positive theory would be concerned with, say, the method by which output is maximized; the normative question would be whether such a process is desirable.

A major contribution in the area of positive economics came from the neoclassical writer Vilfredo Pareto, whose most famous writing concerns questions of economic efficiency. In much of the literature on the efficiency effects of taxes, the "Pareto Optimum" is the ideal against which the effects are measured.

Pareto was born in Paris and educated at the Polytechnical School of the University of Turin. He started his professional career as a businessman, but retired from those exploits at the age of thirty-four. At this point, Pareto pursued studies in history, philosophy, and economics and began a correspondence with Leon Walras. Pareto assumed Walras' professorship at Lausanne in 1893 and, though his views would diverge from Walras', he continued to use Walras' general equilibrium framework.[74]

Pareto objected to the interjection of normative social values into economics which he observed in the writings of many of his contemporaries. To him economics was a science and, thus, the primary questions of his discipline should concern economic efficiency.

Although he, too, incorporated marginalism into his analysis (his word for utility was "ophelimity"), he argued against certain economists who contended that the marginal value for a good could be determined in isolation, ignoring the rest of the economy. Pareto in-

[72]*Ibid.*, p. 235.
[73]*Ibid.*, p. 713.
[74]Everett J. Burtt, Jr., *op. cit.*, pp. 257-59, 265-67.

ststed on a general equilibrium framework which stated that the value of an incremental unit was dependent upon events in the entire economy. A tenth unit of coffee may yield a certain level of satisfaction in the presence of sufficient quantities of milk and sugar, but that same unit may produce an entirely different amount of utility should something drastic happen in sugar and dairy markets.

This emphasis on general equilibrium effects is crucial to supply side analysis. Consider, for example, the case of tax equity. Traditionally, equity has been judged by the initial incidence of a tax, rather than the incidence after the effects of the tax have rippled through the economy. The conventional wisdom would hold that a very high rate of tax on capital is equitable, considering the "ability to pay" definition of equity, because more rich people than poor people own capital. But it is altogether possible that rich people can shift their investments out of a highly taxed country to the point where their costs are minimized and they enjoy about the same rates of return. The absence of capital in the highly taxed country will lead to unemployment and a decrease in the real wage rate; that is, workers will bear a high burden from the capital levy. Thus, a tax that initially appeared equitable may, when viewed in a general equilibrium setting, actually be regressive.

Virtually every article in the Public Finance literature involving the effects of government actions on efficient resource allocation identifies a set of "Pareto optimality" conditions by which to judge such actions. In fact, the heart of supply side economics is the desire to raise government revenue in a way that least distorts resource composition. Pareto's contribution in the area of allocative economics is, therefore, crucial.

In the model used by Pareto, individuals attempt to maximize their own welfare and firms try to maximize their profits. Each economic actor has a set of tastes or preferences but is constrained by a set of "obstacles." The question is: What will lead to "maximum ophelimity," or economic efficiency, a situation defined by a stable equilibrium?

Pareto's definition of economic efficiency has stood the test of time:

> We will say that the members of a collectivity enjoy maximum ophelimity in a certain position when it is impossible to find a way of moving from that position very slightly in such a manner that the ophelimity enjoyed by each of the individuals of that collectivity increases or decreases. That is to say, any small displacement in departing from that position necessarily has the effect of increasing the ophelimity which certain individuals enjoy, and decreasing that which others enjoy, of being agreeable to some and disagreeable to others.[75]

[75]Vilfredo Pareto, *Manual of Political Economy*, (Augustus M. Kelley, 1971), p. 201.

The question above can be rephrased to ask: What situation will lead to the case where no one individual can be made better off unless another is made worse off?.

How individuals maximize their welfare under constraint has been discussed in previous sections. Given a limited income, an individual should allocate his expenditures so that the additional satisfaction from each good, weighted by the price of each good, is equal: To reach an optimum, the benefits from each good should be the same. In production, similarly, the marginal cost of production should equal the marginal benefit, and the marginal output from each factor input should be the same. But what will determine these conditions? In Pareto's view:

> ... tastes, and the consideration of the existing quantities of certain goods, determine the relationships between prices and quantities sold or purchased. Furthermore, the theory of production tells us that, given these relationships, the quantities and the prices are determined. The problem of equilibrium is thus completely solved."[76]

Thus, if tastes can be freely expressed, the pricing mechanism yields an equilibrium. And it is competition that guarantees the optimal solution:

> Free competition determines the coefficients of production in a way that assures maximum ophelimity. It tends to equalize the net income of such capital as can be created by means of saving, indeed, savings obviously are transformed into that capital yielding the most income.[77]

To Pareto, any equilibrium reached through competition resulted in the highest level of societal welfare. But Pareto feared that, even in free enterprise systems, government would interfere with competition. He saw his world as distorted by greed and monopoly, encouraged by government which he saw as "insatiable; as its power wanes, its fraudulent practices increase."[78]

Other Neoclassicists

The neoclassical period produced a wealth of contributions on resource allocation, social welfare, value, and income distribution. As in any period, there were intellectual disagreements among those describing themselves as neoclassicists, but much of the modern theory stems from this era.

Pareto insisted on complete ethical neutrality in economics. Arthur Cecil Pigou, on the other hand, was devoted to somewhat more nor-

[76] *Ibid.*, p. 260.
[77] *Ibid.*, p. 266.
[78] Vilfredo Pareto, The Rise and Fall of the Elites, quoted in Everett J. Burtt, Jr., *op. cit.*, p. 275.

mative concerns – the determinants of maximum social selfare. Pigou was a student of Marshall and a member of the Cambridge School of Economics. Considered the father of modern welfare economics, Pigou's most famous work was *The Economics of Welfare*. In this book Pigou established criteria by which to judge the welfare of a nation. Pigou argued that the national dividend (equivalent to net national product) is the proper measure of welfare, and carefully described how it could be maximized.

Given a certain endowment of resources, how can they be allocated so as to maximize the national dividend? The contribution of an additional unit of some input is, in Pigou's terms, defined as the net social product of that input. Pigou argues that "only one arrangement of resources will make the values of marginal net products everywhere equal."[79] But such an arrangement is desirable:

> It follows that, since, ex hypothesi, there is only one arrangement of resources that will make the values of the marginal social net products equal in all uses, this arrangement is necessarily the one that makes the national dividend, as defined here, a maximum.[80]

Why is this so? If resources are allocated so that the marginal contribution of one resource is greater than that of another, output could be increased simply by reallocating resources towards the more productive inputs. If I have a limited amount of money to pay laborers, and, say, all wages are the same, I will hire the most productive workers. In fact, I will allocate my money until the marginal contributions from all are the same because, should the marginal contribution from one worker be less, I would hire someone else. Of course, Pigou's criterion is an extention of the Pareto efficiency requirements discussed earlier.

Out of the classical, marginalist, and neoclassical writers has evolved a unified theory of value, production, allocation, and distribution. People make decisions on the basis of their appraisal of the marginal costs and marginal benefits of certain activities. Further, prices serve to allocate resources to different uses. This makes it possible to define the way in which resources should be allocated so as to maximize economic welfare. And finally, it is possible to state that, if the market system functions correctly, prices will allocate resources to their most valued uses. The neoclassical economist Philip H. Wicksteed expressed this aptly:

> The market tends to establish an identity of the place of differential value of any commodity amongst all exchangeable things on every-

[79]A. C. Pigou, *The Economics of Welfare* (MacMillan and Co., Ltd., 1950), p. 136.
[80]*Ibid.*

> body's scale of preferences, and further to secure that it is higher on the scale of every one that has it than on the scale of any one who has it not; so that to that extent, and in that sense, things must always tend to go and stay where they are most significant.[81]

This brings us to the modern period. In a properly functioning economy, prices are crucial to the efficient allocation of resources. Anything that distorts prices or costs can have a decided effect on economic health. Thus, the way in which government taxing and spending policies affect relative prices and costs at the margin is crucial, and, in fact, the modern neoclassical theory of Public Finance is concerned with just this issue. And, as should be clear, the policy precepts associated with the new supply side economics are an outgrowth of neoclassical Public Finance theory.

The Modern Period

In the postwar period two parallel bodies of Public Finance thinking have flourished, both utilizing neoclassical techniques. Not surprisingly, one body is concerned with the expenditure side of the budget and the other with the taxing side. The former is popularly known as the "Public Choice" literature, while the latter I will characterize as the "optimal taxation" literature. The basic questions addressed by these two groups are: 1) What is the optimal level of government provision relative to private provision? and 2) Given a level of government expenditure, what is the least distorting method of finance?

In the Public Choice literature it is assumed that some role for government exists, given certain failures of the market, and the trick is to allocate resources between private and public uses so as to maximize efficiency (in the literature this point is referred to as the Lindahl Solution). The Lindahl Solution is Pareto Optimal; that is, Public Choice economists have sought to determine Pareto Optimality conditions for government expenditures. This subject is dealt with at length elsewhere in this volume, so a thorough exposition would be redundant. But the recent supply side policy suggestions indicate that government expenditures should be reduced. This stems directly from the belief that the level of public provision relative to private provision is super-optimal, and hence, that the economy is operating inefficiently. Referring back to the teachings of Pareto, this means that, by reallocating resources, society can be made better off. Since the economy is operating inefficiently some people can be made better off without making anyone else worse off by reallocating

[81]Philip H. Wicksteed, "The Scope and Method of Political Economy in the Light of the 'Marginal' Theory of Value and Distribution," reprinted in Charles W. Needy, *op. cit.*, pp. 257-258.

resources towards the private sector. Thus, the desire to cut government expenditures is a direct result of an interpretation of mainstream neoclassical public finance theory.

Long before the term "supply side economics" was coined, economists studied the effects of taxes on prices and hence resource allocation. In his seminal work on investment theory, Dale W. Jorgenson stated:

> The central feature of the neoclassical theory is the response of the demand for capital to changes in relative factor prices.[82]

In later work with Robert E. Hall, Jorgenson presented empirical evidence that investment was responsive to tax treatment.[83] Reams have been written on the responsiveness of savers and workers to tax treatment, but as this work will be covered extensively elsewhere in this volume, it need not be discussed here. Arnold Harberger made a seminal contribution on the way in which differential taxes contribute to inefficiency. Utilizing concepts originating with Marshall and Walras, he estimated the loss of efficiency associated with the corporate income tax.[84]

The more recent literature under the optimal taxation heading specifically considers the best way to raise a given level of revenue. As Agnar Sandmo has pointed out, this literature judges taxes with respect to their departure from Pareto optimal conditions.[85]

Supply side economists have stressed that the tax reforms suggested recently should be judged not by the extent that they increase demand (the Keynesian view) but by the extent that they reduce the aggregate drag on the economy by the distorting effect of taxes (the neoclassical view). Thus the policy suggestions of the supply side school are fully compatable with the spirit of the huge body of optimal taxation literature.

Finally, one must consider the retbrm of a tax system which implies a revenue loss within the context of budget constraints. Do deficits matter? Are they inflationary? Do tax cuts in and of themselves increase perceptions of wealth or aggregate demand? These topics are considered in other essays in this volume, but suffice it to say

[82]Dale W. Jorgenson, "Capital Theory and Investment Behavior," Proceedings; *American Economic Association* (May 1962), p. 247.

[83]Dale W. Jorgenson and Robert E. Hall, "Application of the Theory of Optimum Capital Accumulation," in *Tax Incentives and Capital Spending*, Gary Fromm, editor (Washington, D.C.: The Brookings Institution, 1967), pp. 17-18.

[84]Arnold C. Harberger, "The Measurement of Waste," *American Economic Review* (May 1964). "Corporation Income Taxes," in *Taxation and Welfare*; "The Incidence of the Corporate Income Tax," in *Journal of Political Economy* (June 1962).

[85]Agnar Sandmo, "Optimal Taxation: An Introduction to the Literature," *Journal of Public Economy* (August 1976), pp. 37-54.

that respected mainstream writers such as Martin Bailey and Robert Barro have reinforced the view expressed by Norman Ture.[86]

A Note on Markets and Keynesians

The supply side or neoclassical mode of analysis takes as a prerequisite the efficient functioning of markets. Given such markets, interference in the form of unwarranted government intrusion reduces growth and general wellbeing. The Keynesian mode of analysis disputes the existence of efficient markets. In the Keynesian view, the world is characterized by sticky prices that do not adjust to represent value and widespread money illusion (economic actors cannot differentiate between real and nominal values). Since markets don't function according to this view, government intervention is necessary to allocate resources to their best uses.

Any theory based on money illusion is intellectually unsatisfying at best. Why should it be that certain individuals are constantly fooled because of money illusion? And yet the pure neoclassical world of perfect foresight and instantaneous adjustment seems equally implausible.

A new body of literature, alternatively referred to as the "New Classical" or "rational expectations" school, offers an intellectually satisfying reconciliation between neoclassical analysis and the observation that institutional factors cause lags affecting price adjustment. This is covered extensively in another essay in this book. But after explicitly incorporating information costs into the framework, the neoclassical analysis proves to be valid, and Keynesian theories of continuing disequilibrium are rejected. Thus, the modern economy can be characterized as one in which prices do reflect value and do effect the efficient allocation of resources. This analysis actually reveals another aspect of the way in which government actions influence relative prices. By introducing government-induced uncertainty, tax and spending actions exacerbate price differentiality over and above what would occur in a world where the future was known with certainty.

Conclusion

The passage of the Reagan administration's economic program represents a momentous occasion in the economic history of this nation – momentous because no one would argue that it does not represent a shift with regard to the philosophy of the role of government in the economy.

During the decades following World War II economic policy came

[86]Robert Barro, "Are Government Bonds Net Wealth?" Journal of Political Economy (November/December 1974).

to be based on the theories of the so-called neoclassical-Keynesian synthesis, which implied a large role for government. Given that the macroeconomic theory that gave birth to these policies has permeated our universities, the press, and the political arena for years, it is not surprising that there is a great deal of confusion over the Reagan program and its underpinnings. The analytical tools utilized by economists of the Paul Samuelson era simply don't fit with a market system. This is complicated further because political needs often obscure the economic content of a program.

The problem of analyzing supply side policies with Keynesian tools is one thing, but when political motives come into play as well it becomes impossible to carry out a rational debate. George F. Will is fond of saying that reasonable men can disagree, and this is certainly true in the field of economics. But misrepresentation of theories is unacceptable. We can disagree reasonably about assumptions, empirical matters, and policy prescriptions as long as the issues are being properly stated.

The definition of supply side economics given at the beginning of this essay is, I feel, the most correct since it is the most representative of those economists in and out of government who are currently affecting policy. The purpose of this essay is not to convince the reader of the efficacy of supply side policies, but rather to illustrate that, given the best definition of the theory behind them, one can trace the roots to a consistent, logical, traditional body of literature that is readily accepted in university teaching on the micro-level. It is not a new miracle cure for economic ills, but rather the result of over two hundred years of evolution in economic thinking.