III. LaRouche's True Science of Economics

APRIL 28, 1999

The Economics 'I.Q.' Test

by Lyndon H. LaRouche, Jr.

If anyone tells you that a rising Dow-Jones stock-market index proves that the U.S. economy is growing, your reply ought to be: "Oh, you mean that the cancer is growing. Tell me, Doctor: How is the patient doing?"

Given the present circumstances of the people of most of today's world, that is not a cruel thing to say. It is something which any intelligent and honest person would consider it necessary to say under the rapidly worsening real-economic conditions in the U.S.A. today. As a report included in this ***EIR*** *Special Feature* summarizes the fact:

> During the coming six months, more U.S. citizens, especially the poor and the elderly, will die of the worsening economic sicknesses caused by current Federal Reserve Board Chairman Alan Greenspan and related ***Wall Street Journal*** policies, than of illnesses such as heart disease and cancer. Indeed, many of the preventable deaths from heart disease and cancer are the result of those financial and related budgetary policies.

That is simply an actuarial fact; it is not the kind of deliberately misleading index which so many foolish Americans quote so triumphantly from the large-circulation mass-media. The present trends in U.S.A. general welfare policies, especially those of Wall Street's carpetbagging HMO and related pilfering of health-care standards, are notable in this connection. No decent person would argue, that the present U.S. economy, which successfully increases the sickness and death rates of its people, especially among its elderly and poor, is a healthy economy.

The best way to understand what is happening to the stock markets, and to the personal financial accounts of many among you, right now, is to compare the present trends in financial markets since Spring 1997 with the rise in prices, measured in Reichsmarks, during the first eight months of 1923—up to the time of the Hitler's "beer-hall *Putsch*" which launched Adolf Hitler's growing influence in Germany's politics [**Figures 1A-C**]. Look at the way the personal financial savings of the German "middle class" were wiped out by the Weimar hyperinflation of 1923, and the way in which Federal Reserve Chairman Alan Greenspan's even more lunatic hyperinflationary bubble is now threatening to wipe out much or all of what you presently believe are your personal assets.

Ask yourself: Even after the world's experience with the results of that 1923 Weimar hyperinflation, why are so many politically influential and other Americans victims of the widespread superstition, that the health of an economy can be measured in prices of stocks and bonds? Why do most adult Americans today become suddenly either stupid or even plunge into episodes of wild-eyed babbling, when the subject turns to economics and economic policy? There are many contributing factors behind such behavior.

In this Special Feature, we shall consider a few typical factors, and then turn our attention to today's principal subject: How does a sane citizen determine whether an economy is actually growing, or not? Why is my standard for measuring economic health, my so-called "Triple Curve," the only effective yardstick for measuring how well, or how badly Wall Street is performing today?

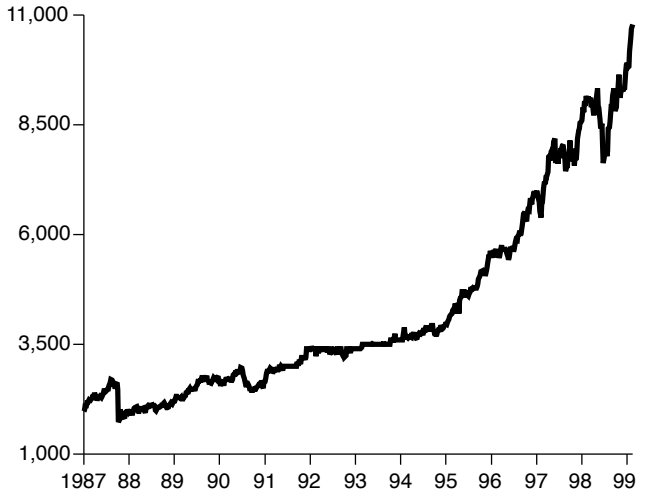
1. The Idea of the 'Triple Curve'

The simple fact of the existence of inflation, ought to be accepted as a warning, that the total price of commodities in a financial market, can grow, even rapidly, under the condition that the net physical output of the same economy is shrinking. Therefore, all sane adults *should* consider it a childish superstition, to suggest that the index of prices in financial markets, such as the typical Wall Street

FIGURE 1A

Dow Jones Industrial

(Average weekly closings, 1997-99)

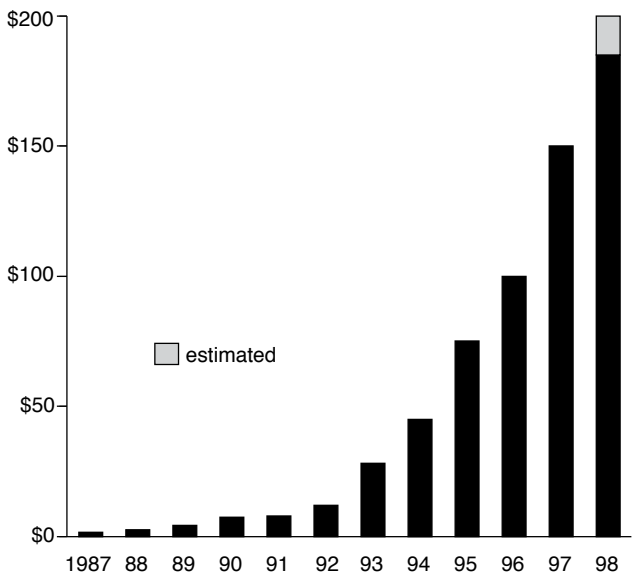


Source: Dow Jones.

FIGURE 1B

Global Derivatives Holdings

(Notional principal value outstanding, trillions $)

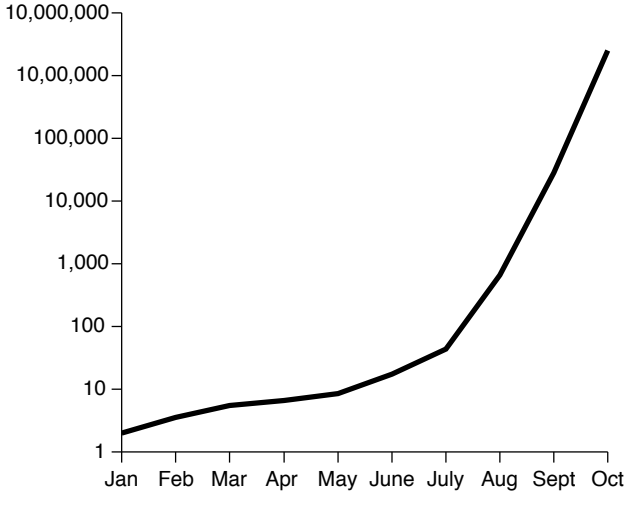


Source: *EIR*.

FIGURE 1C

Hyperinflation in Weimar Germany, 1923

(trillions Reichsmarks outstanding)



Source: *Zahlen zur Geldentwertung in Deutschland 1914 bis 1923.*

indexes, can be used as a measure of the performance of the real economy associated with those markets.

As I shall also show here, a related cautionary observation must be applied to terms such as "national income," or in using other such simple-minded notions of monetary turnover as a measure of "economic growth."

Similarly, the use of "financial futures" contracts, such as so-called "derivatives," as a method of so-called "hedging against financial risk," is a form of pure gambling, which no one should attempt to dignify with a term such as "investments."

Since the Trilateral Commission's U.S. Carter Administration, under whose direction the presently chronic Federal budgetary deficit was first generated by structural changes introduced into the U.S. economy, there has been an accelerating shift in the functional composition of so-called U.S. national income.[1] An ever-smaller portion of total nominal national income (and of so-called Gross National Product) has represented actual output of produced goods and production-related services, while there has been an accelerated growth in purely parasitical, fictitious financial wealth. Today's fictitious wealth features prominently nominal income related to traffic in "junk bonds" and so-called "financial

1. Don't quibble. Admittedly, the present downward trend in the net physical performance of the U.S. economy has remained irreversible since the 1971-1972 beginning of the presently continuing shift of the IMF into a "floating exchange-rate monetary system." Admittedly, the 1971 collapse of the U.S. dollar was set into motion with the beginning of the shift to a post-industrial society, with policy-changes introduced during 1967-1968. However, the structural demolition of the U.S. economy began in earnest with the package of policies which the Trilateral Commission-created Carter Administration adopted from the New York Council on Foreign Relations' (CFR's) 1975-1976 ***Project for the 1980s*** (New York: Magraw-Hill, 1977), a report co-supervised by Carter Secretary of State Cyrus Vance and Carter National Security Advisor Zbigniew Brzezinski. It was the structural reforms which Carter adopted from that report, which have been the continuing cause of the presently chronic Federal debt-crunch.

derivatives." Today, it is not the U.S. economy which has been growing; it is only the cancer which is growing, while it, the disease, sucks the life out of the patient.

Under the conditions which have prevailed increasingly, inside the U.S.A., since the shock-wave effects of the 1979-1982 implementation of former U.S. Federal Reserve Chairman Paul Volcker's Trilateralist monetary policies, the standards formerly used to measure U.S. Gross National Product (GNP) no longer work with even the approximate usefulness they continued to offer up until middle to late 1983. Most of what is shown as national income today, includes categories of purely nominal wealth which virtually did not exist prior to 1971, many of which were rightly considered illegal prior to radical changes in law introduced under Kemp-Roth and like-minded propositions. In short, most of this category of nominal income is purely fictitious: you would not try to feed your children with it, and should have the decency not to wish to be seen wearing it in public.

The question is: Since neither financial market indexes, nor "Gross National Product" are any longer even approximately meaningful measures of performance of the national economy, what measurements should be used instead? This Special Feature defines and explains those needed measurements.

Any modern economy, including both the U.S. economy and what were called "states with socialist constitutions," such as the former Soviet Union, can be described in terms of the interrelationship among three variable magnitudes. These three magnitudes, which I refer to hereafter as aggregates, are: a) total money in circulation, for which the most useful estimate is what current U.S. practice names "M3"; b) financial aggregates: outstanding claims for present and future payment, both explicitly stated and otherwise implied; c) physical-economic aggregates: the physical-economic input and output of the economy considered as a functionally indivisible whole, even if some of that physical-economic aggregate is counted in money-prices, and some not.

To understand how a modern economy functions, we must measure the relative growth, or shrinkage of all three of these aggregates taken into account *simultaneously*. We must think of these three magnitudes as variables, in the sense mathematical physics defines variables. We must think of the interaction among the changes in these variables as defining a function. It is that function, so defined, which provides the only reasonably sane and accurate measure of the relative increase or worsening of the health of the economy considered as a whole.

The saying goes: "Keep your eye on the ball!" That means that you should not allow yourself to be fooled by the fact that purchases and sales of much of the nation's physical-economic output are measured in money-prices. Just as in eating purchased food, it is not the money-price of that food which determines the effect of eating the food upon the person who eats. Never be fooled, as all too many ill-educated economists and members of Congress are, into assuming that the physical relations between production and consumption are determined by the relations among the prices paid for these physical products. Apples and nuts-and-bolts often have money-prices tagged to such objects; but, never assume, as most present-day economists do, that the mere price of nuts-and-bolts causes apples to grow.

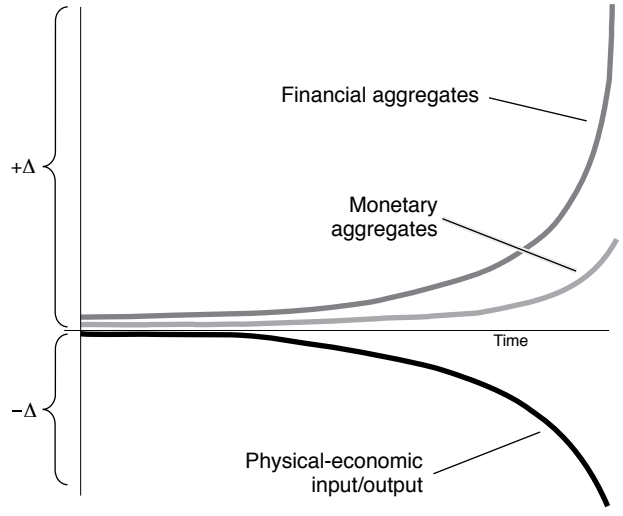
Think of markets as nothing more than places where the property-titles to various real or purely fictitious objects are exchanged. The practical question, is how the flow of exchanges in such property-titles affects the way in which the physical economy functions. The relations between prices of property-titles and the physical-economic process are between entirely different processes. For example, in the language of the qualified mathematical physicist: Relations among money-prices are intrinsically *linear*; whereas, physical-economic processes are intrinsically *non-linear*.[2] The object of managing a financial and monetary system, is to force the financial system to behave in such an either explicitly or implicitly regulated way, as to force the flow of credit and purchasing power to be channeled in such a way as to encourage the physical economy to grow.

It is not how much fertilizer and seed one owns which caused agricultural growth; it must be put into the soil with a certain skill, otherwise nothing good will grow out of it. It is the physical way in which those materials are applied, by the farmers, to the process of production, which generates the useful output. The object is to ensure that the farmer knows what he is doing, and that that farmer is able to secure and apply the necessary components of physical production, in the right physical way, at the appropriate physical time.

Thus, the economist, if he or she is competent, is oc-

2. I shall explain the absolutely decisive significance of this difference below.

FIGURE 2
A Typical Collapse Function



cupied with two separate issues. He ought to be concerned, primarily, with the purely physical-economic side of the economic process, without considering money or money-prices. On the money side, he must be concerned to define *physically-economically appropriate* rules for regulating trade and other financial and monetary events. The object of this regulation is to foster, preferentially, those exchanges and investments which will position the physical goods required in the place where their presence tends to produce the best physical-economic result.

If the physical economy is nonetheless functioning well, no sane person would be frightened by a fall in prices of financial investments.[3] A sane economist worries about prices of financial paper, only when falls in financial markets, or, directly opposite, hyper-inflationary expansion of what might become known soon as Wall Street's "Davey Jones" index, *cause* human suffering or collapse in technologically progressive industrial employment. After all, money has no intrinsically real economic value: "It's only paper!"

The accompanying **Figure 2**, which I introduced to public use during the last quarter of 1995,[4] is only one example of the kinds of patterns which the functional relations among the three aggregates may describe under varying conditions. The figure shown here, represents the pattern of functional changes which have occurred within both the U.S. and most of the world's economy, over the period from about 1966 to the present date.

The principal difference between the functional relations shown by this Figure, and that of the U.S. economy in happier times, is that 1966-1967 is approximately the date at which the net growth of the U.S.A.'s physical-economy "zeroed out," the point at which investment in expansion and improvement of physical production first fell below the amount needed to sustain *future* long-term physical-economic levels of increase of productivity per-capita and per-square-kilometer, at current or better rates.

Although the physical-economic output of the economy (including military expenditures) continued to expand throughout most of the decade, this growth of output was partly the result of "burning up" earlier accumulations of capital (i.e., "savings") invested in productivity and basic economic infrastructure. With the shifts in Federal economic policy during 1966-1967, the rate of net real economic growth per capita began to decline, a decline which came to the surface during the early through middle 1970s.

Thus, approximately the middle to late 1960s, the managers of the U.S. economy abandoned their moral responsibility to maintain, deep into the future, at least the same rate of net physical-economic growth reached under the Kennedy post-Eisenhower recovery of 1962-1963.[5]

In a few moments I shall begin to explain the factors on which my retrospective dating to 1966-1967 was based. First, I shall now describe how the Figure, shown again here, was constructed.

I focus your attention on the extreme left side of the

3. If the U.S. were still a well-managed economy, which, admittedly, it has not been for more than a quarter-century, then, if General Motors is a profitable, well-managed firm, what conservative stockholder—"in for the long haul"—would be shaken by a drop in the price of the stock on secondary markets for financial paper? In saner times, serious investors bought into a medium- to long-term enterprise, or a long-term U.S. government bond; in a sane financial market, investors do not trade company stocks like baseball cards.

4. Lyndon H. LaRouche, Jr. (Dec. 2-3, 1995, conference address): "We Are at the End of an Epoch," ***Executive Intelligence Review***, Jan. 1, 1996.

5. The use of the future as a measure of the present, applies to successive generations of national economy, as this is typified by the role of the birth, nurture, and education of those children and adolescents, who will be the performing adults of the future. I shall deal, below, with some of the deeper practical implications of this notion of the "horizon" of the future, as the measure of the economy of the present. As I explain below, no sane economist would ever suggest that any real economy can be represented in the mathematical form of a "zero-sum game."

Figure, where the horizontal and vertical, linear coordinates meet. That point corresponds to the point, 1966-1967, when some important changes in U.S. policy were introduced, including savage cut-backs from the Kennedy level of the aerospace "crash program," a program which, even to the present date, has continued to give the U.S. economy the most important factors of now vanishing, physical-economic growth of productivity since 1963.[6]

Let your eye follow the horizontal date-line across to the right side of the figure. We reach the range designated as the 1997-1999 interval, the point an encounter with an economic shock-wave effect spins the world economy into the terminal phase of the present global financial bubble.

This is the region in which the top curve, representing financial aggregates, soars to present global levels, which some leading international bankers have put at $300 trillions equivalent in unpayable financial obligations, while the physical output-levels per capita plummet steeply downward. This is the area, toward the right side of the Figure, where the financial curve zooms upward, almost vertically, while the physical-economic curve plunges more steeply downward.

This 1997-1999 interval, is an area of phase-change in the U.S.A. and world economies, the phase in which, as during mid-October 1998, G-7 central bankers, such as Federal Reserve Chairman Alan Greenspan, went baloony, and unleashed history's greatest, most insane global hyperinflationary monetary-financial bubble.

The relationship between the three curves shown on the chart, is defined in the following way.

Notice that the three curves overlap at the beginning, back in 1966-1967. Why do I use a scale at which this coincidence of the three curves appears in the chart in this way?

The problem here, is that to understand the current world economy as a process, we must compare "the prices of apples with the price-tags attached to nuts and bolts." As I stressed a few minutes ago, on the one side, we have physical-economic magnitudes, which can not be measured in money; on the other side we have financial magnitudes, such as the prices currently assigned to physical-economic magnitudes. The physical-economic magnitudes themselves are *often, but not always* measured by markets in current money-prices. To deal with this challenge of comparing apples with price-stickers, we are obliged to introduce certain kinds of indexing. Thus, by aid of indexing, we compare a "basket" of non-monetary values, physical values, with the market-price tagged onto the contents of that "basket."

Most professional economists do this; the problem which most economists have yet to master, is how to do it in the right way.[7] Nonetheless, as most of those economists do, we construct our chart by adopting a price-index, setting the actual relations among the three aggregates—the nominal, tagged price of physical-economic aggregate, the price of monetary aggregate, and the price of financial aggregate—at a common relative value of "100" for the point 1966-1967. We then compare each of the magnitudes, separately, during each subsequent year, with the magnitude as measured at the index-year.

If we "average" the cumulative effect of trends over five to ten year intervals (so-called "running averages"), during the course of 1966-1999, the result converges upon the form shown by Figure 2. The Figure echoes the statistical fact, that there has been an accelerating relative increase of financial aggregates, a more slowly accelerating rate of increase of monetary aggregates, and a long-term rate of decline of physical-economic output per-capita and per-square-kilometer of about 2%, or more, per annum (net), until a sudden acceleration of the rate of decline since 1987-1992 (When James Carville emitted his celebrated comment on the 1992 election-campaign: "It's the economy, stupid!").

The evidence is clear. Why it has worked out that way, is not generally understood among politicians and economists, as among most citizens. That is the problem we are exposing here.

Most economists with a decent university education in mathematics, should be able to describe the way in which the recently cancerous growth of monetary and financial aggregates has occurred; even a college graduate's level of education in mathematics should be sufficient for that purpose. It is the physical-economic process—my professional speciality—which represents the critically challenging proposition, the part of the whole process which today's university economics departments, and elected members of the U.S. Congress,

6. Marsha Freeman, "Space Program Paid for Itself Many Times Over" (which included reference to a 1976 Chase Econometrics study), ***Executive Intelligence Review***, Feb. 23, 1996.

7. In the appropriate place below, I elaborate some of the deeper implications of indexing of "baskets of commodities."

fail, more or less miserably, to grasp. What nearly all present economists fail to grasp, is the physical-economic realities which underlie the statistics on the surface.

Here, we shall begin our outline of the interrelations among physical-economic and monetary aggregates by examining the crucial difference between two notions of financial profit: financial profit as it appears in healthy economies, and a cancer-like caricature of normal financial profit, a "bubble economy" such as that of the U.S.A. today.

1.1 Ordinary Financial Profit

The common-sense definition of financial profit, is something "skimmed off the top" of current output. If this amount "skimmed off the top," leaves enough of the total income behind, to keep the physical-economic costs of the real economy fully funded, we may consider the "skim" as corresponding, more or less, to ordinary financial profit.

However, the U.S. economy as a whole has not generated a net ordinary financial profit during the past twenty-five years, or slightly longer. If we take into account long-term operating costs of the real economy, such as maintaining improvements in basic economic infrastructure, and the costs of supporting a population with the same, or better demographic characteristics than when John F. Kennedy was President, and if we take into account what the U.S.A. economy's Wall Street bankers have literally stolen from parts of the world such as Central and South America, the U.S. economy as a whole has not actually *earned* a net ordinary financial profit since the "floating exchange-rate monetary system" was introduced, in 1971-1972, certainly not since Jimmy Carter was elected President. We have been living, more and more, off either looting of other countries, or from using up past savings, such as former U.S. improvements in basic economic infrastructure, since more than thirty years ago.

That is a very bad habit for any economy to acquire. It is a habit which most of our presently living citizens, unfortunately, have grown accustomed to, during more than thirty years. Without fear of exaggerating, we may say that most Americans living today, have never known the habits of a healthy form of national economy during the entirety of their adult lives. One should not be surprised that a majority of adult Americans under fifty years of age, simply don't know any better than to do the foolish things most of them have been doing during the recent decades. They never learned those habits of a sane economic life which most of us of older generations more or less took for granted, especially after the painful experience of the 1930s Depression.

In other words, today's financial profit is coming out of the physical-economic flesh and bone upon which the economy depends to continue to survive. As a result of this pattern, as Figure 2 reflects this, the per-capita and per-square-kilometer real output of the U.S. economy has been shrinking at a constant or accelerating rate, during more than a quarter-century. Yet, during the same period, the money-supply has grown impressively, and the financial aggregate has skyrocketted. Why are financial profits on Wall Street continuing to zoom?

That brings us to the matter of the bubble economy—otherwise known as an economy which we might presume is under the control of bubble-minded critters such as Federal Reserve Chairman Alan Greenspan.

Go back to the days a much saner U.S. was under the economic leadership of U.S. Treasury Secretary Alexander Hamilton. *Whenever we, as a nation, follow the principles associated with our original Federal Constitution, the authority to create currency is a natural-law monopoly of our Federal government, a Federal action taken by consent of the U.S. Congress: that is the way it should be, once again, today.*

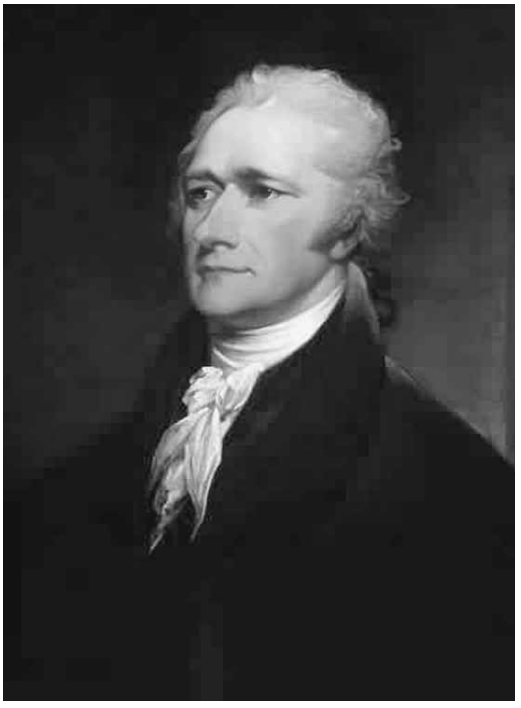
In addition to this currency, it is permissible, and useful to generate additional monetary aggregate, not as currency, but as credit, issued through banks in much the way Germany's post-World War II *Kreditanstalt für Wiederaufbau* functioned, generating the most successful economic reconstruction program of the post-war decades, the so-called "German economic miracle."

That is, if the real economy is expanding, we need not limit credit-expansion to direct use of national currency emission plus deposited savings; we may also turn the real growth—*if it is real growth, not Wall Street's all-too-typical financial hot air*—of enterprises into an added source of *thus-secured* bank credit, issued for those kinds of loans which will foster high rates of gains in output and in per-capita productivity. That is what the *Kreditanstalt für Wiederaufbau* did, which is what the post-war economic reconstruction of Germany was, in contrast to the relatively pitiful performance of the more heavily U.S.-subsidized British and French economies during the same period.

Thus, contrary to mental cripples such as the wild-

EIRNS/Stuart Lewis

Former Federal Reserve Chairman Paul Volcker (left) and his Trilateralist monetary policies accelerated U.S. economic decline. U.S. Treasury Secretary Alexander Hamilton (right): "Whenever we, as a nation, follow the principles associated with our original Federal Constitution, the authority to create currency is a natural-law monopoly of our Federal government, a Federal action taken by consent of the U.S. Congress: that is the way it should be, once again, today," writes LaRouche.



eyed followers of Professor Milton Friedman, increase of the money-supply is not naturally inflationary. It all depends how the credit flows. If the combination of expanded currency and credit flows into increase of the productivity of the physical-economy, per capita and per square kilometer, the credit expansion must continue or even be expanded in rate. In that case, the result will tend to be deflationary, not inflationary. Better quality of products and increased productivity are inherently deflationary, in the real-economy sense of deflationary. Credit-expansion is inflationary, when the result is the increase of rates of financial turnover exceeding the rate of combined real physical-economic output.[8]

However, there is another way to generate financial profit: the sick way. This means the kind of profit earned by a gambling house, the Seventeenth-Century Tulip bubble, the early Eighteenth-Century John Law-style financial bubbles, or today's greatest of all bubbles, history's most lunatic bubble of them all, the Alan Greenspan bubble. Most of the growth of total U.S. financial aggregate since approximately the time of the bubble-headed Garn-St Germain and Kemp-Roth legislation, represents a purely fictitious form of wealth, a John Law-style "bubble economy."

Garn-St Germain, piled on top of the lunatic deregulation binge launched by the Trilateral Carter Administration, destroyed much of the essential structure of regulation upon which the post-Hoover U.S. recovery from Andrew Mellon's Great Depression depended. Carter's Federal Reserve Chairman, Paul Volcker, bankrupted the savings and loan banks (among other things), and Garn-St Germain set up the previously illegal way in which "junk bond" and similar Wall Street forms of piracy, looted the hulks of the ruined savings-and-loan industry.

Kemp-Roth proves how stubborn, opportunistically minded dunderheads such as Polyconic's Jude Wanniski, a key figure of the Jack Kemp roster, can become. In earlier, saner times, the U.S. government created highly successful tax-incentives for productive investments in capital improvements, such as the Kennedy era's investment-tax-credit program. Kemp-Roth did the direct opposite, drawing the money out of investment in productive capital, and pouring it into what became the gigantic financial cancer of today, that super-leveraged, $300 trillions-scale financial bubble

8. Provided that the increases in capital-intensity of productive investment represent investment in scientific and technological progress, useful basic economic infrastructure, or investments in social infrastructure of future economic growth, such as an improved, expanded educational program, or social-welfare system, the diversion of physical-economic output into these investments is countable as part of the current net output.

which has brought the world to the brink of a worldwide financial meltdown.

The purpose of a well-defined investment-tax-credit policy, is to draw spending away from wasteful, or marginally beneficial disbursements of corporate and related funds, into channelling capital funds into areas of physical-economic investment which contribute to the highest rates of gains in per-capita productivity of labor. Such programs will increase tomorrow's gross tax revenues of the nation through growth, even though the means used to foster this growth is reduction of the benefitted taxpayer's obligation today.

Kemp-Roth, with its silly "Laffer Curve," did the opposite. It cut the tax-rates on financial capital gains, thus reducing Federal tax revenues (thus inflating the Federal debt to levels way beyond those achieved by the Carter Administration's deregulation binge), while also drawing capital away from the very kinds of investments, which the former investment-tax-credit programs had so successfully fostered. A smart tax policy hits wasteful luxury, and other forms of sin, with high rates, in order to foster rewards of lower rates for the more creative and prudent investors.

What, then, is the difference between what I have

'Greenspan Vectors' Worse than Disease

For decades, the leading causes of death in the United States (and other industrialized nations) were, in order, heart disease and cancer. As of 1996, the two combined accounted for 1.275 million deaths annually in the 267 million population, out of a total death toll that year of 2.322 million. There were 733,800 deaths from heart disease, and 544,300 deaths from malignant neoplasms of all types.

However, the continuing the economic policies of the Alan Greenspan-*Wall Street Journal* approach, is creating conditions for increasing illness and death rates of all kinds, at such a pace as to *exceed* the current annual toll of heart disease and cancer.

The increasing morbidity and mortality numbers occur across a range of many differing diseases, locations, and sub-groupings in the population, but the patterns all show how the "Greenspan vectors" of worsening economic conditions are directly the cause, and the vital statistics prove it.

Spreading poverty

First, consider generally the health implications of increasing impoverishment and lack of medical care for millions of Americans. Even by the official—that is, understated—categorization of who lives in poverty, 13.3%, or 35.8 million Americans, do as of 1997. This figure was about 12% in 1975, and it has worsened steadily. Of all American children under the age of six, an estimated 23%, or 5.5 million, live in poverty.

Along with this, the number and percentage of Americans lacking any health insurance is rising. About one-half of the full-time working poor and nearly one-third of all poor people were uninsured in 1997. That year, an estimated 43.4 million Americans, or 16.1% overall, had no health insurance coverage. This category has increased each year since 1987, when 12.9% of Americans, or 31 million, were not covered. Those most likely to lack coverage are young adults between the ages of 18 and 24, Hispanic-Americans (35% uninsured), the less educated, part-time workers, and the foreign-born.

Look at Texas, the gateway to the North American Free Trade Agreement-generated *maquiladoras*. Of all young people up to age 18, some 27%, or 1.502 million, are poor, and almost all of these lack any medical coverage.

Managed care kills

Then, consider the "Greenspan vector" effect on those officially covered by health insurance. Most Americans now are under "managed care" or health maintenance organization (HMO) programs, directly or indirectly, and are facing *denied* or *delayed* medical treatment, to the point of increased incidence of illness and deaths among whole categories of people—the disabled, elderly, mental health patients, dialysis cases, and so on.

This trend is even more pronounced, as many HMOs go bankrupt (having lived out the lifespan of the mode of financial gouging they could maintain—limiting care, underpaying care-providers, and charging higher premiums, in order to pay high private profits). There are widespread situations like that of New Jersey's HIP program, which went bankrupt in 1998, leaving its 200,000 clients scrambling to buy

described here as "ordinary financial profit" and purely fictitious gains such as those tied up in the $300 trillions-sized global financial bubble of today? How do we define this difference in functional terms?

1.2 The Bubble Economy

Joe contracts with loan-shark Bill, to pay Bill $100 a week in perpetuity. For what amount can Bill sell that contract on some Wall Street or like-minded market? Allowing for expenses which Bill incurs, such as sending thugs to beat up Joe occasionally, how much is Bill "netting" out of the $5,200 a year?

Someone asks,"How much did Bill pay to Joe to create Joe's debt to Bill?" The question is irrelevant. Assume he paid him nothing, but either broke Joe's arm, or threatened Joe's children at the schoolyard: typical of the spirit of the tricks Wall Street has played upon the nations of Central and South America, or George Soros has played in Southeast Asia, for example. Whether Bill paid anything, or nothing, to Joe for the contract, is virtually irrelevant to assessment of the market-value of the contract on the relevant Wall Street market. Meyer Lansky's mobsters called it "vigorish;" Wall Street calls it "financial leverage."

their own drugs, and provide treatment, including everything from chemotherapy to hospital linens.

Social breakdown, disease break-out

Consider the illness and death rate situation by certain specific diseases, locations, and groupings. Look at a few basic, vital statistics of the United States as of the mid-1990s.

For young black men (age 15 to 24), the death rates (deaths per 100,000 of the total population within the group) are the following: 157.6 for "homicide and legal interventions," 20.6 for suicide, 6.8 for heart disease, and 5.4 for cancers.

For infant mortality (deaths per 1,000 live births of the specified group or location) the rate of death in, for example, Washington, D.C., is 19.6, in contrast to around 5 deaths per 1,000 in 1995 in Germany, France, Scandinavia, Australia, and many other countries.

Tuberculosis rates are rising, in particular for the homeless, including the incidence of "primary TB," i.e., newly acquired, not merely reactivated TB.

For Hispanic U.S. children, rates of morbidity are running needlessly high for whooping cough (pertussis), measles, and other preventable childhood diseases, as the Hispanic population has the highest percentage (37%) of families uncovered by any health insurance. In Denver, California, Texas, and similar locations, a major public health threat of contagions is now present.

In California, 1.7 million children go without health insurance. In some areas of Los Angeles, only 30% of pre-school youngsters have been immunized. In Orange County, California, 37,000 youngsters have no immunization at all. The families are in fear that seeking health care will jeopardize their immigration status. In one *colonia* in El Paso, Texas, 25% of all children under age seven had hepatitis A.

Specifically, the 1996 Welfare Reform Act contravened the standing 1960s Medicaid law (health care for the poor), and ordered legal immigrants to wait five years before being eligible. Whole epidemics and permanent disabilities are now traceable to this law and way of thinking.

Add to this short list, the prevalence of HIV, hepatitis C, and other public health threats, and the menace of continuing Greenspan-*Wall Street Journal* economics is clear.—*Marcia Merry Baker*

TABLE 1
Official Poverty in the United States, 1975-97

	Population (millions)	Number in poverty (millions)	Percent of total population
1975	210.9	25.9	12.3
1980	225.0	29.3	13.0
1985	236.6	33.1	14.0
1990	248.6	33.6	13.5
1995	263.7	36.4	13.8
1997	267.5	35.8	13.3

Source: U.S. Department of Commerce, Bureau of the Census

TABLE 2
Americans without Health Insurance, 1987-97

	Americans without insurance (millions)	Percent of total population
1987	31.026	12.9
1990	34.719	13.9
1993	39.713	15.3
1995	40.582	15.4
1996	41.716	15.6
1997	43.448	16.1

Source: U.S. Deptartment of Commerce, Bureau of the Census

If the going rate for discounting such vigorish contracts were based on currently demanded yield of 20% per year, then Joe's contract to pay Bill would seek a market-price "worth" five times the expected perpetual annual income to be paid to the holder of the contract: as much as $26,000. In short, the "price-earnings" ratio at work. That would represent an amount approaching $26,000 of nominal financial capital, generated out of the "hot air" expansion of the indicated $5,200 annual yield.

The same "price-earnings ratio" magic applies to the case of gambling debts, or, the same thing, those exotic futures contracts called "financial derivatives." You don't believe it? Study the Black-Scholes formula which was used by the investors in Long Term Capital Management (LTCM) to dig an estimated $3 trillions hole in the accounts of the bankers investing in LTCM. The same magic applies to the case of the purely fictitious capital assets associated with the "junk bond" swindle. Virtually the entirety of the recent rise of the Dow-Jones index, especially since mid-October 1998, has been purely fictitious financial-capital gains, obtained as the result of exactly this sort of "price-earnings ratio" swindle.

In the case of the current Dow-Jones stock-market swindle, there are three driving factors generating that so-called "economic recovery"—"recovery" in the sense of the day the man on LSD sees "the dead rise to walk again." The first, and most important, is pure and simple insanity, sometimes also called "irrational exuberance" or "mass hysteria." The second factor is hyperinflationary monetary pumping-up of the financial bubble by culpable agencies such as Alan Greenspan's Federal Reserve System. The third is the counting of purely fictitious financial capital gains—so-called "bookkeeping profits" on today's market-index upswing—as an income-flow.

In the wild orgy of today's "economic boom on Wall Street," a huge mass of purely fictitious income-flows—"indexed bookkeeping profits on trading"—is capitalized in the same general way Joe's hypothetical contract is parlayed from a $5,200 annual payments item, into a $26,000 fictitious capitalization. However, for this scheme to be kept in play, an additional factor must be supplied: a highly-leveraged flow of central-banking and related monetary aggregate into the market.

Now, see how that so-called "Wall Street boom" is linked to the real economy.

Take the simplest case. In the case of the Federal Reserve System, the leveraged flow of increased monetary aggregate is generated in two principal ways. One aspect of this is the straight printing of Federal Reserve Notes, the so-called "Keynesian multiplier" mechanism. The other aspect is the relationship of that mechanism, to the discounting of financial paper through the "Fed's" power to issue currency obligations against discounted financial assets deposited into the "Fed's" system. The discounting of virtual "toilet paper" in the system, expands the flow of apparent monetary aggregate (combined real and fictitious) on an enormous scale.

The ability of the "Fed" system to generate such swindles, is rooted in the functions of the "discount window."

The principle involved is the same as we witness in those parts of the world where poor farmers balance the family household budget by selling adolescent, or even pre-adolescent daughters into organized prostitution rings. If the farm is losing money, keep the farm afloat by selling daughters into sex-slavery. If the corporate enterprise is either operating at a loss, or lacking in income-margins needed to maintain its competitive position, they have available, through the "Fed" discount window's mechanisms, the same kind of help the farmer might secure by selling his daughter into sex-slavery. Loot the company, its employees, its pension plan, the quality of its product—or anything which comes to mind in a kindred spirit of enterprise, all to generate an increased margin of real or fictitious, discountable income-stream.

As I shall explain in a section of this report, below, that is what the U.S. has done to itself since approximately 1966-1967, and that most visibly since 1971-1972. It is the use of the financial mechanisms associated with this use of the discounting principle, to generate larger nominal income-streams than the physical-economy can tolerate, which has collapsed the per-capita and per-square-kilometer physical-economic output of the U.S. economy.

This looting of the physical-economic base, in order to puff up the financial structures, is the functional mechanism which links the collapse of the real economy of the U.S.A., to the hyperinflationary boom in the soon-doomed Wall Street bubble.

What has happened since mid-October 1998, is that Greenspan's "Fed," has been engaged in a greater rate of such hyperinflationary pump-priming than even that seen in the late phases of the 1923 Weimar hyperinflation. This bubble is either going to be shut down, or it is

going to blow, globally, and soon.

The kinds of behavioral extremes to which I have referred in this illustration of the point, are peculiar to the terminal phase of the present world monetary system. Nonetheless, these have been the growing characteristic of the IMF system as a whole since the successive 1971-1972 and 1975 phases of the introduction of a global "floating exchange-rate" monetary system. The documentation of the purely fraudulent nature of all alleged sovereign debt, which Wall Street et al. have imposed upon the nations of Central and South America, as shown in the ***EIR*** study prepared and issued by Dennis Small et al., is the "classic" demonstration of the global swindle which the IMF monetary system represents from 1971-1972 to the present day. The same debt-swindle run against the leading nations of Central and South America, from the mid-1970s to the present, is the model for the swindle which the same IMF conducted against the states of the former Soviet Union and eastern Europe from the close of 1989 to the present. It is the same swindle which former Speaker of the House Newt Gingrich led against President Clinton's U.S. Federal budgets during most of the period 1995-1998.

Another example of the same kind of swindle, is the way in which the London petroleum marketing cartel deployed its asset, then U.S. Secretary of State Henry A. Kissinger, to arrange what became the "petro-dollar" hoax of the middle through late 1970s, the version of the swindle negotiated on behalf of the IMF system at the 1975 Rambouillet monetary summit. The "petro-dollar" swindle presaged the "junk bond" swindles of the 1982-1988 interval, which presaged the "financial derivatives" swindle of the 1990s, which presaged Alan "I am the Emperor Nero" Greenspan's version of the burning of Rome, the hyperinflationary bubble which Greenspan launched as part of his effort to bail out bankers deeply invested in busted hedge funds.

To summarize what we have considered thus far, look at Figure 2 again. The top curve reflects the growing per-capita ratio of chiefly fictitious financial aggregate required to keep the 1996-1999 version of the present financial system afloat. The lowest curve, reflects the effects of looting of the per-capita physical economic base, to generate fictitious income-streams used to inflate the financial-aggregates bubble. The growth of monetary aggregates reflects the functional relationship between the other two curves.

This brings us to the heart of the matter, the matter of physical-economic aggregates.

2.0 Real Economy: Man's Mastery of Nature

Mankind is the only species whose individual member is capable of willfully increasing the potential relative population-density of his species as a whole. This specific distinction is typically expressed by an individual mind's discovery of a validatable universal physical principle.

The science of physical economy, one of the branches of physical science founded by Gottfried Leibniz, focuses upon those changes in the axioms of human behavior through which mankind's power over nature, per capita and per square kilometer, is increased.

Mankind's functional relationship to the universe, is expressed for sense-perception in two general ways. It is expressed both in the improvements in increased life-expectancy, size of population, and other demographic characteristics of populations, and that population's increased physical power over the universe, in per-capita and per-square-kilometer terms. These perceptible forms of improvements in the human condition, are benefits acquired both through relevant changes in human behavior, as scientific and technological progress expresses this, and by alterations of nature in ways which are relevant to, and indispensable for the realization of the potential benefits implied in scientific and technological progress. Consider the physical-economic expression of those changes in human behavior first, and then the changes in the environment needed to sustain life at the higher demographic level scientific and technological progress imply.

The changes in human behavior (e.g., culture) are of principally three forms.

1. Validated discoveries of universal physical principle.
2. Validated discovery of technologies derived from the application of universal principles.
3. Validated discoveries of principles of Classical artistic composition and related matters of statecraft, through which the cognitive powers of individual members of society are mobilized for the successful implementation of such physical principles and technologies.

For our purposes here, I provide the following summary of the implications of what has just been said.

The primary task which the lessons of physical

economy demand of society, is the protection and the cultivation of the developed cognitive powers of each individual personality. That is to say, the task of society is not only to foster the productive activity upon which the society's existence depends, but to develop the individual's cognitive and related powers in such a way that high levels of productivity are maintained, and that further progress in this direction is ensured. Thus, on these accounts, and with that qualification, educational policies become the central determinant of the success or failure of an economy. It is from this vantage-point, that the curve of physical-economic aggregates is best understood.

2.1 The Function of Education

In general, the well-advised society places the greatest emphasis upon three aspects of the development of the mind of the individual. First, the quality of nurture of the pre-school-age child. Second, education and related research as such. Third, the cultural standard of relations among persons generally in the society.

In these three phases of the development of the individual mind, the central obligation of society is to foster a well-founded self-image of the individual person, as someone of a quality absolutely apart from and above the level of any other living species. This is effectively achieved through such means as the child's delight in effecting a validatable discovery of universal principle, or discoveries akin to that, through what the child is able to recognize as the creative character of the cognitive potentials of that child's mind.

This is the standpoint, for example, of the tradition of what is known as Christian humanist education. Examples of this tradition include the work of the Brothers of the Common Life, the echoes of that in the work of the Oratorians of France and Italy, and the Schiller-Humboldt Classical Humanist education program which Prussian Reformer Wilhelm von Humboldt established in Germany. Similar approaches are found in the work of the Winthrops and Mathers in the Massachusetts Bay Colony, and in the best like-minded currents of education in the pre-John Dewey U.S.A.

The object of a Classical Humanist or kindred form of educational policy, is the production of what might be termed "the cultivated mind." Look at this now from the vantage-point of physical science.

All of our knowledge of our effectively willful relations to the physical universe, rests upon an aggregation of validated universal physical principles. These principles occurred originally in the form of creative cognitive acts by individual minds. In many cases, although not in all, the names of those discoverers are known to pupils and others, as the personal name attached to the discovered principle in question. The proper object of education, is to create the circumstances, as in the classroom, in which the student replicates the actual original act of discovery.

In other words, a poor kind of school teaches a pupil to learn the name of the principle together with explanations and illustrations of its application. That latter kind of education, called "learning," tends to deaden the cognitive powers of the pupil's mind. Only by exception, could pupils abused by such mere "how to" learning, manifest later the qualities of a truly cultivated mind.

By "cultivated mind," we should agree to signify a mind which has been shaped by the process of accumulating a store of experiences of original cognitive generation of validated universal physical principles. Our job is to provide the environment, the teachers, and the opportunities, by aid of which each child and adolescent may reach adulthood with a good approximation of the qualities of a cultivated mind.

On the professional level of physical and related science, the graduate should have reenacted the original discovery of most of the known leading validated discoveries of universal physical principle, accomplished by mankind up to the present time. This is no small matter; existing scientific knowledge of principle is best represented by a Riemannian manifold of the kind Riemann himself defines in his celebrated 1854 habilitation dissertation. That graduate should have also demonstrated such mastery of principles to the extent of original work of discovery. That is the rule-of-thumb definition of a "cultivated scientific mind."

A society which has educated its young by such a cognitive standard, produces the kind of labor-force of which it might be said, "They can do anything." Instead of merely learning "how to" do this or that, they know how to solve problems lying within, or even slightly beyond the reach of the validated universal principles, whose original discovery they have reexperienced.

Such an educational policy costs. It is a major element of governmental and related budgetary outlays. Nonetheless, whatever a quality education costs—unlike that being provided currently—in the final analysis, it represents one of the most essential costs of doing business. Since about 1963, there has been a cu-

mulatively catastrophic decline in the competence of teachers, the general quality of education, and the competence for life of the graduates of our public schools and universities.

In Germany, for example, the "Brandt Reforms" destruction of the Humboldt policy for education, has produced a young German school-leaver who is almost of a lower mental class than the members of the same family who completed their *Abitur* (secondary-school diploma), under the impact of the Humboldt legacy. One might justly suspect, that those malignant souls who influenced this disastrous reform in Germany, both from the U.S.A. and through the 1963 Paris OECD proposal, were motivated by hatred of Germany and Germans. Generally, in Europe and the U.S.A., there has been a catastrophic collapse in the cognitive skills and related qualities of potential productivity of the labor-force.

The same principle applies to education in Classical artistic composition and related aspects of statecraft. I have indicated this aspect of the matter in my ***The Road to Recovery*** and other published locations.

2.2 Infrastructure

When the English-speaking colonists reached Massachusetts, Virginia, Pennsylvania, and elsewhere, they found a virtual economic desert, a wilderness. Out of that wilderness, they hewed fertile farms, towns, roadways, canals, and later railroads. From an earlier time, the case of Charlemagne should remind us, that the rise of Europe from the barbarism left in the wake of the Roman Empire's collapse into a new dark age, was based largely on the same kind of attention to investment in public infrastructure. In the seemingly miraculous doubling of the prosperity of France under King Louis XI, similar kinds of measures are outstanding.

Such development of the population's land-area constitutes what our senses present to us as the basic physical infrastructure of the society. However, we should readily recognize that education as defined above, and also expressions of Classical artistic composition, are also part of the basic economic infrastructure, even though the cognitive processes which are the subject of education are not sense-perceptible phenomena in and of themselves. The development of the mind and of the perceptible nature of the nation, constitutes its basic economic infrastructure.

There is a relatively clear difference between society's expenditures to maintain and improve basic economic infrastructure, on the one hand, and for investment in production of goods on the other. The preconditions for the generally successful forms of investment in production of goods, for example, depend upon the ability to situate that production within a suitably prepared environment. That environment is the basic economic infrastructure required.

Thus, in our form of economy, as established under our original Federal Constitution, there is a division between private enterprise, and the obligation of government to provide for development of all of the population and all of the land-area, through generalized education and other forms of basic economic infrastructure. The state's development of roads, waterways, railroads, and other basic economic infrastructure either provided or regulated by government, is thus contrasted with private investment in a particular farm, manufacturing facility, and so on. It is a matter of "property," so to speak. The government is responsible for the *general welfare*, the development and protection of the quality of all of the people and all of the land-area. The authority of private investment is limited to the domain which it owns, although what may be done within that domain is limited to actions not in conflict with the general welfare.

The maintenance and improvement of matters of basic economic infrastructure, is just as much an essential capital investment as the maintenance and improvement of a farm, or an investment in a manufacturing facility. Thus, the maintenance and improvement of basic economic infrastructure at the level necessary to maintain progress, is a non-divestible cost of everything produced by that society as a whole. Under the fundamental law of the U.S. Constitution, the full maintenance and improvement of the general welfare is a non-divestible obligation, an obligation which no positive law can rightly revoke in whole or part.

One of the crucial factors which define 1971-1972 as a downward turning-point for the U.S. economy as a whole, is the fact, that combined cuts in effective wage-rates, as instituted under President Nixon's "Phase I" and "Phase II" programs, and a persisting non-maintenance of pre-existing public and related investments in basic economic infrastructure, were the sectors of the total economy in which the greatest portion of the shrinkage of the real economy was concentrated. This ruinous trend was accelerated under the Trilateral Carter Administration's savage programs of deregulation and looting of the farm sector.

Take the case of transportation.

The cheapest form of transportation, per ton, is wa-

John F. Kennedy Library

Library of Congress Prints and Photographs Division.

Left: President John Kennedy and John Glenn at Cape Canaveral, 1962. Right: President Dwight Eisenhower (right) with Queen Elizabeth and Prince Philip. "The Eisenhower government never brought useful programs to the threshold-level at which durable net economic growth-rates were reached. President Kennedy's escalation of the pre-existing U.S. space-mission program, to the level of the specified commitment to the manned Moon landing, is an example of the difference in performance between the Eisenhower and Kennedy administrations," writes LaRouche.

terborne transport.

The most efficient modes of transportation are railways and magnetic-levitation systems—provided those mass-transit systems are not mismanaged. Relatively more costly, and less efficient, are highway vehicles. From the standpoint of the population in general, and also employers and their employees, one of the most important sources of economic waste is the time lost in commuting, and increased costs incurred by the society to support systems of commuting more than short times and relatively short distances. The design of cities and of mass-transit systems in ways which counter the directly and indirectly incurred social and other costs of commuting, ought to be recognized as one of the leading imperatives of policies of government at the Federal, state, and local levels.

The end of net railway expansion, which was reached during the mid-1920s, was a key symptom and factor in the long-range decline in the U.S. economy, the decline leading into the 1930s Great Depression, and the post-war decline in the functional quality of our nation's urban development. During World War II, we wisely revived the national rail system (otherwise we might have lost the war), but we proceeded to destroy that system during the 1950s and beyond. The destruction came partly through mismanagement and obsolescence of various forms, and largely through Wall Street's looting of great systems such as the New York Central and Pennsylvania systems.

Take the case of the transport of freight from the metropolitan New York region to Chicago, the two great Atlantic-oriented hubs of our nation's waterborne and land-based transport of freight. It is far cheaper to ship long-haul goods overnight from New York to Chicago by rail systems, than the inherently less efficient and more costly truck transport. However, back in the 1950s, obsolescent practices in freight handling within the truck-rail local-long-distance interface, caused the more costly truck transport to be preferred over rail. The remedy for the problem was obvious: a well-planned merger of the Pennsylvania and New York Central systems would have proffered a solution, but

the Wall Street crowd vetoed the merger at that time, thus condemning both railroads to the looting, ruin, and government interventions, which inevitably ensued from failure to clean out the obsolescent practices. It was not the railways which failed; it was the ownership of the railways which ruined the railroads.

Admittedly, there was another factor in this: a factor once referred to as the national defense highway system: the illegitimate father, so to speak, of our present system of so-called "superhighways." For our purposes here, two points on this matter are sufficient.

The notion of establishing a national defense highway system, was introduced as a response to the vulnerability of national railway systems to attack by long-range bombers. The national defense highway system was intended to provide both a supplement and an alternative to the railway system, on which the logistics of the U.S. World War II mobilization had depended so much. The relevant financial high-binders soon came up with another idea: instead of a restricted access national defense highway system, a system which would open up rural areas for suburban residential and shopping-center complexes.

This orgy of real-estate speculation complemented the so-called Eisenhower consumer-credit, "Baby Boomer" bubble of the 1954-1957 interval, the financial bubble which collapsed in the 1957-1958 recession and the ensuing economic doldrums of 1959-1960.[9]

Many myths were concocted in the effort to debunk President Kennedy's 1960 electoral victory over Vice-President Richard Nixon. There were, admittedly, numerous good programs launched under President Eisenhower. The fault in those good programs of the Eisenhower period, such as the post-Sputnik revival of the previously mothballed space program, was that the Eisenhower government—sometimes called the "Eisenhowever government"—never brought useful programs to the threshold-level at which durable net economic growth-rates were reached. President Kennedy's escalation of the pre-existing U.S. space-mission program, to the level of the specified commitment to the manned Moon landing, is an example of the difference in performance between the Eisenhower and Kennedy administrations.

To understand the roots of this difference in economic policies between the Eisenhower and Kennedy administrations, a glance at the personal history of Dwight Eisenhower is helpful.

Eisenhower's road toward high military rank was early defined by his posting as an aide to General Douglas MacArthur, an Eisenhower later wryly described by MacArthur as "the best clerk I ever had." In the course of things, Eisenhower's career veered to links with Winston Churchill-funder Bernard Baruch's Wall Street. When the time came to induce Winston Churchill et al., to submit to the indignity of having a U.S. military commander of allied forces for the war in Europe, Eisenhower was designated as acceptable to London. From that point on, to the end of his Presidency, Dwight Eisenhower was the kind of U.S. patriot whose role was to manage the difficult U.S. partnership with the always nasty British—during World War II in Europe, in the early days of NATO, and as President.[10]

The difference was, that John F. Kennedy's tendency was to model his administration upon the legacy of President Franklin Roosevelt. As Kennedy matured in office, the echoes of the patriotic legacy of Franklin Roosevelt became clearer, the youthful Romantic edges relatively more moderated. In that sense and degree, the differences between Kennedy and Eisenhower, echoed the differences between the American traditionalism of

9. The February-March 1957 outbreak of the 1957-1958 recession began as I had forecast some months earlier. That forecast was based upon a study of the post-1954 consumer-credit bubble, a study centered upon the John Law-like frenzy in automobile production and marketing over the course of the 1954-1956 interval. By 1956, many dealers in leading brands were losing money on new car sales, but were deluded by the industry's dealership accounting methods, into believing the losses were being incurred on account of the used-car market. The automobile manufacturers considered it in their interest to brainwash the dealers into thinking that the new-car sales were the money-makers. When new-car financing reached the level of thirty-six months, including a giant "balloon note" in the last scheduled payment, the evidence was that this bubble was about to blow. A similar state of affairs prevailed in other categories of consumer-sales financing.

10. To give a precise indication of the problems faced by Eisenhower as commander of allied forces in Europe, take the case of the wretched British Field Marshall Montgomery. Years later, I asked Professor Friedrich Freiherr von der Heydte, "Would you agree, that Montgomery was the worst commander of any nation during World War II?" The Professor chuckled: "You can't say anything bad about Montgomery to me; he saved my life. I was commanding Rommel's rearguard; if Montgomery had ever flanked me, I was dead…." From El Alamein to Market Garden, Montgomery used his position within the allied command to delay allied victory by at least six months, if not significantly more. As Britain's John Wheeler-Bennett emphasized, after the war: the British did not wish to win the war too soon. Thus, British intelligence betrayed the plotters against Hitler to the Gestapo. Thus, Eisenhower was obliged by his British partners to put up with the wretched Montgomery.

Franklin Roosevelt, and the "we must learn to work with the difficult British" vacillations of an Eisenhower.

There were signs that Kennedy was leaning more toward the statesmanship of Franklin Roosevelt, General Douglas MacArthur, President Charles de Gaulle, and Chancellor Konrad Adenauer, than what we have seen as a trend in U.S. policy-shaping since. Viewing matters from that standpoint, helps to make clearer the causes for the difference in quality of economic and related leadership, between the fumbling economic policies of the Eisenhower administration, and the bolder thrusts of the Kennedy administration.

The Eisenhower administration sometimes put its shoulder behind some good efforts, but those efforts were never bold enough to make London and its Wall Street minions seriously unhappy. Neither cold, nor hot, but lukewarm: the 1957-1958 recession is typical of the result of the Eisenhower administration's compromises with reality.

Three features of the 1961-1966 interval are outstanding examples of what had been good in the Kennedy policies, and what had turned sour beginning the 1966-1967 period of the war in Indo-China:

1. The Kennedy "crash program" for a manned Moon landing. For every penny spent on that program, the U.S. economy gained a spillover of more than ten cents in benefit. This was the largest single stimulant for the real economy since that program was launched.

2. The improved investment tax-credit program, the complement to the aerospace "crash program" in boosting the real economy.

3. The continued expansion of investment in maintenance and improvement of basic economic infrastructure, a program which was cut back to effect a continuing net contraction of U.S. infrastructure from about 1971 to the present.

Today, those beauties of the past are gone. Our nation's basic economic infrastructure is in a general state of rot. The very name of "general welfare," the pillar of our constitutional law, has been treated as if it were a "dirty word." Education is, for the greater part, worse than a bad joke; an assay of popular entertainment, exposes the nation as afflicted with a type of ruinous cultural decay best suited to Sodom and Gomorrah, or some other culture which has lost the moral fitness to survive. Investment tax-credit incentives for growth have been thrown aside, replaced by the lunatic philosophy of Kemp-Roth and Garn-St Germain. Real science, the banner of every economic triumph of our nation's past, has been turned into another "dirty word."

2.3 Industry and Agriculture

The pillar of modern industry was defined by Gottfried Leibniz's study of the principles of heat-powered machinery. Thus, the first operating steam-engine, used to power a river-boat, was developed in collaboration with Leibniz, in Germany, at the beginning of the Eighteenth Century. Leibniz's principles were expressed later by the work of France's Lazare Carnot, in defining the principles of machine-tool design used to ensure France's victory over invading armies, during 1792-1794. Modern industrial society was defined by the U.S. program of 1861-1876, a model based upon the principles of Carnot, which was exported during and after 1876, to Germany, Japan, Russia, and other countries.

Carnot's discovery of the elementary principles of machine-tool design was based upon Leibniz's conception of the geometry of position. The fuller appreciation of these principles lies within the bounds of the successive development of what are known as hypergeometries, as by Carl Gauss and Bernhard Riemann. It is the application of a thus-refined conception of machine-tool design, as applied to the design of unique proof-of-principle experiments, which made modern industry, and also agriculture, possible. It is on this basis, and only this basis, that the principles of modern industrial society can be understood with reasonable efficiency.

The application of any validated discovery of universal physical principle, results in the production of new technologies, presented as by-products of sundry sorts of applications of those universal principles. What we see in any successful modern machine-tool design, is a multiply-connected assembly of such technologies. What one should recognize in any industrial or related productive process as a whole, is precisely the same thing. Thus, in this way, the general theory of production is to be viewed as a generalized application of the principles of Riemannian manifolds. From this standpoint, it is possible to make sense of the economic issues posed in defining necessary costs and expenses of the productive process.

Focussing upon industry and agriculture, there are two opposing trends at work in a healthy form of modern economy. On the one side, there are increasing costs associated with the increasing (physical-economic) capital-intensity, energy density, energy-flux density, and energy-coherence of the productive process. This is a factor of increasing cost. However, increases in productivity obtained in this way reduce the per-capita combined costs of production, relative even to an associated rising capital-intensity and energy-intensity.

The imperative of increasing capital- and energy-intensities is underscored by regard to the factor of technological attrition. As we deplete what had been the cheapest and more readily available resources, even the need to keep per-capita physical-economic costs from rising, compels us to make what had been poorer resources, cheaper than richer resources earlier. We must either continue scientific and technological progress, or be plunged into ruin for failing to do so. There are additional considerations, but this is sufficient to make the point.

The same considerations show us why the machine-tool sector of the division of labor, is the driving force, the determinant of the economic success or failure of economies. This is demonstrated today, by the fact, that without a healthy German economy, there can be no healthy European economy at large. In turn, there can be no healthy German economy, unless that economy is dominated by export-oriented machine-tool production. On the other side of the scale, it would be enormously difficult to meet the challenge of economic justice for the vast populations and areas of Asia, without a massive, greatly expanded flow of the most modern machine-tool design, from the U.S.A., a Germany-centered European economy, Japan, and the machine-tool potential of the former Soviet scientific military-industrial complex.

The structure of industry (and, also modern agriculture) is therefore highly capital-intensive, and increasingly so. For the same reason, a successful modern economy is increasingly science-and-technology intensive, requiring corresponding educational and cultural standards for the populations at large.

Comparing the changes in these elements which have been induced during the recent quarter-century (and longer), we are confronted with shocking evidence of the degree we have destroyed our economy over this past period to date.

2.4 What Is Cost?

The true cost of production is whatever combination of ingredients is required to enable a population to sustain a specific rate of increase of the rate of growth of output, as growth is measured in terms of those ingredients.

I shall supply here some rough indications of the way in which physical-economic and money-priced aggregates are to be compared for such purposes as constructing a set of curves such as those shown in Figure 2.

For more than ninety percent of our U.S. population, the conditions of life, and levels of productivity become worse, and yet, many of the people having these sense-perceptions, speak of the "growth of the U.S. economy." Such people are like the shopper who says, "I don't worry about the farmer; I get my milk from the supermarket."

This means that reliance upon "constant dollar" estimates of income and cost is irresponsible practice. It is the physical relationship between the physical-economic market-baskets representing costs, which must be compared with physical-economic productivity per capita and per square kilometer, not monetary prices, nor adjusted monetary prices. Furthermore, although the infrastructure built up twenty or more years ago is an integral part of the functional costs incurred by today's production-output, the cost of actual replacing depleted infrastructure is usually not counted at all, or is estimated in historical accounting prices, not current prices of production.

There is, in short, no competent deductive determination of the relationship between prices of items in market-baskets of costs and expenses, and output in current or adjusted prices.

Rather, the functional value of per-capita baskets of physical-economic inputs is measured in terms of relative rates of increase of the physical-economic rate of profit represented by current output. In the first approximation, the measure of the value of inputs is the rate of increase of output over input, realized through the modes of production and consumption in use. More precisely, it is the rate of increase or decrease of that rate of profit, which is closest to an exact measure of

physical-economic values.

The only meaningful determination of that rate of profit, is in both per-capita and per-square-kilometer terms. Assign all of the elements of physical-economic cost (input), including physical-capital factors, as cost of labor. Deduct the imputable replacement-costs of all of those elements of input, in prices, from total physical-economic output, combined, in current money prices.

Take an example. Since the 1946-1966 interval, the number of jobs which the average member of the family household must have, to meet the same standard of living as five or ten years earlier, has risen. In the post-1966 period, the birth-rate for most classes of households has declined. (In some parts of the world, such as Germany, catastrophically.) Add to the number of working-hours in the week so represented, the added commuting time involved. Compare the physical standard of household life, in physical-economic, not monetary terms, to earlier periods. For most of the U.S. population, the conditions of life have become steadily worse, especially since the 1987 Wall Street stock-market crash.

Look to the future: look to the children and adolescent members of those households. Look at education. For the population in general, there are virtually no competent teachers, no competent educational programs, and no decent textbooks in the public schools today. Former classrooms are being replaced by what used to be called the "blab schools" of the poorest areas of Kentucky and Tennessee, at the beginning of this passing century. The lack of time for family nurture in households, aggravates the epidemic of illiteracy among not only public-school leavers, but also university graduates.

Look at the effects of the growing functional illiteracy within the population, upon the ability of the U.S. economy to produce. Look how far behind other nations the U.S.A. has been falling on these and related accounts.

Look to the effect of Wall Street's looting of healthcare, through HMOs and kindred arrangements, and the effects of this on the families of the most targetted infirm and elderly strata of the population. Look at mortality and illness rates among infants and young children. Look at the rampaging resurgence of epidemic disease once formerly brought to near the vanishing point.

Look at the family farms which used to feed us. Look at the towns where former productive industries have long vanished under the impact of Carter's deregulation of transportation, and other disastrous structural reforms.

All of these and related physical-economic considerations, touch evidence plainly within the reach of our sense-perceptions. For more than ninety percent of our U.S. population, the conditions of life, and levels of productivity become worse, and yet, many of the people having these sense-perceptions, speak of the "growth of the U.S. economy." Such people are like the shopper who says, "I don't worry about the farmer; I get my milk from the supermarket." They have literally left their senses behind. For them, the important thing is money.

One is thus reminded of those Germans of the early 1920s, the so-called "middle class," people who owned no workshop, no farm, or other means of producing real wealth, but who had entrusted their wealth to bank savings and financial investments. Then, the 1923 Weimar hyperinflation wiped out their savings and their financial investments. Speaking of today's terrible U.S. public schools, one might say, as was said in times past, that those who do not study history, obviously will learn nothing from it.