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An Introduction to This Special Issue

THE ORIGINAL 41-page essay restored here to its English original, *Revue Économique*, had just published. Among much else, this noted the ever greater extent to which modern governments have come to fill their needs not by buying on the market, but by direct acquisition from producers. The financial effects of this I termed “social lien.” Its recognition, I emphasized, must put an end to the established practice of dealing with any increase in the price level by raising interest rates.

In the course of these researches I was led to muse increasingly on the relationships between Marx’s birth at the very beginning of Germany’s initial railway building years and the Marxian faith in the pattern of history as a rational sequence from one stage of economic development to the next until everybody arrives at their terminal destination with beatified smiles on their faces.

My essay had been sent out to journals on economic theory throughout the world and had been purchased by *Revue Économique* in France by return mail. It was carried as a 41-page article in issue of May, 1971. Only when that reached me, did I understand why. On its editorial board there was not only the leading French sociologist of the day, but two statistical experts who had tried relating higher price levels to market scarcities without success.

My article was reproduced in some eight leading journals on economic theory throughout the world I was invited by these to come and explain my radical rejection of the traditional view of considering any rise of the price level as “inflationary” calling for higher interest rates.

The economic publication of Cambridge University in Britain had been particularly attracted by my concept and nomenclature of the *social lien*. I spent much of my time during the following years presenting my radically new views on rises in the price level that could seriously be attributed to scarcity, and those with quite different causes.

I was beset with visitors at my home seeking more information. These I usually left in my library with piles of sources on which my new views along with the original English text of my *social lien* analysis. After one of these “scholars” had left, I found that he had carried away the original English version with him. It was only years later that I tracked down a copy of the French translation in *Revue Économique* at the University of Toronto library. This I translated back into English.

In that essay I had made the point that the current technology shapes our concept of the world we live in. And soon I was experiencing some raspy edges of that truth.

I had long since been refused the US visa that would have

allowed me to return to Canada. Now, when the annual renewal of my Mexican visa came up for renewal, it was refused, I was picked up, jailed overnight and the next day put on a plane headed for Guatemala. When that plane made its final Mexican stop at Tapachula, a wireless message had reached it that I must not be allowed off the plane during its final Mexican stop. In Guatemala I had many friends from the years of my close association with the revolutionary Sandinistas of Nicaragua. Those contacts served me well.

By the time I eventually managed to return to Mexico, I had established crucial contacts with the movement that was preparing to overthrow the Guatemalan dictator. Before long I received a cryptic telegram from a friendly Guatemalan suggesting that I come to Guatemala at such an hour on such a day, and that he would explain to me on my arrival why. On my arrival, he took me into his cellar and did just that.

In the center of Guatemala stands a huge high-walled fortress with forts at its four corners. Only in his basement with the lights turned out did my friend explain why he had brought me down to Guatemala.

The revolutionaries had kidnapped the artillery officer loyal to the Guatemalan dictator.

And, putting a pistol to his head, persuaded him to direct his fire against his partner at the diagonally opposite fortification. Weeping, he obeyed the rebels while we crouched in darkness in my friend’s cellar a few blocks away. In 15 minutes the rebels had prevailed. Emerging from my friend’s cellar, I picked my way to the central square in darkness to assess the damage – one dead soldier. The dictatorship was overthrown with such tiny loss of life. Yet the international repercussions were even greater.

At that stage, Henry Luce, head of Time Inc. was getting bored with the war, and on reading my piece, which *TIME* carried, he contacted me, to tell me that I was hired to head the Time organization in any part of Europe or Latin American that I might choose. In a trice my American immigration problem was straightened out and I was brought up to New York to familiarize myself with their home-office writing practices. The staff was most hospitable and I was able to make friendships that lasted for decades.

Getting rid of a series of Latin American dictators at such minimal costs was a sensational development. And before long Salvadoran exiles armed by their Guatemalan friends were headed to the Salvadoran border, but the US State Department also had some second thoughts, and as a result the Salvadoran revolutionaries marching against the Salvadoran dictator were suddenly confronted with greatly stepped-up resistance.

It was not so long before that, the high official at the American

Embassy who had master-minded my temporary expulsion from Mexico had pointed to a photo of President Roosevelt and shouted at me “Who are we to complain about Latin American dictators when we have that man in the White House?” Not too long thereafter, “that man” was gunned down by an American.

Meanwhile, the scattered presence of so many Marxists and other socialists led to a very different reaction to the spread of railways abroad. Britain and its ruling clans were more concerned with financing railways over much of the world than in riding to a prescribed terminal of their home railway.

In the course of these researches I was led to muse increasingly on the link between Marx’s birth at the very beginning of Germany’s initial railway-building years and the Marxian faith in the pattern of history as a rational sequence from one stage of economic development to the next until everybody arrives at their terminal destination with a beatified smile on their face.

However, in 1848, that consoling creed had been ripped to tatters, with the revolutionaries defeated and finding refuge where they could, in far-off America or in Britain as did Marx himself, his faith in the railway-like social model completely shattered. That explains why he could not complete the second and third volumes of *Das Kapital*. That hopeless chore he left to his comrade-in-arms, Friedrich Engels, who having worked at his father’s textile firm in Manchester had a more realistic view of the relations between the working class and the historical process. Even after the defeat of France by Prussia in the 1871 war, leaders of the labour movement were lined up in Père Lachaise cemetery and shot.

And finding asylum in Britain led to a distinct English accent creeping into and over the rigorous German-railway-inspired, optimism of Marxists. In Britain railways had long been familiar and unlike the defeated refugees of 1848, British socialists adjusted their theory and expectations to enable Britain to participate to railway financing in other countries.

However, I was not left free to continue analyzing the mess that speculative finance was causing in the banking world. Many visitors looked me up for further details about my analysis. Since my essay published in *Revue Économique* called for piles of source materials, I would leave my scholarly visitors with source materials. On this occasion, when my inquisitive visitor had departed, I noted that he had taken with him the English original of the essay that had caused such international stir. Since I was entirely absorbed in world travels to explain what the hubbub was about, it was only some years later that I was able to track down the issue of *Revue Économique* in the University of Toronto Library and translate the French version back into its original English.

Meanwhile, with the concept of human capital proscribed by our desperately under-funded universities, once-mighty Cambridge University felt less able to offend the dominant speculative bankers.

So it came as a shock when I attended a world conference at that great institution a few years later, and I found that though the pre-conference displays presented the COMER position, when it came to the plenary session no time had been allotted to me. Instead I and other dissenters were relegated to another conference run by London University in a remote corner of the Cambridge campus. There, the lady in charge – daughter of a celebrated biologist, actually would finish sentences begun by me, exactly as I would have done.

And the humiliating circumstances in which most great universities the world over, is that the human capital is treated not as a precious investment – the most productive there is, but as a debt – that can only be assessed as financial roguery. Worse yet, there was no effort to compare the very different evaluations of human capital on the two non-communicating campuses into which the once glorious campus had been cut. That can only be characterized as moral bankruptcy.

Just building the penitentiaries to punish such moral bankruptcy should suffice to get the world economy running once more. Let us then get on with it!

When we say “wiped out” we refer not to a “as with a wet cloth” but “as with dynamite.”

In our government, in the business world, in the law courts, they could hardly have been more managed a more thorough job with dynamite. And with unlimited greed in speculative banking, how could they allow the Greek heritage to survive in Greece itself? We find then that in all the great essentials in the use of the human mind, ancient Greece’s key lessons have been suppressed today – in the world as a whole and in modern Greece as well. Socrates wrote nothing, he just asked questions – they put him to death for that. But his followers – notably Plato, taught that you cannot just turn around a proposition and consider it still valid.

The influences that will determine the answer to a question is not a straight yes or no but an endless series of effects from all directions, even the phase of the moon. There is not a government in the world to-day that follows this wisdom of Plato. Recognize these great conclusions of Plato, and you would have to emphasize the endless influences that come as answers to our queries from all directions. If our governments remembered this great legacy of ancient Greece, life would be allowed to become more livable for their present-day descendants. Recognized and acted upon, it would emerge clearly that Plato – pupil of Socrates provided the ways of applying an adequate succession to the truncated lessons of ancient Greece both in modern Greece and the rest of our world. Basically these have a deep kinship that has been suppressed by the voracity of speculative banking that currently has the world in its bottomless pocket.

William Krehm

Price Stability and the Public Sector

By William Krehm

A SPREADING SKEPTICISM is being felt about the ability of governments to contain the upward surge of prices. The pharmacopoeia of conventional economic theory has been emptied for the purpose, but its specifics seem only to add to the violence of the symptoms. Higher taxes, punitive interest rates and credit tightening have imparted new momentum to the price swell. Governments are encountering ever greater hardship in placing their bond issues, and find that a new credibility gap has opened between them and their electorate. Stepped-up interest rates seem only to sharpen the ravaging demand for more credit. In the letters-to-the-editor columns of our press more and more irreverent citizens are asking whether higher taxes and interest rates really do serve to keep prices down, despite assurance of prestigious economists on the point.

On such matters, of course, *vox populi* is hardly *vox dei*. Yet it would be rash for economists to ignore a cardinal lesson from a not too remote period of history. There have been turning-points in the economic life of nations, when intelligent laymen were quicker to assess what was taking place than most trained experts. This, of course, was notably so in the Depression of the Thirties. That was because they were less shielded from reality by blinkers of stylized theory. We could conceivably be approaching a like crisis in economic science today. It might therefore be worth their while for economists to try stepping outside the framework of accepted doctrine, and review its most established truths in a spirit of cool and honest reappraisal. That is what I propose doing in this paper.

Let us start with the definition of infla-

tion as taught in our schools:¹

“Inflation is an upward trend in the general price level...we should reserve the term inflation for a longer, non-reversing trend that is of such duration and intensity that the effects of rising prices are widely felt.” After noting that in the past inflation has been associated with every major war, the author goes on to say, that “the principal distinction of World War II is that inflation was largely repressed by controls.... The creeping inflation after 1956 could not be attributed to war. Many people came to view inflation as the inevitable price of economic growth, although the rate of growth was well below 3% annually.... However, it is clearly not true that inflation has always been a concomitant of growth.... From 1820 until the beginning of the Civil War, the trend of prices was moderately downward while the average growth rate of our young economy was high.

“There may be new conditions in the economy, such as powerful labour unions, greater concentration of capital, farm price supports, and a managed monetary system which support which the belief (that inflation is the inevitable price of economic growth). The case is not clear.”

Walker's is a frank statement of a perplexity increasingly widespread on the point. Significant in his list of conditions that might be connected with “creeping inflation” is the absence of any reference to the growth of the public sector of our economy. Here, indeed, is the blind spot in the vision of economic theory today.

For were we to single out the most characteristic institutional trait of the economic scene before us, few would hesitate to choose the portentous expansion of the public sector. In many works J.K. Galbraith, and others, have enlarged on the inevitabil-

ity of this trend with the insight of wit. But the facts laid bare by them have as yet found scant echo in the theories and techniques of any school.

The bulk of this mounting government expenditure is not self-liquidating. Comparatively few items of state-produced goods and services are paid for by a direct charge to their immediate consumers. Most government activities not only do not pay their own way, but are altogether *unpriced*.² Their costs are covered not by imposts on goods and services originating in the *priced* private sector, or on income of the production associated with the latter.

The taxes collected from the private sector to pay for the upkeep of the public sector can take one of two forms. They may appear as a direct additive to the price of the good or service at the point of its ultimate consumption. Or they may be levied not directly on the ultimate consumer but on the raw materials, or on various stages of the unfinished product, or on the factors of production (income tax, corporation income tax, business taxes, real estate taxes on commercial or industrial structures). Should the tax be of the latter sort, the market conditions will determine whether or not it is passed onto the ultimate price of the financial product. But even where such taxation cannot be passed on immediately to the ultimate consumer, it still affects end prices in the medium or long term. For in such cases it bites into the profits of the industry in question, and must eventually lead to a redistribution of investment.

It would be possible to construct a value theory to show the effect of the growth of the public sector on prices³ in the simplest and most direct form. All value theories, of course, contain a large normative element. Of necessity they single out a facet or two of



complex social interrelationships to serve as the basis for their orderings. This implies a judgment on what is fundamental and what secondary – and as an extension of this – a bias as to what may be desirable. Thus marginal theory could never have arisen without a bedrock faith in free market processes. And Adam Smith's labour theory of value sprang from an 18th century Scottish burgher's conviction that a "man is a man for a' that."

To allude to this normative element in all value theory is to suggest its limitations. For to single out some aspects of the economic complex, is to supplant others. This process may take one of the two forms. An isolated relationship or two may be excised from the living body of reality to serve as the premise for neat mathematical procedures. We might call this the method of *mathematical abstraction*. The danger here is that the ensuing mathematical treatment may be pressed to a degree of refinement in no way warranted by the truncated social data on which its original equations were set up – it thus becomes misleading. Every first-year student of physics is drilled to evaluate the margin of error in his experiments, and is warned against losing sight of the number of significant digits in his results. Economists

are not invariably so wise.

Mathematical abstraction is what underlies marginal theory, posited as it is on the fiction of perfect competition. Its insensitivity to aggregate economic problems was the inevitable consequence of its abandonment of an objective unit of value. This omission was long covered up by a devout belief in Say's Law that denied the serious possibility of discrepancies between aggregate supply and aggregate demand, and thus seemed to strip aggregate problems of all urgency. The elegances of marginal theory thus became a positive detriment when it came to determining not only where the economy was headed, but in the 1930s where in fact it had already arrived. A similar fiasco may be shaping today from the helplessness of conventional theory to deal with the price gradient created by the growth of the public sector.

The other method is followed by Adam Smith or Karl Marx in their respective versions of the labour theory of value. We might call it *sociological abstraction*. By this they captured in closely packed form what they deemed the economic-sociological essence of their society. Thus in Marx's labour theory of value – with its surplus-value extension – he condenses notions of pro-

duction for exchange rather than for direct use, the divorce of labour from the means of production. It was because his theory had encapsulated the social reality of mid-19th century capitalism, that Marx was able to achieve real feats of prognosis. On the other hand, due to this same concentration on underlying *qualitative* relationships, Marx's theories, like those of Adam Smith, lent themselves poorly to dealing with short-term market phenomena. In this closer domain they were simply not operational. The necessary choice between these two methods of abstraction – each with its severe handicaps – has been the besetting dilemma of economic theory in every period.

John Maynard Keynes had wrestled with just this dilemma and came to recognize that the abandonment of an objective value theory by the marginalist school had blunted its powers for dealing with the problems of aggregate economics. In this *The General Theory* the following significant passage occurs: "I sympathize, therefore, with the pre-classical doctrine that *everything is produced by labour*, aided by...technique, by natural resources which are free or cost a rent according to their scarcity or abundance, and by the results of past labour, embodied in assets, which also command a price according to their scarcity or abundance. It is preferable to regard labour, including of course the personal services of the entrepreneur and his assistants, as the sole factors of production, operating in a given environment of technique, natural resources, capital equipment, and effective demand. This partly explains why we have been able to take the unit of labour as the sole physical unit which we require in our economic system, apart from units of money and time." It is revealing that though the Keynes commentary soon became a major industry, his followers with few exceptions have chosen to ignore this pregnant passage.⁴

Indeed, it may be said that the divorce from reality of an economic theory can often be measured by the degree of refinement of its mathematical elaboration. When a break-through in theory occurs – and one is overdue today – it can be safely predicted that it will come in the form of a powerful but crudely formulated idea, one whose grip on reality will not have been sacrificed to permit too finely decanted techniques.

The main outlines of such a theory are not hard to foresee. It must be an objective theory of value for we are most concerned today with problems of aggregate economics. It will thus be necessary to return to the

great tradition of Smith, Ricardo and Marx, as Keynes, indeed, attempted. For there is after all nowhere else to seek a basis for an objective notion of value: the one thing that commodities and services, for all their diversity, have in common is that they are the products of human labour. Yet the classical labour theory of value will have to be amended in some vital respects.

Smith and Marx after him held that to be productive labour had to be directed to the production of material goods: labour spent on services was deemed unproductive. Faithful to this tradition Communist governments still exclude the output of services from their statistics of the national product. This introduces a gross distortion, since in contemporary society the volume of services had been growing at a faster rate than that of commodities. A value theory suitable to our purpose would then have to embrace both goods and services.

In the eyes of Smith, Ricardo and Marx, the functions of the state were nonproductive. This position derived from the liberal bias of the first two; with Marx it was but part of a jaundiced view of the state as an instrument of the exploiters.

Such a position is quite out of the question in our day: the public sector is the more dynamic one in our world. The value of its output in such a theory could, of course, also be assessed in terms of the man-hours of average labour expended in producing it. The matter, however, is complicated by the fact that the greater portion of the output of the public sector is unpriced: directly or indirectly it is paid for by levies on the products and factors of production of the private sector. Yet these public services provide the infrastructure of the entire economy, educate its producers and consumers, and are the means of keeping an ever more complicated society appropriately skewered. Hence we might very well consider these public services and goods as *intermediate services and goods* indispensable for the production of the private sector. We could thus *define* the value of the aggregate output of the private sector as consisting of two components:

1. *Core value*⁵ corresponding to the costs and profits net of all taxation that have entered into price. In a broad way this will correspond to the quality of “average, abstract labour” employed in the private sector to produce its output;

2. The *social lien* representing the sum of all taxes that directly or indirectly are levied on the private sector and on its factors of

production. In a general way this may be related to the amount of “average, abstract labour” expended in the production of the unpriced public sector.⁶ We have chosen the name *social lien* because it constitutes a claim of society that must be satisfied before the goods and services of the private sector can enter circulation.

Such theory would capture the essence of our contemporary economic reality. But because it does so, it lends itself to no great precision of mathematical treatment as regards individual goods or services, or specific market situations. Firstly, there is the traditional shortcoming of labour theories of value – they are qualitative rather than quantitative. Correctly, these see in human labour the one common denominator of the output of human industry. But they cannot foretell the proportions in which the different classes of labour will be exchanged. These proportions are parameters established by convention and by the political and social fray, as well as by market microeconomics.

Then, too, there is the difficulty of assessing the portion of the cost of the unpriced output of the public sector that is to be assigned to the individual commodity or service produced by the private sector. In theory this could be dealt with in one of two ways. It could be related to the cost of such state services that have contributed to the production of the particular item in the output of the private sector. Clearly this notion is more readily formulated in theory than applied in practice. Or we might disregard the contribution of the unpriced state services to the particular commodity, and concern ourselves instead with the portion of the cost of the entire unpriced public sector that finds its way into the price of the given commodity. This is determined both by fiscal policy and by microeconomic circumstances that govern the passage of taxation into price.

Such formulations are far more important for abstract qualitative appreciations than as an operational calculus. However, as our attention shifts from individual commodities to the economy of aggregates, many of these difficulties will tend to recede. For our concept would retain a good part of its usefulness even if we were to recognize that such value is not necessarily realized in full in any particular sale. Since the buyer’s gain is the seller’s loss and vice versa, the overall quantum of value, conceived as an objective entity, remains constant. And such a composite notion of an objective value will help



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us to some useful insights into the nature of our dual economy, insights that we shall be able to retain even when we return – as we propose doing – to more conventional ways of handling the problem.

Gone is the day when the price of a commodity could be related entirely to the cost of its own production ruffled in some minor way by the prevailing market winds. Economists have long operated with the notion of “disposable income,” income net of taxes. Our “core value” is a parallel concept relating to price – i.e., price net of all taxation that has found its way into it. Now the fact is that most discussions on price and inflation today are carried on as though “core value” were the whole of price. Except in a few specialized studies on public finance, the *social lien*, no matter how named, is usually disregarded. The result is highly misleading.

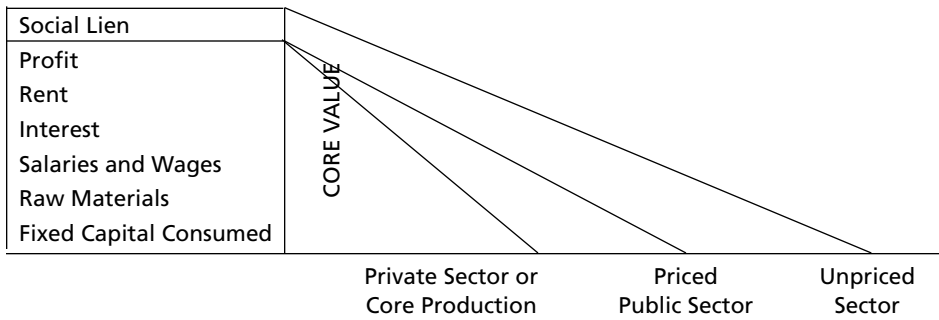
To remedy this a new notion of stratified price must be worked out. This could be represented on a price scale in Figure 1.

Now since there is a pronounced trend for the public sector to grow in relative importance at the expense of the private sector, it is inevitable that the *social lien* should loom ever larger in the above price column. While the public sector takes on girth, the private sector that serves as its supporting pedestal becomes slimmer. The whole seems

Figure 1

Social Lien	CORE VALUE
Profit	
Rent	
Interest	
Wages and Salaries	
Raw Material	
Fixed Capital Consumed	

Figure 2: Price Column of Private Sector



headed for the increasing instability that goes with such a structure.

We can illustrate the matter even better by relating our column of price to the horizontal structure of the economy. The latter is divided into a private and public sector; the public sector in turn consists of a smaller priced public sector and a larger unpriced public sector. (See Figure 2.)

We are simplifying the picture by reducing the entire output of the private sector to a single commodity, and representing its price by a vertical column. Onto this is mapped a horizontal range portraying the structure of the economy. The latter is broken into the private sector and the priced and non-priced public sectors. The lowest rungs of the price columns correspond to the core value of the price of the commodity consisting of the usual components of fixed capital consumed, raw materials, wages, salaries, interest, rent and profit. This passes onto the part of the horizontal range representing the private sector which we might also designate “core production.” The relatively small priced portion of the public sector maps onto a much smaller portion of the *social lien* segment of the column, since in part the priced public sector does pay its own way. The non-priced public sector is mapped out onto the greater portion of the vertical *social lien* segment.

The mapping of the social structure onto commodity prices is not arbitrary. There is a sound causal basis for the correlation. And any policy that advocates compressing the readings on the price scale, without enquiring about the implications of this on the horizontal scale, cannot be helpful.

The transfer of the cost of the public sector to the prices of private production does not, of course, occur as a single mark-up. Instead the burden of taxation is injected at every point in the stream of production. It swells overhead, raw material costs; it bulges wages to make up for tax and social insurance deductions. At every stage it is worked

upon by the subtle multipliers set not only by the proportions and potencies of technology, but by the mountains of paper work thrown up in our society at each stirring of the clerical mice.

When we come to study the factors making up the price of an individual commodity, we find ourselves analyzing not the cost of just one product, but of an emergent way of life. Let me illustrate this by singling out one item, say the price of penicillin. In our economy the price of such an antibiotic must cover not only the cost of production of the sample sold, but part of the research that led to its development, of the cost of training and educating the children saved from a precocious death through the use of the drug, another towards the cost of maintaining the aged and ailing whose lives have been prolonged through its use, and towards foreign aid to the underdeveloped countries where its introduction has accentuated the pressure of population on food. A profile of our evolving institutions is imbedded in the price of every commodity sold today.

The circuitry of our mixed economy still awaits sorting out: what is required is an adaptation to taxation and its contribution to price of the techniques introduced by Wassily Leontief in his *Input-Output Economics*. Certainly attempts to operate in an increasingly hybrid economy with the categories and probes of private capitalism are bound to lead to grave error. For in such a setting, prices no longer signify what they used to. And to work on the assumption that they do is to invite all manner of rude awakening.

Thus the efficacy of Keynes’s anti-cyclical techniques depends in large part on the diagnosis of an inflationary or deflationary trend at its very onset. This is hardly possible if we ignore the role of the *social lien* and mistake the lengthening shadow cast on prices by the public sector for the autonomous movement of prices themselves. To interpret a rise in prices – the sum of core value and the

social lien – as necessarily an indication of inflation is a serious flaw in reasoning. It can trigger anti-cyclical measures that may be unwarranted and harmful. The indications, indeed, are that this has happened repeatedly in the United States since the Second World War. To avoid such false readings it is necessary to develop techniques for distinguishing between the respective parts of core value and the *social lien* in any given price rise. Otherwise, misinterpretation of what our prices are signaling will continue to feed mischief into our policy-making.

Earlier I remarked that it would be possible to devise a value theory that would present the relation of the public sector to the price level in the simplest possible terms. At this point, however, it would undoubtedly be the better part of valour not to attempt this. For nowhere does mandarism sit more solidly enthroned than in the realm of value theory. Venturing a fresh approach to the problems of our economy is in itself no small task; to complicate it further by challenging the sacred cows of pure theory would be foolhardy indeed. Let us therefore retrace our steps and restate our case in more conventional terms.

Let us for the purpose seek to track the shift of taxation into price. For this we must formulate a Tax Shift Function that will give the proportion of taxes paid by the factors of production that is carried into the price of the final product. Clearly there will be two variants of such a function. The first, and for our goal by far the more important, will be the Aggregate Shift Function (ASF). This may be defined as the function determining the proportion of the total taxes collected by the state that is carried into the total prices of the private (and of the small priced public) sector. Another and far more complicated function would give us the distribution of such shifted taxes amongst the various prices of individual goods and services. This we might call the Micro-Shift Function (MSF). There will, of course, be a relationship between the two that can be expressed as follows:

$$ASF \times \text{Gross National Product} = \sum MSF_i \times Q_i$$

where Q equals the quantity in dollars of the commodity or service I , and MSF_i the micro-shift function applicable to the given product.

However, in what follows we shall be exclusively concerned with the ASF.

The ASF is a spreading tent that can offer shelter to the most contrasted views on the actual importance of the tax shift phenomenon. In conjunction with the special value

theory designed for our dual economy that we sketched above, the ASF would become a constant equal to unity. Dealing in terms of actual price, we shall see that it is quite possible for the ASF to exceed unity, that is for the impact of tax on price to exceed the total amount of taxes collected, to be subject to a Tax Shift Multiplier. On the other hand the most diehard conservative who continues to believe that tax increases lower prices rather than accrete onto them, may be confronted by the belief that the ASF approximates to zero, or even takes on negative values. Though rarely formulated openly, this unlikely notion is implicit much of the time in the reasoning of economists.

The Aggregate Shift Function has several independent variables.

1. *Structural Quotient* (π). This is the proportion of the non-priced sector to the entire economy. Between in the years 1929 and 1966 this quotient in the United States rose from about 8% to 24%. A still more revealing proportion, though in a form less handy for our further purposes, would be the ratio of the non-priced sector to the priced sector. Between 1929 and 1966 this ratio – closely related to or Structural Quotient – rose from about 9.0% to 30.2%. The priced sector (private and public) is, of course, the ultimate source of all government revenue. As this tax base shrinks in relation to the volume of taxation exacted from it, we move closer to a limiting situation that could be termed a “tax-saturated economy.” In this the proportion of the non-priced to the priced sector has grown so large, that the estate must exploit its tax-base with searching thoroughness. Once imposed taxes are less and less likely ever to be rescinded, or even seriously trimmed. Sufficient revenue can no longer be raised from a few isolated areas of the economy, while others remain sheltered. On learning of a new tax, taxpayers no longer ask for whom the bell tolls: taxes imposed on any group are likely to be felt by the entire population via the tax shift into price. For by the time such a state is reached, taxes will have eaten into vital margins of revenue, and the factors of production will have taken up a stance of riposte to further tax increases. Not only will they reach to taxes by upping their own prices: they may even anticipate

such tax increases. The Aggregate Shift Function may thus even develop a negative time lag. The most obvious instance of this is the labour contract with escalation clauses running several years ahead.

2. *Fiscal Index* (λ). The structural quotient is important because it lays bare an element of institutional change that determines the specific weight of the tax burden on the economy. But in the Shift Function the structural quotient appears only as co-factor of another variable – the proportion of public expenditure that is actually covered by current taxation. We might call this co-factor the *fiscal index*, and it is another important variable of the ASF. Their product is equivalent to the amount of current taxation over the Gross National Product. (See Figure 3.)

It is this relation of tax burden to tax base that operates as a unit to influence the shift function. But this ratio is compounded of two co-factors, each of which has a highly independent career. We have seen that the structural quotient reflects institutional changes – the proportion of the non-priced sector to the entire economy. For its part the fiscal index is largely shaped by official policy. Into it will enter the effects of anti-cyclical budgeting. It will also mirror the fact that governments rarely make a point of financing their capital investments over periods that correspond to their depreciation spans. The Statistical Abstract of the United States (1968) gives revenue for all levels of Government for 1966 as 225.6 billion dollars and expenditures as \$224.8 billion, despite the fact that \$40 billion of such expenditures are classified as “capital outlay.”

3. *Price Gradient*. The value of the Shift Function will also be affected by the previous record of price change. When prices have already been upwardly mobile, further price increases are likely to encounter relatively

little resistance, and the shifting of taxes into price may be expected to be relatively easy – unless the microeconomic weather veers abruptly. But where prices have long been stable there is static friction to overcome before shifting can occur. It requires circumstances of some force to pry prices out of their grooves. Such circumstances may be



provided by the imposition of a tax which may upset the established price structure and enable producers not only to recoup the tax but even certain increases in cost that they had hitherto absorbed out of their profits. In a suitable microeconomic setting, we may thus have the shift function take on a value in excess of unity. To a large extent the psychology of the buying public and of the factors of production are influenced by the contour of prices in the recent past. To express this contour we need at least the first and second derivatives of price to time – dP/dT and d^2P/dT^2 . These therefore make up further independent variables of our Aggregate Shift Function.

We thus have the equation:

$$ASF = \pi \lambda \left(\frac{dP}{dT} \cdot \frac{d^2P}{dT^2} \right)$$

where π = Structural Quotient, λ = Fiscal Index, P = Price Index, T = Time

In our Western world the output of the public sector almost entirely takes the form of services. What goods are needed for its operation, the state usually purchases from private industry. In effect the non-priced public sector draws upon the private sector for the intermediate goods and services essential to its own production. As a result not only do higher taxes feed into price, but the prices so increased trickle back to swell government expenditures and thus taxation. We must therefore reckon not only with a shift function setting the proportion of

Figure 3

$$\pi \lambda = \frac{\text{Net Expenditure of Public Sector}}{\text{GNP}} \times \frac{\text{Current Taxation}}{\text{Net Expenditure of Public Sector}} = \frac{\text{Current Taxation}}{\text{GNP}}$$

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tax increases that accrete onto price, but with a *counter-shift function* that carries a portion of such price increments back into taxation.

We should not lose sight of the fact that the shift function as we have formulated it deals with the *proportion* of the aggregate quantum of taxation carried into the *aggregate quantum* of prices. Likewise the counter-shift function sets the *proportion* of the *aggregate* amount of such tax-induced price increases that are carried back into the tax bill. Since the non-priced public sector in the United States comprises something around 25% of the entire economy, the counter-shift function would be relatively minor, though by no means negligible. Assuming an average tax incidence on the goods and services purchased by the state, no more than 25% of the absolute amounts of price increases due to taxes are likely to be carried back into taxation.

Once having recognized the existence both of a tax shift function and a tax counter-shift function, it is easy to see that in conjunction the two will have an effect not unlike that of the multiplier and accelerator in determining the impact on aggregate demand of new investment. We will have a rapidly converging series in which new taxes provoke price rises, and these price increases bring on further taxes. We may illustrate the point by tracing the effect of a unit of increased taxation, with an aggregate shift function equal to 0.6 and an aggregate counter-shift function equal to 0.2. (See Table 1.)

Thus the final value of the *shift function cum multiplier* is .68.

The mere existence of a significant shift function is bound to play ducks and drakes with a good deal of conventional economic wisdom. Thus when price indices rise, it has long been established procedure to afflict the private sector with higher taxes and credit restraints in an attempt to force prices back into a stable pattern. But stable prices even if they could be realized in the face of rising taxation and a sizable shift function, could actually be a sign of *deflation*. The mind boggles at the mass of scholarship that

would have to be reworked if it can indeed be demonstrated that the tax shift function does indeed take on substantial values.

Before sampling statistical evidence on the point, let us therefore turn to an authoritative work on public finance, Richard A Musgrave's *The Theory of Public Finance*, New York, 1959, to see what specialized opinion in this field would lead us to expect.

Of the phenomenon of "shifting" in general Musgrave (p. 231) has this to say: "Perhaps a more useful concept of shifting may be secured by measuring the difference between actually change in distribution (or effective incidence) and the incidence of legislative intent. Shifting thus defined is an index of frustration, as it measures the failure of tax policy to achieve its distributional objective."

"Distributional" in the above refers to one of the three functions assigned to the budget by Musgrave – that of altering the distribution of income amongst the various sectors of the population. From our point of view "shifting" chalks up an even greater "frustration" in connection with the budget's stabilization function – the use of taxes to stabilize prices and the economy through the siphoning off of excess demand.

Let us review Musgrave's remarks on "shifting" as it applies to specific classes of taxes.

Corporation Income Tax

To rule out corporation profit tax shifting into price, academic reasoning draws upon a very formal train of argument that is summed up by Musgrave (p. 277) as follows: "In order to maximize profits, the individual firm determines price and output to equate marginal revenue and marginal cost. A tax on profits does not change the position of the marginal revenue and cost schedule; hence, it does not change the position of optimum price and output... The marginal firm incurs no profits of any kind. Superior firms, whose cost of production is lower than that of marginal firms, do obtain efficiency earnings, but these are in the nature of differential rents, and hence, costs to the

Table 1

Tax Increase (Quantum)	Resulting Price Increase (Quantum)	Tax Increase due to Counter-Shift
1.0	.6	.12
.12	.072	.0144
.0144	.0086	
	.68	

firms. Even if the efficiency earnings were taxed as profits, no change in supply would result. Being differential rents such earnings are determined by, and are not determinants of, costs or prices at the margin.”

Other economists, however, have long questioned the validity of these “too facile proofs” (p. 278). “D.W. Robertson and others have suggested that the profits tax may be shifted because it does not allow for such normal profits).⁷ This group has argued that the Marshallian concept of normal price, defined as the price required to keep output unchanged, allows for normal profits, including a return to capital as well as to management. These returns are not rents. They are not determined by price but are cost payments to factors, the supply of which is more or less elastic.

“Consider first the normal return to capital.... If necessary returns, such as rewards for waiting, the surrender of liquidity, or risk, are reduced by the tax, the supply of capital and risk-taking will be curtailed.... Such adjustments may come about in the long run and must be distinguished from the proposition that profits are reduced in the short run.

“In the short run, the plant is given, and there is no normal return to fixed capital. A return to capital must be paid only with regard to working capital. Thus the tax affects cost in the short run, if no allowance is made for a normal return to working capital. Such is the case when short-run capital is in equity form, since imputed interest may not be deducted. Depending on the industry in question and on the financial structure of the firm, the imputed return to working capital may be a factor of some importance.

“Another possible component of normal profits is wages of management. Since the demanders and suppliers of such services are frequently the same people, we deal with a highly administered price. Returns to management, though wages by nature, are not easily distinguished from profits.... a tax thereon may be absorbed by other cost or profit components.”

It is hardly necessary to enlarge on the latter passage. As a result of the increasing impact of taxes on profits and higher-bracket salaries, management has long since evolved advanced techniques for using expense accounts, pensions, and stock options to place a portion of profits beyond the long reach of the tax collector.

The crucial point, however, is made by Musgrave as follows (p. 281): “The proposi-

tion that a tax on the seller is more likely to be shifted in a seller’s market than in a buyer’s market is usually interpreted in terms of various elasticities of supply and demand.... However, the argument may be restated in terms of restraint in price policy. Suppose that price is set so as to secure a limited profit net of tax. An increase in the rate of the profit tax in the boom will be passed on in full, since there exists an ample margin of unused profits.”

Under the administered price system it is the practice of large corporations to set aside substantial internal savings not only to meet contingencies but to ensure the smooth course of development and the financial independence of their firms. Should corporation profit taxes encroach upon such

reserves, there would be no dearth of reasoning to justify price boosts to safeguard such savings.

After examining the problem of the tax shift in the setting of powerful labour unions bargaining with no less powerful corporations, Musgrave reaches this conclusion (p. 285): “The preceding considerations go far in qualifying the conventional conclusion that the corporation tax cannot lead to price adjustments in the short run.... On balance the theoretical argument lends more support to the moderate conclusion that short short-run adjustments in price (1) play a significant role and (2) that a part of the tax is passed on, than it lends to the extreme position that no such adjustments occur.”

Musgrave adds in a footnote: “Thinking



along these lines I have assumed in other connections that approximately one third of the tax is shifted. This, to be sure, is rather arbitrary, but less extreme than the usual hypothesis that the entire tax falls on profits.”

It was in 1948 that Musgrave made this estimate. With our economy becoming far more tax-saturated since then, a considerably higher estimate would seem warranted today.

In 1966 the corporation income tax in the United States amounted to \$32.1 billion of a total tax revenue for all levels of government of \$160.8 billions – approximately 20% of the whole.

Sales Tax

The case of sales and excise taxes – whether levied *ad valorem* or per physical unit – hardly calls for extensive comment. These taxes are *intended* to be tacked onto price. Whether in practice the producer can manage this depends, of course, upon the elasticity of the market. With this qualification we can safely reckon with a 100% shift onto price for sales and excise taxes.

In 1966 in the United States taxes on sales and gross receipts accounted for more than 21% of the tax revenues of all levels of government.

Personal Income Tax

Musgrave ventures no estimate of the shift phenomenon as it relates to personal income taxes. However, in our society the attention of the consumer is systematically directed towards his disposable income – the revenue left him after taxes that he is free to spend as he wishes. For it is primarily as spenders that the members of our culture are most elaborately conditioned to realize themselves. The impact of advertising plots their frustrations.

Reader Letter

Dear Sir or Madam,

I enclose my cheque for membership and ER subscription renewal, 2012.

Once again, I must express my deepest appreciation and admiration for the enduring efforts of COMER to spread awareness of the world's priority problem, the one that affects and governs, directly or otherwise, all others, along with the solutions.

The legal action is a masterstroke – win or lose, the world will take note, making “the enemy” less invisible.

Very best regards,
Barry Sames

No matter how vital, the services provided by the public sector have none of the seductive sheen that advertising often lends to the most worthless commercial bauble. This goes far towards associating psychological satisfaction with disposable income, and thus has an important bearing on the shift function as it relates to personal income tax.

Thus it has been long trade union practice to think and bargain in terms of take-home pay. In their negotiations unions even try anticipating the future inroads of tax and social insurance deductions by winning a schedule of increases spreading over several years. And since tax and price increases cannot be foretold with accuracy, the only safeguard against guessing low is guessing high. A conservative estimate of the shift function for personal income tax onto price would be 50% within one year of any tax increase being introduced. In the United States during 1966 individual income tax accounted for more than 37% of taxes collected by all levels of government.

From the foregoing consideration of the main tax categories, we can safely say that in our dual economy the aggregate shift function takes on very substantial values – of a magnitude somewhere between 50% and 100%.

We have already examined one multiplier that acts upon the shift function to increase its value – the counter-shift effect. There are still other multipliers.

These indirect or multiplier effects of the shift function we shall now attempt to trace. They may be grouped broadly into two classes. Those that we might call “structural” are essentially adjustments to changes originating elsewhere in the economy. Others might be termed “inflationary” because they actively disturb the relationship of supply to demand and thereby generate pressures on productive capacity. These two sets of effects are closely intertwined; at times they are essentially distinct aspects of the same phenomenon. Because of this, indeed, it will never be possible to disentangle completely the impact of the *social lien* and of inflationary factors proper on price.

1. In its primary incidence the *social lien* itself is structural – its growth reflects the relative expansion of the non-priced public sector.

2. However, the accreditation of the *social lien* onto price is a virtual part of the mechanism by which purchasing power is transferred from the private to the public sector. And this transfer of purchasing power does not have a *neutral* effect on sup-

ply and demand. Governments rarely save: their propensity to consume may be taken as unity, whereas private individuals and firms have a propensity to consume of less than unity. The effect of such transfer of purchasing power from the private to the public sector is thus to increase aggregate demand, and by dint of this to push up price. We accordingly have a secondary inflationary effect of the *social lien*.⁸

3. A sustained upward price gradient, once established by the *social lien*, has a marked influence on the patterns both of consumption and investment. In a society where consumer credit has grown as portentously as in ours, a secular price rise has a most significant effect in reducing the burden of debt. The consumer experiences a “wealth effect.” Inevitably his mood becomes more buoyant and he is encouraged to make further purchases on credit. For the business community, too, soaring prices provide a great amortization of errors: windfall profits in many lines are delivered as though by conveyor belt. Equity is shifted from the hands of the passive lenders to the risk-takers, and cannot but help lead to stepped-up investment.

Don Patinkin has held that the drop in real money balances due to price increases tends to reduce demand and exerts an equilibrating restraint (“The wonders of the ‘invisible hand’ never cease”).⁹ This would have a measure of validity if the active buyers of goods made a habit of holding great cash balances. The fact is that the entrepreneur has always made a point of operating to a large extent on borrowed funds. The spectacular growth of home mortgage-financing, and of consumer durables has put the public at large on a not dissimilar footing. In this context Patinkin's real balance effect is reversed: price stability is given the back of the “invisible hand.” A sustained price surge reduces the real indebtedness of consumers and entrepreneurs and encourages further purchases. This is what is occurring in our economy today, and to a large extent as a secondary inflationary effect of the *social lien*.

4. When we come to consider the impact of the *social lien* on interest rates, we find it in both structural and inflationary components. The structural one is simple enough: with continuing price increases becoming a strong probability, lenders learn to distinguish between the nominal and the real rate of interest that they receive. As a protection against the lower purchasing power of the money in which their loan will be paid back

to them, they exact a higher rate of interest. This is clearly but an adjustment to changes arising elsewhere in the economy.

But once the pattern of climbing interest rate has been set, it can exert an inflammatory effect. Isolated increases in interest rates will in many instances act as a deterrent to investment. But if there is a strong reason to believe that the interest rates will continue pushing upward along with prices, the prospect becomes most inviting for long-term borrowers. For they may capitalize the probable further increase in interest rates over the term of their borrowing, and consider that a windfall.

This effect of rising prices on interest rates is at times reinforced by misguided official policy. Identifying higher prices with inflation, when it may at times be mainly a structural effect, governments often attempt to cool off what they take to be an "overheated economy" by dousing it with higher interest rates and tighter credit. In doing so, they may simply compound the trouble, and nudge still higher the interest rates that have already been driven up by the price rise that they seek to combat. And such higher interest rates feed back into price and impart to the price-interest spiral an added torque.

In many fields – notably the housing – interest enters as a major factor into costs. Indeed, in large urban centers the combination of soaring costs *and* interest rates is putting the supply of inexpensive rental housing quite beyond the scope of the private sector. As a result the public sector is becoming saddled with it. This, of course, adds further to the burden of taxation and the impact of the *social lien* upon price. As the proportion of public to private sector continues to shift to the disadvantage of the latter we are likely to see the same pattern cropping up in more and more areas of the economy.

The depressant effect upon prices of higher interest rates was closely tied in with the onset of the downward phase of the business cycle. But it is one of the crucial workings of the *social lien* – quite apart from parallel influences of anti-cyclical policy and built-in-stabilizers – to attenuate the downward phase of the cycle and all its consequences.

Our point may be illustrated by borrowing from Alvin H. Hansen's *Business Cycles and National Income* (1951), p. 174, a table setting forth the endogenous forces that contribute to the business cycle. By endogenous forces Hansen refers to routine economic factors in contrast to external contingencies such as wars, bumper crops,



technological upheavals, First we will give the table as Hansen offers it, and then extend it to take in the investment effects of the *social lien*.

In constructing this table (Table 2 on p. 14), Hansen assumed a constant rate of annual autonomous investment of \$10,000 per annum. By applying to this the multiplier and accelerator effects, he shows that these two influences are enough to impress a cyclical pattern on business activity. By the multiplier effect, of course he refers to the additional consumption induced by a quantum of investment beyond the demand created by its initial expenditure. To the extent that the factors of production spend the income received from such investment, more purchasing power is created in successive production periods. But each time this purchasing power changes hands a portion of it is saved rather than spent and the momentum of the initial investment is dissipated. The proportion of income received that is spent is "c" – *the propensity to consume*. The accelerator is the proportion of investment induced by the increase of consumption during the period.

It is assumed that disinvestment (capital consumption) cannot exceed \$10,000 per annum. The cyclical effect appears beyond all doubt.

Now into this table let us introduce a further column entitled "Investment Induced by the *social lien* additive to Price." This ingredient of price rise feeds signals to the investment community and tends to increase the volume of investment. The extent of such increase will depend upon: (1) the proportion of the tax increase to the Gross National Product; (2) the value of the Tax Shift Function; (3) the sensitivity of the investing community to price increases. To achieve a crude simplification of our model we will assume that such Investment Induced by the SL amounts to \$3,000 per annum. We will then calculate the multiplier and accelerator effects upon this, keeping in mind that when the accelerator effect

takes on a negative value in cannot exceed the sum of the autonomous and SL-induced investments.

Comparing this table (Table 3 on p. 14) with the original table of Hansen we find:

(1) The high point of the cycle in either case is attained in period six, However, as a result of the investment effects of the *social lien*, the peak has been lifted from 101.3 in Table 2 to 131 in Table 3.

(2) In Table 2 the low point was reached in period 13 with a value of 9.9. in Table 3 the low point does not come until period 14 and its value has been increased somewhat to 13.0.

The *social lien* has thus contributed to weakening the equilibrating function of the business cycle, imparting to it a powerful upward thrust, somewhat blunting its trough, and drawing it out in time. Our model, of course, is a very crude simplification of reality. Thus we have assumed that taxation and investment induced by the *social lien* are spread evenly throughout the cycle. This, of course, flies in the face of long-established anti-cyclical policies. However, the general direction of the influence of the *social lien* is established by our model.

In his *Economic Issues of the 1960s*, published in 1960, Alvin Hansen makes the point that the inflation of the period from 1948 to 1959 was really much milder than that between 1897 and 1913. For consumer prices the increase between 1948 and December 1959 averaged 1¾ compounded annually, as contrasted with 2.5% between 1897 and 1913. We might add that between 1960 and 1967 this rate compounded annually averaged still lower (116.3 for 1967 as compared with 103.1 for 1960): the annual growth factor was 1.61%. But averages can hide as much as they disclose. Thus the increase in 1966 over 1965 was 3.8% and the following year 2.8%. And we have reason to believe that since then price increases both have and will accelerate considerably. This is not only because of the workings of the *social lien* but because of the cumulative psychological effect of what has already happened. For we have by now chalked up almost 30 years of virtually unrelieved price rise. The last decline in the US Consumers' Price Index was in 1949 – a drop from 102.8 to 101.8 compared with the previous year – and the second last was in 1939 – a drop from 60.3 to 59.4.

The persistence of such a rising trend over so long a stretch of time is hardly less

Table 2: Hansen Table — Marginal propensity to Consume is $\frac{2}{3}$; Accelerator 2

Period	(1) Autonomous Investment – deviation from base period	(2) Induced Consumption (b)	(3) Induced Investment (c)	(4) = (1) + (2) + (3) Total deviation of income from base period
Base Period	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0
1	10.0	0.0	0.0	10.0
2	10.0	16.7	13.4	30.1
3	10.0	20.0	26.6	56.6
4	10.0	37.8	35.6	83.4
5	10.0	55.6	35.6	101.2
6	10.0	67.5	23.8	101.3
7	10.0	67.6	.2	77.8
8	10.0	51.6	(-10.0)	51.6
9	10.0	34.4	(-10.0)	34.4
10	10.0	22.9	(-10.0)	22.9
11	10.0	15.2	(-10.0)	15.2
12	10.0	10.1	(-10.0)	10.1
13	10.0	6.7	(-6.8)	9.9
14	10.0	6.6	(-0.2)	16.8

(b) The figures in this column increase for each period by $\frac{2}{3}$ the *increment* of income in the *preceding* period. This procedure follows from the assumption (1) that the marginal propensity to consume is $\frac{2}{3}$, and (2) that changes in consumption lag one period behind income.

(c) The figures in this column in each period are twice the difference between the induced consumption of that period and that of the preceding period. This procedure follows from the assumption that every increase in consumption induces (via the acceleration principle) an increase in investment equal to twice the increase in consumption.

Table 3

Period	(1) Autonomous Investment	(2) Investment induced by Social Lien	(3) Induced Consumption	(4) Investment induced by Increased Consumption	(5) = (1) + (2) + (3) + (4) Total Deviation of Income from Base Period
0	0	0	0	0	0
1	10.0	3.0	0	0	13.00
2	10.0	3.0	8.66	17.33	39.00
3	10.0	3.0	26.00	34.66	73.66
4	10.0	3.0	49.1	46.20	108.3
5	10.0	3.0	72.1	46.00	131.1
6	10.0	3.0	87.4	30.60	131.0
7	10.0	3.0	87.4	0	100.4
8	10.0	3.0	66.9	(-13.0)	66.9
9	10.0	3.0	44.6	(-13.0)	44.6
10	10.0	3.0	29.7	(-13.0)	29.7
11	10.0	3.0	19.8	(-13.0)	19.8
12	10.0	3.0	13.2	(-13.0)	13.2
13	10.0	3.0	8.8	(-8.8)	13.0
14	10.0	3.0	8.6	(-4)	21.2
15	10.0	3.0	14.1	11.00	38.1
16	10.0	3.0	25.4	22.6	61.0

important than the annual rate of the increase. The very contours of a pronounced cycle with price collapses occurring periodically kept the public mindful that price movements are a two-way affair. If they were plucky and cunning, lenders might contrive to get their loans back when prices were low; no one quite knew when fortune's wheel would turn. Moreover, the anguish of the collapse by far exceeded the euphoria of the rise, and imprinted itself on the public mind beyond anything that cold statistics might suggest to the historian. Timid souls, trust establishments, and retired people were always available to invest as renters and bondholders and thus to fill the essential role of passive investors. But with the hazards of price drops dampened, and a sustained upward price trend powered by the *social lien*, all sectors of the public must necessarily become more "inflation-minded" – not excluding bondholders, widows and orphans.

We will now venture upon the statistical testing of our theory. With the available data we can hardly pretend to results of great precision, but we should be able to satisfy ourselves that we are at least operating within the right magnitude, and that our conclusions are fully compatible with the evidence at hand.

Our basic difficulty will be in sorting out the effects of the shift function from those that we might term the *index of inflation* proper. This, of course, is not unrelated to the classic demand-pull vs. cost-push debate, but our posing of the problem is novel insofar as it focuses attention on the part of taxation in this picture, a role that has been ignored in most discussions.

The *index of inflation* will in turn be the resultant of two distinct factors – the excess of demand over supply, and any un-neutrality in the money supply. We may at once eliminate the "un-neutrality of the money supply" as a major factor in the long-term price movements of the United States for the period that we will be examining. Between 1950 and 1966 the total money supply *and* time deposits in the United States increased by 158% as compared with an increase in the GNP during the same period of 202.2%. Even if we were to consider all time deposits as part of the money supply, on balance the monetary policy would thus appear to have been restrictive. We may therefore confine our consideration of inflationary forces to non-monetary factors in our examination of the American experience during these years.

Let S = the Index of Inflation; X = the

Tax Shift Function; P = GNP Deflator; OMH = Output per Man-Hour; T = total of government revenue at all levels. The subscripts refer to time periods.

If we assume that the Shift Function $X = 0$, the index of inflation may be stated as follows:

$$S = \frac{P_{n+1} - P_n}{P_n} \cdot \frac{OMH_{n+1}}{OMH_n} \quad (1)$$

On the other hand if we work on the assumption that the Index of Inflation $S = 0$, then the following equation may be set up:

$$X = (T_{n+1} - T_n / GNP_n) = \frac{P_{n+1} - P_n}{P_n} \cdot \frac{OMH_{n+1}}{OMH_n} \quad (2)$$

Combining equations (1) and (2), we obtain a more general equation that covers workaday reality:

$$S + X = (T_{n+1} - T_n / GNP_n) = \frac{P_{n+1} - P_n}{P_n} \cdot \frac{OMH_{n+1}}{OMH_n}$$

Now let us calculate the values of X on the assumption that $S = 0$. The data that we use are taken from the *Annual Report of the Council of Economic Advisers*, United States Government Printing Office, Washington, 1969 (Table 4 on page 16).

The values of the Shift Function X – on the assumption that the Index of Inflation $S = 0$ – are to be found in row (5) on Table 4. With the exception of the two negative values for 1953-4 and 1957-8, which we shall discuss below, none of these values are outside the range of probability, even on the assumption that S , the *index of inflation* is zero. But S , of course is only exceptionally zero: it takes on positive or negative values. And when the X value tends to be high as in 1956-7 (2.42), 1960-1 (1.36), and 1963-4 (1.73), there is a strong suggestion that we are in fact not warranted in supposing that S is zero. Rather it is likely to have played a significant part in the price rise. We can see this, too, in the circumstance that these years combined a quite substantial growth of the GNP with a very restrained growth of government receipts, T .

We may arrive at a better insight into the interaction of S and X by comparing the equation given in our row (5) with another expression, seemingly more accurate, given in our row (5A) that we shall now develop.

Assuming once more that $S = 0$, and taking V for the physical volume of production, we have:

$$X \cdot d(T/GNP_n) \cdot GNP_n = P_{n+1} - P_n \cdot \frac{OMH_{n+1}}{OMH_n}$$

Dividing both sides by $GNP (= VP)$ this becomes:

$$X \cdot d(T/GNP) = \frac{P_{n+1} - P_n}{P_n} \cdot \frac{OMH_{n+1}}{OMH_n}$$

In this expression we may replace $d(T/GNP)$ with the formula of the differential calculus and we obtain:

$$X \cdot \frac{T'GNP - GNP'T}{GNP^2} = \frac{P_{n+1} - P_n}{P_n} \cdot \frac{OMH_{n+1}}{OMH_n}$$

This tells us that the larger the growth of the GNP, the greater the Shift Function would have to be to account wholly for any increase in price. And where in our row (5A) on Table 4 we find that this yields improbably high values for X , we can interpret this to mean that S was in fact substantial rather than zero, and quite decisive for the behaviour of prices, while the role of the *social lien* was negligible. This was so, for example, in 1964-5 when X by our equation on (5A) would have equaled 23.0 on the supposition that S was 0. In that year the increase of the GNP from \$632.4 to \$684.9 billion sufficed both to reduce the specific weight of the *social lien* and to reinforce inflationary demands.

In general such high values of X as calculated by our equation in (5A) occur under one of two distinct sets of conditions: (1) when the GNP has grown substantially providing a broader tax base to keep down the specific weight of the *social lien*, and stoking inflationary pressures; and (2) when T , the revenue of governments, has grown but slightly (as in 1956-7 and 1960-1) which rules out a significant contribution of the *social lien* in such price rises as may have taken place.

In the two instances where the equations for X in rows (5) and (5A) produced negative values, we are confronted with a point of some interest. In both these years T declined moderately (94.3 to 89.7 billion in 1953-4 and 115.6 to 114.7 in 1957-8) reflecting in part a near-stationary GNP (364.6 to 364.8 billion and 441.1 to 447.3 billion). Clearly when dT assumes a negative value, any attempt to explain a price rise on the basis of the *social lien* must yield a negative value for this shift function. And this in turn might mean either that any tax reduction was not passed into price, or that inflation and not the *social lien* was the factor responsible for the price increase that year.

In both these years a quite stationary GNP, instead of leading to price stability as the supply-demand theory would lead us to expect, was accompanied by an Implicit GNP Deflator that showed more than a trivial advance – 2.1 points in 1953-4 as compared with 1.3 points during the subsequent year, and 2.5 points in 1957-8 alongside 1.6 points for 1958-9. The probable explanation is that in these subsequent years

the *social lien* was spread over a substantially increased GNP – 364.8 to 398.0 in 1954-5 and 447.3 to 483.7 in 1957-8.

Our equation in (5A) clearly shows this likely relationship.

We referred to the equation for X in (5A) involving $d(T/GNP)$ rather than just dT/GNP as “seemingly more accurate.” We did so because as in so many instances in economics a more elaborate mathematical equation does not necessarily bring greater precision. Often as in this case the simpler formula may do less violence to a complex reality. Specifically the only time interval that we have available for use in (5A) is a calendar year, and this must certainly introduce gross error when substituted for an infinitesimal quantity in the differential equation. In a year even natural population growth by its effect on the GNP will produce its own peculiar astigmatism. We are, moreover, living in a period of upwardly tilted and highly administered prices, and in such a microeconomic climate prices tend to be raised almost at the very moment that higher taxes are levied. Such price increases in turn through the sundry multipliers that we have examined spark an expansion of the GNP which tends to offset the price increases by spreading the tax burden – if further productive capacity is available – or contribute to inflationary price increases if such unused capacity is not at hand. Either of these effects would lessen the impact of the *social lien*, and thus call for a much higher value for the Shift Function if the price data are to be explained exclusively on the basis of the *social lien*. Hence the improbably higher values for X that we obtain in our row (5A).

Because of such considerations we must accept the equation in (5) as more useful for actual calculation of the likely value of X than that in (5A) which embraces too many secondary inflationary effects of the *social lien* rather than just the initial structural one.

Economic discussions today are haunted by the paradox of a near static output that is often accompanied by an upward price trend. Thus on page 58 of the Report of the Council of Economic Advisers for 1968, we

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Table 4

	1950	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
(1) Gross National Product (billions of dollars)	284.8	345.5	364.6	364.8	398.0	419.2	441.1	447.3	483.7	503.7	520.1	560.3	590.5	632.4	684.9	747.9	789.7	860.7
(2) Total Receipts (all governments) – T –	68.7	89.8	94.3	89.7	100.4	109.0	115.6	114.7	128.9	139.8	144.6	157.0	168.8	174.1	189.1	213.2	227.2	260.9
(3) Output per man-hour (1958 prices)	80.3	84.3	87.8	89.9	93.9	94.1	96.9	99.8	103.4	105.0	108.6	113.8	117.9	122.5	126.6	131.4	133.5	137.9
(4) Implicit price deflators for GNP (Index Numbers 1958 = 100) – P –	80.2	87.5	88.3	89.6	90.9	94.0	97.5	100.0	101.6	103.3	104.6	105.8	107.2	108.8	110.9	113.8	117.3	121.8
(5)	0.744	-1.31	0.527	1.56	2.42	-12.9	0.521	0.755	1.36	0.502	0.646	1.73	0.833	0.98	1.35	1.02		
(5a)	-2.8	-1.18	2.17	4.17	17.4	-4.6	0.881	1.47	28.9	12.0	2.28	-1.12	23.0	3.16	8.77	2.42		
(6) Average gross hourly earnings in selected industries – total non-agricultural private	\$1.34	1.52	1.61	1.65	1.71	1.80	1.89	1.95	2.02	2.09	2.14	2.22	2.28	2.36	2.45	2.56	2.68	2.85
(7) Corporation profits after taxes (billion dollars)	24.9	19.6	20.4	20.6	27.0	27.2	26.0	22.3	28.5	26.7	27.2	31.2	33.1	38.4	46.5	51.0	48.1	51.0
(8) Income of unincorporated enterprises	24.0	27.1	27.5	27.6	30.3	31.3	32.8	33.2	35.1	34.2	35.6	37.1	37.9	40.2	42.4	44.8	46.3	47.8
(9) Gross Government Product (compensation of general government employees)	20.9	31.2	31.9	32.5	34.2	36.1	39.1	42.1	44.4	47.5	50.9	54.7	58.1	63.0	67.8	76.5	84.8	94.3
(10) Corporation profits less taxes plus capital consumption allowance	33.7	31.0	33.5	35.5	44.4	46.1	46.8	44.3	52.0	51.6	53.5	61.3	64.8	72.3	82.9	90.7	91.5	98.1
(11) % Corporation profits after taxes to GNP less Gross Govt. Product	9.4	6.2	6.1	6.2	7.4	7.1	6.5	5.5	6.9	5.9	5.8	6.2	6.2	6.7	7.5	7.6	6.8	6.7
(12) % Corp. profits after taxes to sales dollar all manufacturing	7.1	4.3	4.3	4.5	5.4	5.3	4.8	4.2	4.8	4.4	4.3	4.5	4.7	5.2	5.6	5.6	5.0	
(13) % Income of unincorporated enterprises to GNP	8.4	7.8	7.5	7.6	7.6	7.5	7.4	7.4	7.3	6.7	6.8	6.6	6.4	6.4	6.2	6.0	5.9	5.6
(14) % of Corp. profits less taxes plus one half of capital consumption allowance to GNP less gross Government Product	11.1	8	8.1	8.5	9.9	9.6	9.1	8.2	8.9	8.6	8.6	9.2	9.2	9.7	10.5	10.5	9.9	9.7
(15) % Total Receipts of all Governments to GNP	24.1	26	25.9	24.6	25.2	26	26.2	25.6	26.6	28	27.8	28	28.6	27.7	27.8	28.5	28.8	30.1
(16) Average gross hourly earnings (total non-agricultural private) x 10 ⁴ Output per Man-Hour x Implicit GNP Deflator or Our rows =	1.96	1.97	2	2.04	1.97	2.01	1.99	1.96	1.93	1.94	1.91	1.87	1.84	1.81	1.73	1.77	1.91	1.79

find the following passage: “over the 6 and ¾ year period (1961-7), real disposable income per capital...rose 29 percent, a greater gain than that of the preceding 18 years... the price performance for much of the period was outstanding, though the record of the past two years is blemished. For the period as a whole, the over-all GNP price deflator rose 2.0 percent a year.... During the preceding seven years of slow growth and intermittent recession, the annual rate of increase had been: 2.2 percent for the GNP deflator.”

The Report offers little to explain this paradox. For paradox it is. During a period of “slow growth and intermittent recession” it stands to reason that our S – the index of inflation – should have been small or negative. Yet the price boost was beyond that of the bustling sixties. Viewed in the light of our *social lien* theory, these seemingly contradictory facts drop rather neatly into place, as can be seen from our tables. During the years of laggard GNP, the tax burden grew substantially both in absolute and relative terms. On the other hand in the sixties though taxes increased at a not too dissimilar pace, the rapid increase of the GNP spread its burden on price.

Again on page 105 the Report tells us: “Largely as a consequence of restrictive monetary and fiscal policy and a concurrent rise in the personal saving rate, the growth and final demand slowed in late 1966. A period of inventory adjustment and sluggish over-all growth followed in the first half of 1967 – the rise in prices that did occur in that sluggish period was essentially a reflection of rising costs rather than of excessive demand. However, these cost increases originated in the strong demand conditions of 1965 and 1966. Thus the price-wage spiral that did at least part of the “turning.”

The figures in Table 5, taken from the 1969 *Report of the Council of Economic Advisers*, would indicate that the latter was at least an important factor in this period.

We have here a rising weight of taxation to GNP that is reflected in ascending prices even in the presence of limp demand.

There are two approaches to testing the statistical validity of our *social lien* theory. The first is to establish the magnitude of the shift function. We have done this and found that the results, though perfectly compatible with our hypothesis, were not wholly satisfactory because of the difficulty in sorting out the *social lien* from effects of inflation proper.

The other approach, which we shall now

Table 5

	Billions of Dollars			
	1964	1965	1966	1967
All government Revenue	174.1	189.1	213.2	227.4
Increase over previous year	5.3	15.0	24.1	14.2
GNP	632.4	684.9	747.6	789.7
Increase over previous year	42.1	52.5	62.7	42.1
% Total Government Receipts to GNP	27.7	27.8	28.5	28.8
Implicit GNP Deflator	108.8	110.9	113.8	117.3

attempt, is to compare the trend of government revenue as a proportion of the GNP, with that of wages to production, and of profits to the output of the private sector.

First let us deal with the likely contribution of wages to the unsettlement of prices over the past 18 years. For this purpose we shall use the formula in Figure 4.

This gives us hourly wages adjusted to both productivity and price changes, and the results may be found in row (16) of our tables.

They would indicate that wages in industry so adjusted have not risen during the period in question. It is important to note, however, that this by no means eliminates the possibility that there may have been an important element of “wage-cost push on price.” For it is not excluded that the upward price movements so initiated should have outstripped the wage increases and thus left real wages adjusted to productivity no higher than before. However, what we are dealing in is probabilities, and if we should find that the proportion of profit to price, or profit to GNP, or taxes to GNP, increased massively during this same period, it is reasonable to assume that such a factor is more likely to have proved the dynamic disequilibrating element in the cost-price complex.

We give the proportion of corporation profits after taxes to the GNP less the gross government product in row (11) of our tables. The gross government product is the remuneration to direct government employees. We deduct this rather than total government revenue or expenditure from the GNP to ascertain the output of the private sector; for the goods purchased by government

from the private sector contribute to profits. We should, of course, keep in mind that profits tend to increase as production moves towards fuller capacity, and fall off when production drops to well below capacity. Yet we obtain an arithmetical mean of 6.8 for this proportion over an 18-year period, and end up with figures just of that order during the final two years, when production, by the way, was extraordinarily buoyant.

Profits of corporations clearly are only a part of the picture, we are not able to provide figures for the profits of unincorporated enterprises *after* taxes for obvious reasons; but the proportion of such profits to GNP can be found in our row (13). During the last two prosperous years of this period the figures for this ratio were 5.9% and 5.6% as compared with an average over the entire period of 6.8%. This probably reflects in part the shrinking importance in the national production of unincorporated enterprises. But to the extent that this is so, row (11), giving the proportion of corporation profits after taxes to the GNP less gross government product, understates our case.

The share of corporation profits after taxes to the sales dollar of all manufacturing is given in row (12). This would indicate a modest gain in 1966 (5.6%) as compared with an average of 5.0% for the entire period and 5.0 again in 1967. This rather inconclusive result should probably be adjusted downward for our purpose because the increased value of inventory due to price rises must have contributed to such profits.

In our row (14) we give the proportion of corporation profits after taxes plus one half the capital consumption allowance to the GNP less gross government product.

Figure 4

Average hourly wages gross (total non-agricultural private)	×	10 ⁴ (Row (6) of our table)
Output per man hour (total non-farm) – our Row (3)	×	Implicit Price Deflator for GNP – our Row (4)

This is based on the supposition that one half of the write-off allowed for capital consumption constitutes in fact effective profits – a most generous assumption. Over the 18 years under survey the average value of this proportion was 9.3%. The average over the last three years is 10.3% – an increase of the order of 11%. It is highly questionable whether this increase is not in large part of a cyclical character. But even accepting it, it must be considered of a relatively modest order alongside what we find to have taken place in the proportion of government revenues to GNP.

The figures for the latter are to be found in our row (15). Here once more, we must recognize that the growth of government revenues has had the effect via the *social lien* of increasing both the real and dollar volume of the GNP, and of thus counteracting the upward trend of the ratio. Yet in spite of this the ratio has moved most impressively, with but few setbacks, from 24.1% to 30.1% – an increase of almost 25%. And since the volume of government revenues is well over 300% the volume of corporation profits after taxes plus half the capital consumption allowance, the impact of each percent of increase of the former is likely to have considerably more resonance on price than a percent increase of the latter.

Without a doubt all this raises a strong probability that the growth of our public sector and of the taxes to pay for it have been the most dynamic of the factors contributing to our price surge. It is likely, indeed, to have played a greater role in this than the wage-cost push to which so much attention has been devoted – in part because the latter fits so much more cozily into the runnels of supply-demand theory.

When price movements were basically cyclical, interest rates tracked a cycle of their own – one that was out of phase with that of prices and thus tended to counteract it. Indeed, the prescriptions of earlier anti-cyclical policy were founded upon this phase lag: when prices rose dangerously, the remedy was to up the interest rate to help drive down prices. Today, however, because of the *social lien* prices and interest rates more and more tend to move *in phase*. This further weakens the much-blurred cyclical pattern: prices and interest rates seem locked in a secular upward course. The *social lien* accretes steadily onto price, and the anticipation of still higher prices adds to the interest rate a correction for the anticipated shrinkage of the currency.

This positive correlation that is develop-

ing between price and interest has the effect of upsetting much of the vintage wisdom of conventional theory. Where it does not squarely invalidate its teachings, it often leaves its equations dangling indeterminate-ly. Price has become an autonomous variable not wholly shaped by forces within the private sector itself; in part its movements reflect the growth of the public sector.

We can illustrate the point of viewing our contemporary dilemma as it appears through the model abstracted from Keynes' *General Theory of Employment, Interest and Money*.

The basic equations of this later Keynesian system may be expressed in Keynes's "wage-unit" as follows:

$$(1) i = L(M, Y)$$

i = rate of interest, Y = income of factors of production

$$(2) C = 0(Y, i)$$

M = quantity of money, C = consumption expenditure

$$(3) I = F(i, C)$$

I = Savings or Investments which in this system based on real units are necessarily equal

$$(4) Y = I + C$$

In the parameters of these equations there are, of course, involved Keynes' *liquidity preference* and his *propensity to consume*.

In our dual economy prices in the private sector acquire a growing measure of autonomy because of the influence of the *social lien deriving entirely from influences outside the private sector*. This in turn has its effect on i , the interest rate, as price advances are discounted into the remote future. Hence in equation (1) we must include P for price as an additional independent variable. This gives us an amended equation:

$$(1a) i = L(M, Y, P)$$

Substituting this in (2) and (3), and then the amended equations (2) and (3) in (4), we obtain:

$$(2a) C = 0(M, Y, P)$$

$$(3a) I = F(M, Y, P)$$

$$(4a) Y = Y(M, Y, P)$$

Thus P appears as an independent variable in all equations. It is no longer enough for the achievement of an equilibrium of price to manipulate Y , i , and M in a way that would give us full employment. For factors outside the private sector could bring on a price increase by stepping up the incidence of the *social lien*. It is rather like playing poker with deuces wild. It can be done, but unless the player is alert to this added rule of the game, he is unlikely to end up with the pot.

Should the reader be unconvinced by this reasoning, I would refer him to the *Economic Letter* of the First National City Bank of New York of January, 1969, where the following passage is to be found: "Expectations of accelerated inflation have led some firms to speed up capital spending programs on the grounds that it will cost more next year. However...anticipation of investment needs can be costly if the expected growth in markets does not develop on schedule, or if prematurely installed facilities become technologically outmoded. A puzzling feature of the investment boom is the fact that industry is operating well below optimum capacity in both the United States and Canada."

The contents of the above passage could well be expressed in terms of our equation (3a) above. I is growing because of an increase in P . There would be nothing in the original Keynesian version of this equation $I = F(i, C)$ to cover the facts set forth in the bank letter.

Once the Indians have been sorted out from the trees, it should be possible to design policy to alleviate the mischief caused by the ground-swell of price.

It is common practice for much of the capital expenditure in the public sector to be paid out of current revenue.¹⁰ But such capital expenditures are investments that will serve their purpose for many years. According to accepted theory, financing such works in the public sector by borrowing would tend to inflate prices; paying for them on an "as you go" basis from current revenue keeps down prices by siphoning off purchasing power from the private sector. Undoubtedly this is one effect, but not the only one. For the increased taxation to defray such capital outlay from current income must give rise to a heavier *social lien* precipitating onto price. At bottom this is bound to have much the same influence on price that one-year write-offs for capital investments would have in the private sector.

One reason that this has been overlooked is that the very notion of capital investment has not struck very deep root in the public sector. Liberal economists have been brought up to regard the public sector as a sink of waste; Marxists regard government expenditures as the unproductive use of surplus value for the unspeakable end of the capitalist state. Writers like J.K. Galbraith have fought a valiant battle to enlighten the public to the real role of the public sector, but their struggle has been essentially a defensive one of limited tactical objectives. Up

to now the basic theory relating the private and public sectors has not been elaborated.

In the *Statistical Abstract of the United States*, 1968, “Producers’ Durables” is given for 1967 as making up 11.7% of the national wealth, while “Business Structures” as 13.2%. Jointly they added up to 24.9%. Consumers’ durables on the other hand amounted to 11.5% or almost half the com-

more rapid depreciation must be applied to a car or a television set than to a person’s training. Where one or more in the family has had university training, the cost of that family’s learning is certain to outstrip considerably the depreciated value of its durables – very much so if the scholars’ keep while at college is reckoned. And the best-educated part of the population to-

more obliquely by the rapid shrinkage of depreciation periods for industrial equipment. This has little enough to do with physical wear; rather, it is a matter of anticipated technological obsolescence.¹¹ This does not necessarily shed light on the actual cost of training the research and development personnel responsible for such obsolescence, but it does indicate what order of expenditure would be warranted for such education. Such educational capital is less exposed to obsolescence than physical plant – when training becomes outdated it can often be brought up to standard through refresher courses. Its effects are carried over even to subsequent generations – note the rapidity with which devastated Germany was rebuilt after World War II, as contrasted with the slow progress of say Egypt which was spared serious ravages in that struggle.



pared value of the buildings and equipment of business.

Now it is not hard making a broad comparison between the cost of educating an average family and the likely value of the family’s stock of consumers’ durables. Where two children and two parents have all had a high-school education, it is likely that such 48 student-years of education would at least equal the cost of the average family’s durables, especially since a far

day is found among younger people who still have to acquire an impressive stock of worldly goods. Given this, and the greater numbers of such younger people in our contemporary society, it is not a headlong conjecture that within a decade the capital that advanced countries will have invested in the education of their people will equal or exceed the capital vested in the physical plant of the private sector.

The same conclusion is suggested even

End Notes

1. Walker, Franklin V. (1965). *Growth, Employment and the Price Level*. Prentice-Hall.

2. The *Statistical Abstract of the United States* (1968) gives the following break-down of revenue for all levels of government in 1966: Taxes \$160.8 billion; Insurance Trust Revenue \$30.6 billion; Charges and miscellaneous general revenue \$27.6 billion; liquor store revenue \$1.6 billion; utility revenue \$5.1 billion. We may take the tax and insurance trust revenue amounting together to 191.7 billion as the revenue for the un-priced public sector, and the other items totaling \$34.3 billion as the income of the priced public sector.

3. For the sake of simplicity we are assuming for the longer term the identity of value and price.

4. A notable exception is the penetrating essay of Shigetso Tsuru that appeared almost two decades later: Keynes vs. Marx: the Methodology of Aggregates, in *Post-Keynesian Economics*, edited by K. Kurihara, London, 1955.

5. For simplicity’s sake we completely disregard the distinction between value and price, except insofar as price is the monetary expression of value – a procedure followed by Marx provisionally in the first volume of *Capital*.

6. To avoid complication we are, of course, ignoring any deficit run up by the priced public sector.

7. That is, profits that are really elements of cost rather than genuine profits.

8. See Alvin Hansen’s *Business Cycles and national Income*, 1951 (p. 200) for a summary of pioneer writings on this effect.

9. See Thorn, Richard S. (1966). *Monetary Theory and Policy. Major Contributions to Contemporary Thought*, p. 288. NY: Random House, Inc.

10. The *Statistical Abstract of the United States* (1967) gives the total revenue for all governments during 1066 as \$225,641 million and the total expenditure as \$224,813 million. But the figure for expenditure – more than covered by revenue – included capital outlays by governments of \$39,981 million.

11. In his *Modern Capitalism – Changing Balance of Public and Private Power* (London, 1965), Andrew Schonfield informs us that “Imperial Chemical Industries, the largest British manufacturing firm, had commonly used a 20-year depreciation period for equipment...this was reduced in 1950 to 15 years for new projects. In the early 1960s this became 12-15 years, and more recently...an average of 10 years. For certain types of investment, the period is down to 5-7 years.”

