

Chapter 10 The Twentieth Century

§ 1. The Environment of Reform

The last decade of the 19th century and the first half of the 20th witnessed a third wave of education reforms in public schooling and higher education. These reforms were centered around a misleading slogan of "democracy" used in the propaganda of reformers allied with a so-called Progressive Education Movement. John Dewey, whose name became almost synonymous with the public school reforms, created his own definition of "democracy," and it was not the standard definition or the one understood by most Americans. In higher education, the opening period witnessed a broad transformation from colleges to newly-organized universities and ushered in an era of narrow specialization. This had a few benefits but many disastrous consequences, both for education and for American Society as a whole, in the decades leading up to today.

To properly assess the so-called progressive reforms from a vantage point here in the early years of the 21st century, it seems prudent to begin with a panorama of how that century played out so that the institution of public education can be properly seen in its practical consequences. That panorama is the objective of this and the next two chapters. What I will show you is that the 20th century exhibited five, and possibly six, distinct periods in which the socio-economic dynamics of the U.S. changed qualitatively and quantitatively over the space of a very few years. The institution of public education played a role in these changes and they, in turn, had effects on the institution of education. The result was that the entire century of educational reforms failed to satisfy anyone and provoked yet another series of ineffective reforms. This is the classic Toynbee symptom of a Society failing to resolve the challenges it faces and beginning to break down.

Provocations of changes a Society undergoes over time are communicated among its members through interlinked dynamics of its socio-economic Enterprise-protein structure. The formation of new mini-Communities, disintegration and disappearance of old ones, and the generation of bonding and antibonding relationships between mini-Communities, leading to either cooperative or destructive forms of competition, all arise from these socio-economic linkages. This is because the determinations of human behaviors are conditioned at the root by individual practical rules of Obligations. Consequences to individuals arising from the socio-economic dynamics in play provoke individual counter reactions, among which we find individuals associating with one another under *ad hoc* social contracts as a means of force-multiplying the individuals' capacities to serve the dictates of personal practical rules of Obligation. What I endeavor to show in these next three chapters is how reactions to these provocations appear in the economic record of the 20th century. By recognizing this, social-natural scientists gain an important tool for carrying out scholarly investigations as well as for advising agents of government, in both political and commercial entities, on matters of policy.

The history presented in this chapter benefits from the availability of a much greater collection of data compiled by government agencies after 1914. There are some very important cautions that attend the use of this data, however. The following section overviews these prior to commencing with the actual analysis of the 20th century U.S. socio-economic history in subsequent sections. By way of setting a context and explaining the relevance of this analysis to Critique of the U.S. institution of public education, I begin by quoting Professor Douglas, a professor of Industrial Relations at the University of Chicago in the 1930s. Douglas wrote,

Industrialized America has a confirmed habit of measuring the degree of its material progress. Index numbers of production abound, which show the rate at which our mines, our farms, and our factories are turning out goods which are either to be consumed directly or to be embodied in plant and machinery devoted to the production of still further goods. Nor is all this merely a means of displaying our relative prosperity to the world and of

indulging in a type of collective boasting which would be odious in any individual. Such statistics, as a matter of fact, fulfill at least a threefold purpose: first, from the standpoint of true humanism, they are to some persons interesting phenomena in themselves; second, they furnish information upon which those in a position to guide the credit policy of the country may regulate the quantity of credit and partially stabilize the price-level, as well as help to determine the particular lines of industry into which investment funds should be directed; and finally, from the standpoint of social appraisal, they enable us to determine the relative degree of success with which our form of economic organization is coping with the problems of production.

But the ultimate test for any industrial system is the degree to which it improves the condition of life of the people who live under it. Material welfare is by no means all of life; but in a world in which scarcity still prevails, it is a necessary prerequisite for the attainment by the great masses of mankind of those other æsthetic and emotional values which deepen and broaden the experience of those who realize them.

There is indeed no more important question in the field of social history than that of the 'condition of the people.' It is not only the best index of the relative success or failure of any economic or industrial system, but it also affords the best clue as to the permanency of such a system. If the material condition of the great masses of the people is steadily and appreciably advancing, then the popular urge for any change in political or economic fundamentals will be but slight. If, however, the real income of the people is diminishing, social unrest necessarily accumulates, and changes of some sort almost inevitably follow. [Douglas (1930), pp. 3-4]

It is true that money doesn't buy happiness. But it is also true that if you are not happy when you have it, you stand very little chance of living happily when you do not. It is important to understand that money and wealth are not the same thing. Money is merely an instrument of convenience in acquiring or employing real wealth-assets. It is the great lubricant of trade and exchange – the means of distributing real wealth-assets within any Society – but is not in itself one of those assets. **Unwealth** is lack of what is practically needed to attain a state of satisfaction. **Wealth-in-general** is that which is not-unwealth. A **wealth-asset** is any good which in its use negates unwealth; in this context money is a form of *mathematical* wealth-asset¹. But a *real* wealth-asset is one which in its actual use sustains or promotes the realization of welfare by the person who employs it. Money and real wealth-assets are, of course, functionally related to each other and this leads to mannerisms of speaking that render the words pseudo-synonymous. But it is an error to equate them. As Smith rightly pointed out,

Money, therefore, the great wheel of circulation, the great instrument of commerce, like all other instruments of trade, though it makes a part and a very valuable part of the capital, makes no part of the revenue of the society to which it belongs; and though the metal pieces of which it is composed, in the course of their annual circulation, distribute to every man the revenue which properly belongs to him, they make themselves no part of that revenue. [Smith (1776), pg. 256]

The economic statistics of the 20th century can be likened to a trail of bread crumbs for us to follow. They lead to an understanding of the conditions of wealth or unwealth experienced by different groups of people in America as the years of the century rolled by. Reciprocal Duty, i.e.,

¹ That money *per se* is a mathematical object becomes obvious as soon as you consider the fact that today the greater number of all economic transactions take place electronically without the use of any physical token such as a dollar bill or handful of coins. Scrip (paper money) and specie (coins, bullion, etc.) are in a manner of speaking like abacus beads while a credit card like an electronic calculator – merely a way to keep track of money just as an abacus is a way to keep track of numbers. A count is not the same thing as that which is counted.

Duty in the Relation of one person to the condition of other persons [Kant (1788), 5: 66], is the tie that binds people and Communities together under a social contract. However, with every person Self-obliging to reciprocal duties begins in service of his Duties-to-himself in Relation to his personal state or external situation. His decisions and actions are taken under practical rules that govern these in his practical manifold of rules. To scientifically understand causative factors, including those pertaining to the institution of public education, we must be able to get down to *at least* the level of the mini-Community and how acting upon Self-obliged Duties is provoked within the network of the Society. The statistical record is one tool among many necessary for doing this. The individual human being is the social atom, and in the collective actions and interactions among human beings we find the causative factors for the prosperity or disintegration of Society.

§ 2. Statistics as Instrumentation in the Study of Social-Natural Science

I previously remarked upon the astounding level of ignorance in America pertaining to even the most rudimentary laws of economics. I am sorry to have to tell you that the level of ignorance pertaining to statistics is even worse because through this ignorance – which in technical detail probably is no greater than that of economics – statistics are regularly misused, misunderstood, and are even regularly employed by propagandists to mislead people. Darrell Huff wrote in his delightful little self-defense manual, *How To Lie With Statistics*,

Averages and relationships and trends and graphs are not always what they seem. There may be more in them than meets the eye, and there may be a good deal less.

The secret language of statistics, so appealing in a fact-minded culture, is employed to sensationalize, inflate, confuse, and oversimplify. Statistical methods and statistical terms are necessary in reporting the mass data of social and economic trends, business conditions, "opinion" polls, the census. But without writers who use the words with honesty and understanding and readers who know what they mean, the result can only be semantic nonsense.

In popular writing on scientific matters the abused statistic is almost crowding out the picture of the white-jacketed hero laboring overtime without time-and-a-half in an ill-lit laboratory. Like the "little dash of powder, little pot of paint," statistics are making many an important fact "look like what she ain't." A well-wrapped statistic is better than Hitler's "big lie"; it misleads, yet it cannot be pinned on you. [Huff (1954), pp. 8-9]

Every semester I see honest and very bright graduate students studying biology, physics, one or another branch of engineering, neuroscience – basically, any discipline you might care to name – innocently turning in reports containing statistics I know to be utterly misleading, but in which these earnest students honestly believe with more faith than the average saint has in Christ. My personal favorite is a statistic called the "level of confidence." They misuse it to report a degree of certainty a billion to a trillion times greater than the measurement capabilities of the test instruments they used to obtain their raw data can possibly allow. Here is a simple fact straight out of the science of information theory: No amount of mathematical number-crunching can put into a statistic information that wasn't contained in the original data. In information theory this theorem is dignified with a name of its own; it is called "the data processing inequality."

Students, and sometimes my colleagues among the faculty, simply accept a number that pops out of their computer without asking, "Is this number meaningful? Is it realistic?" This common error is one of the glaring bits of evidence pertaining to the failure of mathematics education in the U.S. – a failure to teach what mathematics really is and how to properly *use* it. This can be traced back to rote teaching methods in the American public school system. To those who, like myself, learned mathematics as a tool and a precise *language* within an intimate context of applications, rather than as a formal and somewhat meaningless drill, it isn't really a great wonder that most students today venerate the idle rumors coming out of a computer as if these numbers

were engraved on stone tablets brought down from the mountain by Moses.

Here is something you need to know: Barring calculation error, *every* statistic is both true and false, correct and incorrect, right and wrong. Mathematically it is true, correct, and right. Where it becomes false, incorrect, and wrong lies in the *context* one attaches to the number and the interpretations that follow from this context. Every thing is *real* in some contexts, *unreal* in others, and *non-real* in yet others. Propagandists often employ mathematically true statistics in contexts chosen deliberately to mislead and misinform. The great danger in using statistics is the danger of learning something that isn't true. Huff's book is filled with page after page of examples, along with tips for what to look out for whenever someone presents you with a well-digested set of statistics. For example,

"The average Yaleman, Class of '24," *Time* magazine noted once, commenting on something in the *New York Sun*, "makes \$25,111 a year."

Well, good for him!

But wait a minute. What does this impressive figure mean? Is it, as it appears to be, evidence that if you send your boy to Yale you won't have to work in your old age and neither will he?²

Two things about this figure stand out at first suspicious glance. It is surprisingly precise. It is quite improbably salubrious. There is small likelihood that the average income of any far-flung group is ever going to be known down to the dollar. [*ibid.*, pg. 11]

Even so, statistics are the measuring instruments of sociological phenomena on the macroscopic scale. The Society of a great nation is a complicated thing and its phenomena co-involve many interacting factors. Statistical measurements provide practical means for investigation of these phenomena by empirical natural science. Lipsey and Steiner wrote,

Evidently, the many arbitrary decisions as to what to include and what to exclude affect the size of GNP³. Does it matter? The answer for many purposes is No. In any case avoid the error of believing that because a statistical measure falls short of perfection, as all statistical measures do, it is useless. It is often, although not always, the case that very crude measures will give estimates to the right order of magnitude, whereas substantial improvements in sophistication make only second-order improvements in these estimates. In the third century B.C., the Alexandrian astronomer Eratosthenes measured the angle of the sun at Alexandria at the moment it was directly overhead 500 miles south at Aswan and used this angle to calculate the circumference of the earth to within 15 percent of the distance as measured by the most advanced modern measuring devices.

But beware of the opposite extreme of believing that crude measures will serve all our purposes. The reasonable procedure is to consider the potential errors of a particular measure in terms of the purpose for which the measure will be used. A 100-yard navigational error is inconsequential at sea and potentially disastrous when entering port. Accuracy is a relative matter. [Lipsey & Steiner (1969), pg. 507]

This is both excellent advice and proper technique for empirical natural science. The *purpose* for which a measurement of any kind is made sets the context for, and therefore the real meaning of, the measure. Yet again, all real meanings are at root practical.

All measurements are man-made operations; therefore all measures are man-defined quantities

² An annual income of \$25,111 in 1954 is equivalent in purchasing power to about \$210,000 in 2010.

³ Gross National Product. Lipsey & Steiner were specifically discussing the measurement of GNP but their remarks hold for any other statistically-determined object.

– mathematical objects. These are never defined to no purpose, and the purpose that motivates the definition sets the practical context of the measure – the connotations under which it is real and, by exclusion, those in which it is either unreal or non-real. The importance of context becomes readily apparent to a philosophical eye when we take a look at the titles borne by many books and articles, e.g., *Real Wages in the United States 1890-1926* by Douglas or *Real Wages in Manufacturing 1890-1914* by Rees. "Real" in what sense and to who? Different scholars at different universities and agencies often differ in the context they regard as being "the real one" when they define the measures they will make and use in their work. Professional economists work, in part, as applied statisticians and they are rather fond of trying to bring more simplicity to their data presentations through the introduction of divers mathematically defined indexes. Gross national product (GNP), gross domestic product (GDP), personal income (PI), and a number of other economic indicators are often either themselves indexes or are referred to some defined index.

Douglas' (1930) and Rees' (1961) books are, taken together, excellent study material for the person who is seeking to learn how to understand and use statistical presentations of social-natural scientific data. Both men devote great energy to defining and justifying indexes by which they propose to determine "real wages." Douglas favors us by providing us with a social-natural real explanation of what he means by the term "real wages":

It is therefore highly desirable to chart the economic progress of the largest economic group in our country, namely, those who work for wages or for salaries. This group comprises nearly twenty-seven million workers [in 1930], and upon their earnings depends the economic welfare of no less than seventy million people. . . . It may be objected that any such study as is here projected is a work of supererogation, since 'every one knows' that the effective purchasing power of workers has increased during the period. But the *degree* to which such purchasing power has been advanced is not known, and it may not be inappropriate to remind such objectors of Lord Kelvin's dictum that 'when you can measure what you are speaking about and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind.' . . . We are concerned . . . with the question as to whether the real wages, or effective purchasing power of the workers, have increased and if so, by how much. This is dependent upon the double relationship of relative changes in the amount of money which the workers receive for their work as compared with changes in the cost of living for working-class families. If both wages and living costs double, then it is patent that the worker is not able to purchase more than before and his real wages have not changed. If the cost of living trebles while money wages are only doubling, then the worker can purchase only two thirds as much as before and his real wages are one third less than what they were. If, on the other hand, the money wages quadruple while the cost of living but doubles, the workers can purchase twice as much as before. [Douglas (1930), pp. 4-5]

In metaphysical terms, Douglas' "real wages" constitutes a determining factor in the tangible *Personfähigkeit* of the individual worker. It is for the purpose of maintaining – and, if he can, increasing – this *Personfähigkeit* that an entrepreneur wage-earner chooses to associate himself with the corporate person of an employing agency (a company, business establishment, government institute, or etc.). Hence, Douglas' empirical explanation of "real wages" constitutes a practical description of what Critical metaphysics calls a **principal quantity** [Wells (2009), chap. 1] and is an explanation congruent with the practice of social-natural science. The objects of mathematics meet and connect with the empirical world of real phenomena *at* principal quantities, and without them a mathematical science is useless. The statistical objects I present in this chapter likewise take their practical real context from their applicability in describing average effects on the tangible *Personfähigkeit* of individuals.

Defining any statistical measure requires the definer to make a number of key decisions as he designs his measure. Both Douglas (1930) and Rees (1961) vividly illustrate the sorts of considerations that go into the design of statistical measures. They are worthy of study for that reason notwithstanding many other good reasons to study and learn economic *methodology* from them. The Dismal Science is not nearly so dismal to a person who understands its real implications and how the economist strives to bring these forth from the whirl of empirical phenomena.

Douglas claims his measures are better measures than those used by his predecessors, and Rees claims the same for his with respect to Douglas' measures. Douglas' claim is, I think, quite well justified; Rees' claim is, again in my opinion, not so well justified. This is likely the case for all the commonly employed indexes and measures reported by various agencies such as the Census Bureau, the Bureau of Labor Statistics, and the National Bureau of Economic Research. If you immerse yourself in the details reported in, say, *The Statistical History of the United States from Colonial Times to the Present* you will discover after a short amount of time that BLS and NBER figures alleging to report the same facts systematically disagree with each other. NBER statistics on union membership, for example, are systematically lower than BLS figures on union membership. The disagreement, however, appears to be on the order of only 5%, which recalls to mind Lipsey & Steiner's remark quoted above.

How seriously should one take such discrepancies? On the one hand the Census Bureau seems to regard them as not-too-serious because, even though the Bureau is aware that the BLS and the NBER use different definitions in coming up with their numbers, the Census Bureau substitutes one set for the other in their reported data series when one of their sources, say the BLS, has gaps in its data that another source, say NBER, can fill in. The Census Bureau merely footnotes that the substituted data sequence is taken from NBER instead of BLS. On the other hand, the CB seems to take its own changes in definitions a great deal more seriously, warning you that the data series from one period is "not comparable" to that of another because their definitions changed. The CB even frequently provides a "splice year" where they report the same datum as measured by the two different methods – a very thoughtful thing for them to do because the differences for the two methods in the "splice year" are usually only a few per cent. "Not comparable"? Rubbish.

The alarm the CB seems to be raising with its "not comparable" notice often strikes me as more of a case of statisticians "covering their behind" in case someone applying their data should choose to raise a ruckus (say, over something the end-user reads into *his* conclusion that fails to pan out when this conclusion is put to the experimental proof of making predictions). Personally, I am very thankful statisticians habitually pour over their numbers with nitpicky precision, just as I am that my bookkeeper will labor over a three-day weekend, without being asked, to track down a 5¢ discrepancy in my \$1 million budget. Her conscientiousness keeps *me* out of jail, just as statisticians' nitpicky habits keep me from getting into scholarly trouble. I have never known a *professional* statistician or bookkeeper who was *not* habitually nitpicky. If I wanted an opinion instead of a fact I'd call my stockbroker, and if I wanted an opinion dressed up as a fact I'd call my lawyer. In divers purposes lie the virtues of the division of labor.

Critical metaphysics teaches that objectively valid principal quantities are *never* crisply single-valued numbers. Rather, they are comprised of a *range* of numbers. This is a basic requirement of epistemology and the principle is called Slepian's principle [Wells (2009), chap. 1]. *All* empirical measurements – and a statistic is never anything else but this – have some range of uncertainty attending them. *Real* differences (differences that matter) among various mathematically defined quantities always come down to whether one definition satisfies the purpose to which the quantity is put to use while the other does not. As William James famously said,

There can *be* no difference anywhere that doesn't *make* a difference elsewhere – no difference in abstract truth that doesn't express itself in a difference in a concrete fact and in

conduct consequent upon that fact, imposed on somebody, somehow, somewhere, and somewhen. The whole function of philosophy ought to be to find out what definite difference it will make to you and me, at definite instants in our life, if this world-formula or that world-formula be the true one. [James (1907), pg. 25]

If a particular statistical object can be successfully used to satisfy the purpose for which it is put to use, then it is *zweckmäßig* (practically functional), and that is all one can ask of it.

Leo Wolman was one economist who clearly understood the challenges attending definition of *zweckmäßig* statistical measures. In reviewing Douglas' book, he wrote,

The task of bringing order into this chaos of raw data is one involving prodigious labor, uncommon knowledge and sound judgment. . . . Professor Douglas sets himself the problem of measuring the changing material welfare, or real wages, of twenty-two million workers.⁴ In pursuit of this objective he has not limited himself to the wages of manufacturing labor, as many of his predecessors have done, but includes in his array of data the wages of workmen in the mining, transportation, public utility, and building industries, the earnings of clerical workers, the salaries of government employees and of ministers, and the wages of farm labor. . . . Within this wide and significant area of inquiry, Professor Douglas makes use of almost every available scrap of information. . . . The result is a vast book, obviously not meant for light and hasty reading. Its pages bristle with issues which will furnish problems to economic investigators for many years to come. . . . Fascinating as the several major conclusions of the book are, its value depends much more on the wealth of detail which fills it. And it is on an examination of the uses of this detail that final judgment as to the validity of the conclusions must rest.

The problems it raises are not different from those encountered in any statistical inquiry whose findings are based upon only partial data. Where statistical conclusions rest upon sample series, involve interpolations and extrapolations for missing periods of time, and the combination of many categories into one, the task of the investigator is to judge the adequacy of his sample, to test the accuracy of his chosen units of measurement, and to determine the validity of the weights he employs. For the application of such tests, statistical method affords no automatic rule-of-thumb. Final judgment must come from observing how the various series act; what they show when compared with other series, independently collected but apparently equally accurate; and what the unit of measurement does, for example, during crucial periods like those of industrial depression. [Wolman (1932)]

This is precisely the sort of data dealt with in this chapter. What Wolman prescribes here is what I have endeavored to do.

§ 3. Observables of Socio-Economic 20th Century Conditions

§ 3.1 Inflation

A great deal of the data I present to you here is measured in monetary terms in U.S. dollars. The first thing to be dealt with is to find a way to express these dollar units in terms of a constant basis in order to remove inflation as a distorting factor in the analysis. For this is required some kind of index that can be used to normalize dollar amounts to obtain what are called "constant dollar amounts." A great deal of Douglas' work and Rees' work involved defining what each man thought were adequate indexes for making time comparisons. We must do this too.

⁴ Douglas said 27 million. He conducted his study for the Pollock Foundation for Economic Research, while Wolman conducted his for the National Bureau of Economic Research. NBER has a history of coming out with numbers lower than those reported by other Bureaus and Foundations.

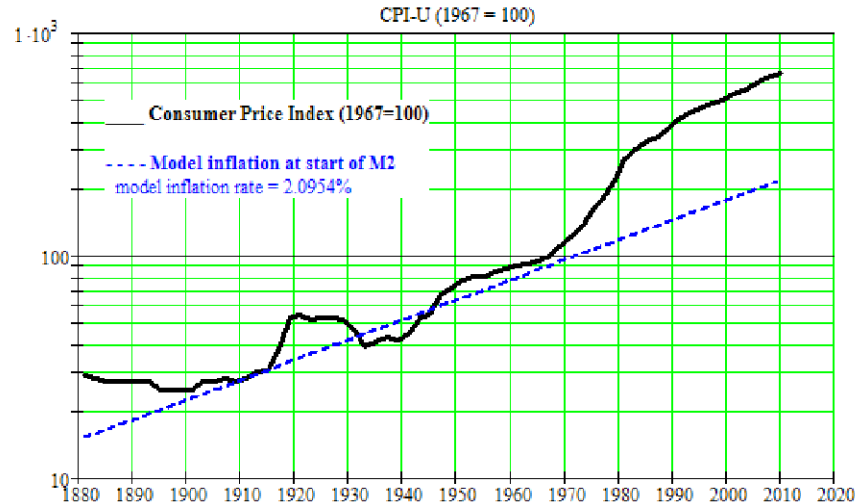


Figure 10.1 Consumer Price Index (CPI-U) from 1880 to 2010 expressed relative to a 1967 CPI = 100.

The most fundamental entity – the "social atom" – in every social-natural science is the human being. Human beings are the causative agents of all social phenomena. In order to not lose touch with this most fundamental property of social-natural science, it is necessary to pick the normalizing index employed to be one that can be as directly related to social impacts on the individual as possible. For this purpose there are no provably superior candidates for our index than one which purports to most directly provide a measure of the cost of living for most individuals, namely, the consumer price index (CPI-U). This is the "CPI" you hear reported by the news media on a fairly regular basis. A doubling in the CPI approximately means that what you could purchase for \$1 before will cost you \$2 now.

Figure 10.1 displays the CPI from 1880 to 2010 using the year 1967 to define what I mean by a "constant" or a "standard" dollar. By definition this CPI is fixed such that it equals 100 for the year 1967. This year is chosen as the reference year for two reasons. First, the greater part of the statistics reported by the U.S. Census Bureau, covering all years up to 1970, are expressed in terms of constant 1967 dollars. Second, the year 1967 falls just prior to a statistically significant change in the social-and-economic dynamics of the United States (which I present in the next section) that lasted from 1970 until at least the year 2000. It is not yet possible to ascertain to an acceptable level of confidence whether the time period after 2000 belongs to this same 1970-2000 social epoch or if a new epoch began at or shortly after that year. To me the empirical evidence appears to be saying one did, but the statistical record is not yet complete enough to compel me to make this an hypothesis.

Statistical data reported by various agencies and think tanks are usually expressed in what are called "current dollars." The term more or less means "dollars relative to the current consumer price index value." Somewhat more precisely, it means "dollars unadjusted for changes in the purchasing power of money." For example, in 1965 a five-stick pack of chewing gum would have cost you 5¢ to purchase. When I looked yesterday, a fifteen-piece pack of chewing gum of the same brand was being sold for \$1.59. A nickel was the "current price" for five pieces in 1965; 53¢ is the "current price" today. In economics "real" wages, prices, etc. are always defined in terms of a standard unit – which in this treatise is the 1967 dollar. For all the statistical data presented here that are expressed in dollar-related units, the current year units are converted to the 1967 basis using a multiplying factor $x_{CPI} = 100/(\text{current year CPI})$. The current-year amount is multiplied by x_{CPI} to get the 1967-dollars amount.

Figure 10.1 itself is not used as part of this conversion process. It merely illustrates inflation as an economic phenomena relative to the 1967 reference point. In point of fact, figure 10.1 was computed by taking the inflation index for each particular year, dividing it by the CPI value for 1967 according to the basis used in reporting CPI in the data source, and then multiplying the result by 100 to re-express it using 1967 as the CPI = 100 basis year. For example, the 2008 *Time* Almanac reported that the consumer price index in the year 2000 was 172.2 and the consumer price index in 1967 was 33.4. Therefore, in figure 10.1 the CPI for the year 2000 is presented as $100 \times 172.2 \div 33.4 = 515.6$. Figure 10.1 thus is just an indicator of how the cost of living changed over time in the United States. For the case of the 5¢ pack of chewing gum, this should have cost around 27¢ in the year 2000 if chewing gum prices followed inflation. I don't remember what a pack of gum cost in 2000, but if it had followed inflation then today it would sell for about 34¢ rather than 53¢. One can conclude that chewing gum prices hyper-inflated from 1965 to today. In 1990 one year's tuition at a public four-year university cost an average of \$2035 (in 2010 dollars) or \$520 in 1967 dollars. If college tuition followed inflation, then according to figure 10.1 in 2009 a year's tuition should have cost \$853 in 1967 dollars (or \$5570 in 2010 dollars). In fact it cost \$1189 in 1967 dollars (or \$7624 in 2010 dollars)⁵. The cost of college tuition rose faster from 1990 to 2009 than did the general cost of living index (i.e., college tuition was hyper-inflated over this period)⁶; chewing gum (a 10-year-old's staple commodity) rose faster than college tuition.

§ 3.2 The Epoch Periods

The socio-economic history of the United States in the twentieth century contains five distinct epochs: 1880 to 1910 (M_1); 1910 to 1930 (M_2); 1930 to 1940 (M_3); 1940 to 1970 (M_4); and 1970 to at least 2000 (M'_5) and possibly to 2010 (M_5). At the time of this writing we might still be living in epoch M_5 , but there is some evidence that suggests this is not the case and that the dawn of the twenty-first century was also the dawn of yet another epoch, M_6 . If that is so, then M'_5 and M_5 are the same and M_6 runs from 2000 to the present. Because the historical record is not yet sufficient to verify the actual *Dasein* of M_6 , in this treatise I make the hypothesis that 1970 to 2010 is epoch M_5 . However, my opinion is that M_6 is actual and M_5 ends at the year 2000.

The first evidence for the existence of five epoch periods from 1880 to 2010 is presented by the growth in U.S. population over the twentieth century. Figure 10.2 graphs U.S. population over this period. Analysis of the decennial population figures shows that from 1880 to 2010 U.S. population is best fit by five piecewise log-linear models of the form

$$M_i : p(y) = p_i \cdot (1 + r_i)^{y - y_i} \quad (10.1)$$

where i is the epoch number, p the model population estimate for year y , r_i is a population growth rate, and y_i is the first year of the epoch. The form of equation (10.1) is the discrete-time version of the solution to a differential equation often used to model natural population growth by what is known as a birth-death process,

⁵ Source: U.S. Census Bureau (2011), table 293, pg. 187.

⁶ It is pertinent at this point to recall Huff's warning quoted earlier about statistics cited down to the dollar. In point of fact the standard-dollar conversion process used here, in combination with the way dollar amounts are reported in the original sources, has a measurement error typically on the order of 1% and generally under 5% assuming the data sources themselves are accurate to within this range. (The sources generally do not report their accuracy range, which is a form a malpractice). If you take the dollar figures I use in this treatise and regard them as accurate within about $\pm 5\%$ you should be reasonably safe from learning something that isn't true. If you regard them as accurate within about $\pm 10\%$ you should be safe beyond a reasonable doubt from learning something that isn't true. I carry out the computations to more decimal places than this merely in order to avoid roundoff and truncation errors in the computing process.

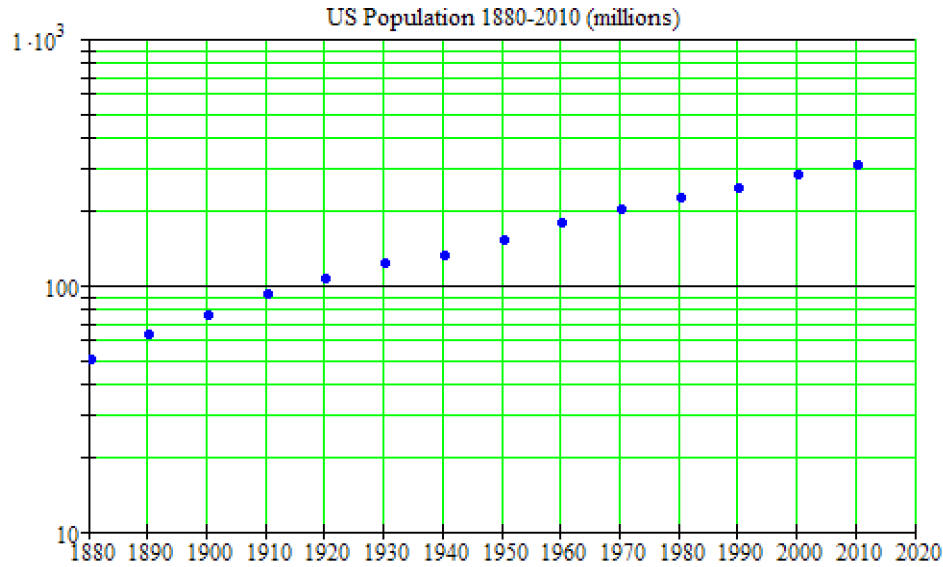


Figure 10.2: Decennial U.S. population from 1880 to 2010. Source: U.S. Census Bureau (2011), table 1, pg. 8. The graph displays U.S. population in millions of people. The decennial population divides into five statistically significant log-linear periods: 1880-1910; 1910-1930; 1930-1940; 1940-1970; and 1970-2010.

$$\frac{dp(t)}{dt} = \varepsilon t, \quad \varepsilon = \frac{1}{T} \ln(1+r)$$

where T is the sampling interval in years. This differential equation is empirically found to model natural isolated populations in non-overcrowded conditions. The population of the United States is not an isolated population, and so it is not peculiar that this empirical model should exhibit different piecewise growth rates r over different intervals of time.

In the previous chapters it was shown that a similar analysis of U.S. urban populations could be used to delineate five distinct periods of socio-economic environment. The periods suggested by model breakpoints in urban population growth rates r were then found to align with major general changes taking place in the U.S. social environment at those times, such as intervals of prolonged economic recession, the earlier and later periods of the industrial revolution, and so on. The principal difference in physico-social environment between the 19th and 20th century United States was the existence of the frontier – the region of the continent unsettled by the United States between the western-most edge of the contiguous republic and the Pacific Ocean. In the 19th century there was an on-going western migration of part of the U.S. population, i.e., the United States was then an open-population system and western settlement was overwhelmingly a rural settlement. This is why only the U.S. urban population, and not the total U.S. population, delimited five distinct periods in U.S. history in the 19th century. By 1890 the frontier had disappeared as the United States expanded from the Atlantic to the Pacific seaboards, and so at that time the "drainage" of settled areas by emigration ended. It follows logically that from this time forward it should be the total population, not just the urban population, that functions as an indicator of socio-economic changes in the U.S. social environment.

However, population is an effect, not a causative factor. Ultimately the causative agents in all social-natural phenomena are the human beings who comprise that population. People determine their actions, behaviors, and habits on the basis of: their inherent drive to achieve psychological equilibrium according to the self-constructed *practical* rules each person builds for himself in his manifold of rules; and in accordance with the *impatient* character of the process of pure practical

human Reason. This gives rise to the satisficing behavior characteristic of human judgmentation. Society-wide social phenomena are the products of human interactions wherein each individual responds to self-constructed Duties-to-himself in regard to his external situation and self-imposed practical Obligations of reciprocal personal Duties in regard to the situation of others [Kant (1788), 5: 65-71]. In an organized Society where interpersonal interactions are subject to remote effects communicated among the people through an Enterprise-protein economic network, actual (rather than merely apparent) changes in the social-natural environment of the Society must have additional effects, e.g. of an economic nature, that coincide with periods possibly signaled by breaks in the log-linear population growth. Most of this chapter is devoted to the search for such corroborating phenomena and analysis of whether sufficient empirical evidence exists to find a putative social epoch to be actual or merely apparent.

I'm not going to leave you hanging in suspense. I find corroborative phenomena *are* present and, taken together, confirm the actual *Existenz* of the five epochs M_1 - M_5 . In my conduction of this study I am following the principle of an empirical hypothesis, viz., ***statistically significant changes in population growth rate signal the possibility of fundamental changes in the social environment of a Society in which interpersonal dependencies are communicated through an Enterprise-protein social network structure.*** I dignify this hypothesis with a name: ***the growth rate postulate.*** This is an empirical postulate grounded only in the empirical fact that it appears to describe actual social-natural phenomena. To me the evidence for it seems compelling enough to treat it as an empirical law of social-Nature provided that in the practice of social-natural science we strictly conform to the guidance of Newton's 4th general rule of scientific reasoning:

Newton's Rule IV: *In experimental philosophy we are to look upon propositions collected by general induction from phænomena as accurately or very nearly true, notwithstanding any contrary hypothesis that may be imagined, till such time as other phænomena occur, by which they may either be made more accurate or liable to exception.* [Newton (1726), pg. 321]

Because such an important task is assigned to the growth rate postulate, namely that of making preliminary identification of distinct social epochs, the construction of models of the form of eq. (10.1) must be carried out carefully, constructing a number of possible model fits to the available data and from these selecting those which provide the best statistical description that can be found for the data series. I impose upon this process a rule of judgment, namely that log-linear models of the form of equation (10.1) must produce a log-linear coefficient of correlation, R , of no less magnitude than 0.990 (for increasing trends; $|-0.990|$ for decreasing trends). To this is added the additional constraint that in order to conclude the *Existenz* of growth by a natural birth-death process there must be no less than three consecutive confirming data points (for decennial data) for which the required value of R is obtained; the required bound on R must be met throughout the duration of the proposed epoch. In those cases where only two (decennial) data points comprise the series, equation (10.1) may still be used for mathematical convenience, but it cannot be imputed that the growth of the population is a natural birth-death process in the time interval between these consecutive data points. Thus, epoch M_3 (1930-1940) can be identified as an epoch but no natural birth-death process can be imputed for it. The model fit to M_3 is no more than a statistical fitting function. Brief-lasting emergent events (accidents) are treated as noise events.

The term "birth-death process" is a technical term and carries a connotation different from the everyday interpretation normal conversational language holds for this phrase. Technically it means *a mathematical state-space population process in which state transitions can take place between neighboring states only* [Kleinrock (1975), pg. 22]. An increment in population, whatever its physical origin may be, is called a "birth" and a decrement in population is called a "death." Two states are said to be "neighboring states" if the difference in the populations each

state represents is precisely one unit of population. Biological procreation and mortalities are special cases of this more general concept. The name itself comes from the historical fact that the first processes of this kind were discovered in studies of biological populations. However, any object used as a state variable in such a model can be regarded as a "member of the population." For example, a unit of currency (e.g. a dollar) can be regarded as a representative "member of a population" in this merely logical technical usage of the term population. Indeed, equation (10.1) is well known to bank loan officers, who call it "the interest compounding formula."

My analysis of the data presented in figure 10.2 netted five distinct growth rates r_i with four identifiable breakpoint years. These are:

$$\begin{aligned} M_1: & p_1(y) = 50.7384 \cdot (1 + 0.020365)^{y-1880}, y \in [1880, 1910), R = 0.9990293 \\ M_2: & p_2(y) = 92.0624 \cdot (1 + 0.014583)^{y-1910}, y \in [1910, 1930), R = 0.9997672 \\ M_3: & p_3(y) = 123.2026 \cdot (1 + 0.007046)^{y-1930}, y \in [1930, 1940), R = NA \\ M_4: & p_4(y) = 131.9717 \cdot (1 + 0.014724)^{y-1940}, y \in [1940, 1970), R = 0.9984443 \\ M_5: & p_5(y) = 203.3134 \cdot (1 + 0.010581)^{y-1970}, y \in [1970, 2010), R = 0.9991620 \end{aligned}$$

where populations p_i are expressed in millions of people and y is the calendar year. Some remarks concerning these fitting functions are in order here. First, the number of digits used in the model expressions reflect only mathematical control of roundoff and truncation effects in computing with these models. You should *not* look at this and think, "the population growth rate from 1970 to 2010 was 1.0581%." You should look at it and think "the growth rate was between 1.00% and 1.12%." Similarly, growth rates r_2 and r_4 differ by less than 5% and so we cannot say the growth rate during M_2 was really different from the growth rate during M_4 . We *can* say each model has a different growth rate from the models immediately preceding and following it in time.

Next, we can say that each model except for M_3 represents a natural birth-death process period in time. This implies a social stability in the U.S. social environment during these epochs. M_3 , on the other hand, does not represent such a stable process and, indeed, closer examination of population estimates shows marked departures from the smooth process implied by the expression for p_3 . M_3 was a period of great turmoil and change. As it happens, we know M_3 by another name: the Great Depression. (I want to stress to you that the modeling procedure I used *in no way* was "fudged" to bring out the Great Depression as a unique epoch. I expected to see it emerge, but I did nothing to force its emergence when I carried out the modeling procedure).

Next, if you calculate the population estimates for any two consecutive epochs at the breakpoint year between them, e.g. 1910 for M_1 and M_2 , you will find the two population estimates are not the same. You should not expect them to be. These fitting functions are used to describe *outcomes*, not express social-natural laws. They belong to the mathematical world, not the social-natural world. If you think about this for a moment, it should make sense to you. Growth rates in, say, M_1 and M_2 are significantly different. Therefore, the years immediately on either side of 1910 are *transition years* when the social dynamic in the United States was changing. The fitting functions neither describe nor are intended to describe such transitions; equation (10.1) is derived from an underlying differential equation that is not capable of such descriptions.

Finally, these fitting functions do not proclaim the *actual Dasein* of five social epochs in the 20th century. They are not intended to do so. All that they do is highlight the possibility of specific social epochs and provide a first estimate of the years covered by possible epochs. Put in other words, the fitting functions proclaim the merely *possible Dasein* of distinguishable epochs. Whether or not an epoch is actual cannot be determined from these functions. That finding must

come from other data covering other phenomena more closely related to the self-determining actions of human beings.

§ 3.3 The U.S. Civilian Workforce in the 20th Century

Figure 10.3 graphs the decennial census figures for the populations of the non-agricultural and agricultural civilian labor forces ages 16 and over, in the U.S. from 1880 to 2010. "Labor force" means "all employed persons." The figure also displays the decennial populations of unemployed persons ages 14 and over from 1900 to 2010. Figure 10.4 graphs civilian unemployment rates as a percent of total civilian labor force from 1891 to 2010. From 1880 to 1910 the non-agricultural labor force grew at a consistent annual rate of 3.27%. The agricultural labor force grew at a consistent annual rate of 1.56%. The pooled growth rate of the labor forces was 2.61% while the general population growth rate was 2.04% during these same years. The number of unemployed fluctuated widely year by year but grew from 0.90 million people in 1890 to 2.15 million in 1910.

These are interesting figures. The pooled civilian labor force growth rate, even without counting the unemployed population, apparently exceeded the overall population growth rate by about 0.6%. The difference is statistically significant. The agricultural labor force grew at a rate significantly less than the overall population growth rate, while the non-agricultural labor force was expanding at a rate significantly greater than the overall population growth rate. This appears to point to increasing industrialization in the United States. Also significant is the fact that all these rates definitely slowed after 1910. These are distinctive labor force characteristics corresponding precisely to epoch M_1 that cannot be ascribed to simple overall population growth rate. From 1910 to 1930 the overall population growth rate declined by 0.5% per year to 1.46%, while the non-agricultural labor force growth rate fell from 3.27% to 2.01% and the agricultural labor force population remained more or less constant at about 11 million people. The pooled labor force did not exhibit a stable growth rate overall (correlation coefficient $R = 0.9855$, which is less than the level of correlation required to posit a growth rate model according to equation 10.1). Unemployed population did not exhibit any resemblance of stable growth or decline rates at all during these years. Non-agricultural and agricultural growth rates and unemployment rates showed qualitative and quantitative differences between 1910 to 1930 vs. 1880 to 1910 that cannot be accounted for by general population growth and World War I military enlistments.

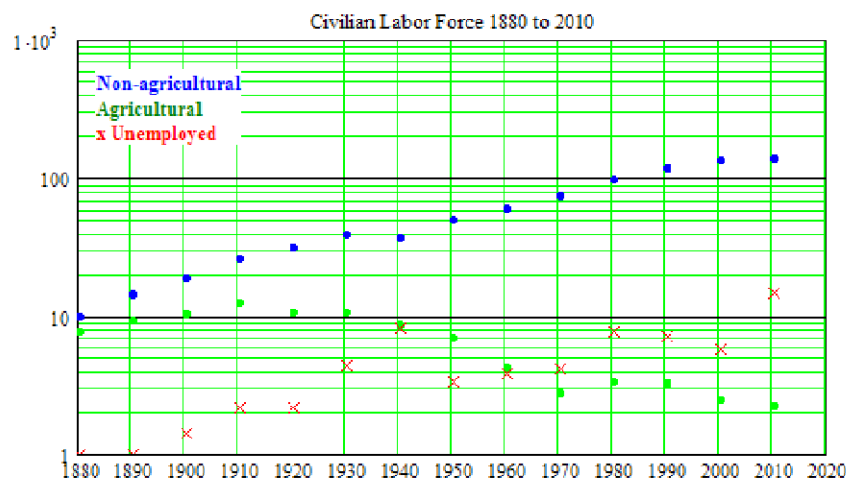


Figure 10.3: Decennial census U.S. civilian labor forces and unemployed persons (in millions) 1880-2010.
Source: Bureau of the Census (1976b) Series D 16-17, 85; U.S. Census Bureau (2011) Table 586, pg. 377.

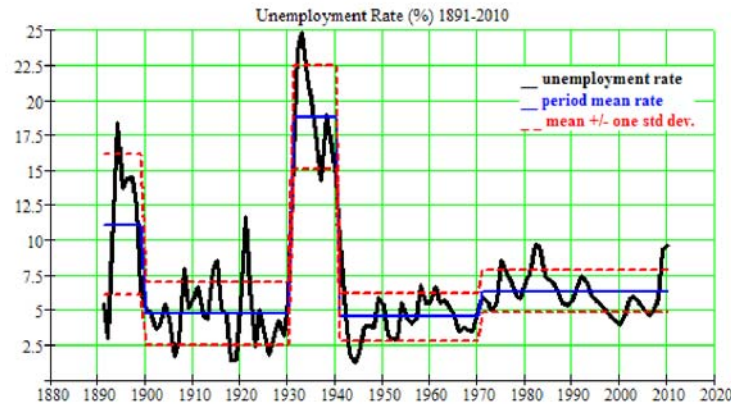


Figure 10.4: Unemployment rates (as per cent of civilian labor force) from 1891 to 2010. Sources: Bureau of the Census (1976b) Series D-86, pg 135; Bureau of Labor Statistics published in the *Time Almanac* 2012, pp. 635-6.

The one thing all three have in common is that all three changed again in 1930. This tends to lend confirmation to the proposition that M_1 and M_2 are different real socio-economic epochs. However, in regard to unemployment it is important to point out that *decennial* population statistics do not make a very reliable tool for instrumenting unemployment phenomena. Figure 10.4 shows this most clearly. Unemployment *rates* from 1890 right up to the present show very large and abrupt year-to-year swings within a decennial period. A merely statistical *trend* might be exhibited by decennial unemployment population data, and this trend can even show a correlation coefficient above 0.99 (as it does from 1890 to 1910 and 1920 to 1940 in figure 10.3). But figure 10.4 makes it clear that unemployment dynamics, in terms of rate of unemployment, are *fast* dynamics. In contrast, agricultural and non-agricultural populations exhibit empirically *slow* dynamics. Annual data on the number of unemployed people prior to 1890 is not available from the Census Bureau, but annual data from 1890 to 1970 shows that there was no natural growth trend consistent with equation 10.1 over any decade in this period [Bureau of the Census (1965), Series D 85, pg. 135]. We must, therefore, give our attention over to unemployment rate data (figure 10.4).

There are at least five periods, not matching the M_1 to M_2 partition but precisely matching M_3 through M_5 . Statistically significant changes in the average unemployment rate occurred from one period to the next. The interval from 1891 to 1899 is different from the interval from 1900 to 1930, i.e. there are two unemployment periods during the M_1 - M_2 period but these periods do not align with the breakpoint year of 1910 between M_1 and M_2 . The data is much less equivocal in regard to M_3 through M_5 . This situation is very interesting because it implies that the average rate of unemployment both *is* and *is not* a factor that determines the onset or offset of an epoch. In statistical terms, this means average unemployment rate as an epochal variable appears in some *interaction* with some other variable or variables.

One possibility is that unemployment rate might interact with cost of living. Comparing figure 10.4 to figure 10.1, the year 1910 corresponds to a change from a relatively declining or flat cost of living to the beginning of a persistent increase in cost of living as measured by the CPI. The CPI increased even faster in the World War I period before becoming relatively flat again throughout the Roaring Twenties. Then around 1930 the cost of living dropped rapidly by around 20% as the Great Depression began, stabilized somewhat by the mid-1930s, and resumed an upward trend of around 2.1% per year following the end of World War II and the Korean War. This rate of increase continued until just prior to 1970, at which time inflation in the cost of living surged and coincided with a fairly sharp and quick rise in average unemployment rate.

Returning now to the labor force population statistics, from 1930 to 1940 the decennial U.S. population grew at an anemic 0.7% per year, the lowest in U.S. history, while the population of the U.S. labor force declined in both the agricultural and non-agricultural categories. The unemployed population increased over this decade dramatically but at a rate far faster than that suggested by the decennial figures. I present this in more detail later when individual epochs are discussed. During the 1930s neither the civilian labor force nor the unemployed population are described by equation 10.1 with a fixed rate r ; the decade was a very unsettled period.

From 1940 to 1970 the U.S. population grew at an annual rate of 1.47% ($R = 0.9984443$). Neither the non-agricultural nor the agricultural labor force followed a single-rate model of the form of model 10.1 until 1950 but both followed one from 1950 to 1970. The non-agricultural labor force grew at an annual rate of 2.08% from 1950 to 1970 ($R = 0.9999017$) while the agricultural labor force declined at an annual rate of -4.48% ($R = -0.9996416$). The total labor force from 1950 to 1970 grew at an annual rate of 1.59% ($R = 0.9992035$). If the total U.S. population is modeled from just 1950 to 1970, the model fit actually worsens ($R = 0.9962770$)⁷ and the population growth rate changes to $r = 1.49\%$, an insignificant change in value. The labor force population in M_4 cannot be accounted for simply by growth in the general population. It is reasonable, however, that civilian labor force population in the period from 1940 to 1950 would not fit the same model pattern as it does from 1950 to 1970 because of the United States' entry into World War II on December 7, 1941.

After 1970 the growth rate in U.S. population declined to 1.06% per year ($R = 0.9991620$), a trend that continues all the way to 2010. The non-agricultural civilian labor force grew at a rate of 1.70% per year ($R = 0.9982078$) from 1980 to 2000 with departures from this in both 1970 and 2010 (best model fit). The agricultural labor population showed no growth from 1970 to 2010 and merely oscillated around a mean of 2.80 million employed workers with a standard deviation of 491,000 workers. The total civilian labor force between 1980 and 2000 grew at an annual rate of 1.59% ($R = 0.9992035$) with departures from this model in both 1970 and 2010 (best model fit). Here, finally, we find a civilian labor force growth rate that cannot be distinguished from the general population growth rate (other than for 1970 and 2010).

Turning now to national productivity, figure 10.5 presents the U.S. gross national product (GNP) in billions of 1967 dollars from 1890 to 2010.⁸ In looking at this chart, qualitative features

⁷ Some readers might think I am being obsessive with the attention this analysis is paying to correlation coefficients in the 0.99x range. After all, many researchers in the social sciences conduct studies in which they report correlation coefficients in the range from 0.7 to 0.8 and they seem to be satisfied with this. I am embarrassed to have to say that a number of prominent North American researchers in the field of neuroscience seriously report measurement results with correlation coefficients of an appalling 0.5 or less. I will point out that the coincidences of astrology show correlations of 0.7 or more. In contrast, the ideal gas law of thermodynamics (Boyle's law) has a correlation coefficient of 0.9999918; I put to you the following proposition: If your correlation coefficient is less than 0.99 then you are not on the trail of a natural law. In 1920 a meteorological study carried out in Sweden determined that the annual amount of precipitation in the region and the volume of water carried by the region's rivers had a correlation coefficient of 0.705; it was concluded that there was some connection between the amount of rain and snow and the volume of water in rivers. Well, duh. A typical twelve-year-old could tell you that without the aid of a government research grant. I have little else than contempt for what Feynman once called Cargo Cult science.

⁸ I think it is better to use gross domestic product (GDP) rather than GNP for this analysis. Unfortunately, the greatest part of my available data was provided as GNP and it was necessary to convert reported GDP data from the later sources (covering 1980 to 2010) to estimated equivalent GNP with appropriate adjustments for differences in bases used by reporting agencies in different time periods for computing GNP and GDP figures. GDP is obtained from GNP by subtracting income payments by U.S. entities to the rest of the world and adding income receipts from the rest of the world to GNP. It would save researchers a considerable amount of work if the Statistical Abstracts would report *both* GNP and GDP (gross *and* per capita).

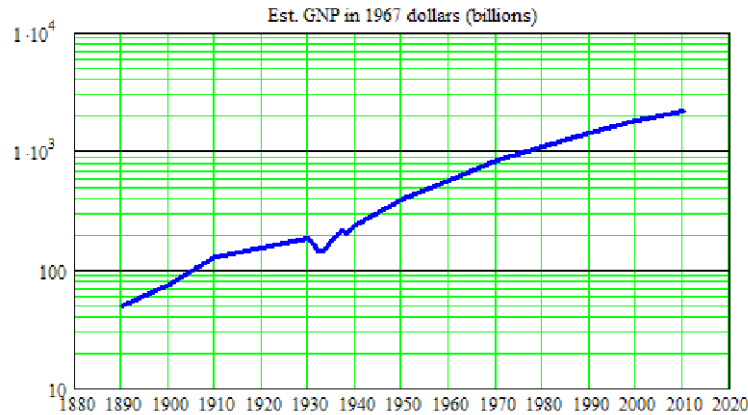


Figure 10.5: Estimated real U.S. gross national product in billions of 1967 dollars. This estimated GNP is computed using the following sources. 1890-1970: Bureau of the Census (1976b) Series F-1, pg. 224; 1960: U.S. Census Bureau (2005) table 641, pg. 425; 1970-2010: U.S. Census Bureau (2011) tables 667 and 679, pp. 435, 443. Reported data from these sources were converted to a common basis before adjusting for inflation using the CPI multiplying factor discussed earlier.

of the GNP from 1890 to 1940 and their correspondence to epochs M_1 , M_2 and M_3 are likely clear enough to you that a great deal of discussion is not required to argue that GNP from 1890 to 1940 supports the epochs hypothesis. GNP is a broad macroscopic indicator of national wealth – i.e., the wealth of the nation – and figure 10.5 shows a slowdown in the rate of growth in national wealth, relative to M_1 growth rates, from 1910 to 1930. The decade of the 1930s shows a sharp and sudden decline in national wealth from 1930 to 1932 followed by a ragged recovery with one brief, sharp setback in 1938. GNP growth rate from 1890 to 1910 was 4.89% ($R = 0.9985570$); from 1910 to 1930 it was 1.82% ($R = 0.9994941$).

From 1940 to 1970 real GNP exhibits a statistically significant "kink" (change of slope) in 1950, with lower real growth rate after 1950. This is reasonable considering that the period from 1940 to 1950 covers the time of U.S. involvement in World War II, the first years of the Korean War, and the start of the so-called Cold War between the United States and the Soviet Union that politically dominated the rest of the twentieth century. The GNP growth rate from 1950 to 1970 is 3.84% ($R = 0.9997699$). Another statistically significant "kink" occurs in 1970, after which the GNP growth rate declines to a steady 2.63% per year ($R = 0.9999255$) until the year 2000. In the year 2000 another "kink" appears, with a significant further reduction in GNP growth rate. This "kink" is one reason I am not convinced M_5 did not actually end in 2000, and that with the dawn of the 21st century the United States entered a new social epoch (M_6). All these characteristics from 1940 to 2010 coincide with similar features in the civilian labor force graphs. The net result of this factor analysis is that GNP further supports the epochs hypothesis.

§ 4. Public and Consumer Debt in the 20th Century

GNP reflects the national wealth aspects of the country; debt reflects the country's excessive consumption habits. When you borrow money that money is not *your* capital even if you spend it on, say, investing in financial securities, real estate, or your own business enterprise. It is *someone else's* capital because it is, for you, *consumption* revenue for which you willingly incur an *obligatione externa* (outward legal liability) for repaying the debt. By borrowing money, you grant a warrant to the lender by which he can *justly* hold you culpable for any failure on your part to meet the terms of the loan. Furthermore, you grant the lender a warrant to *justly compel* you to suffer specific penalties for breach of repayment.

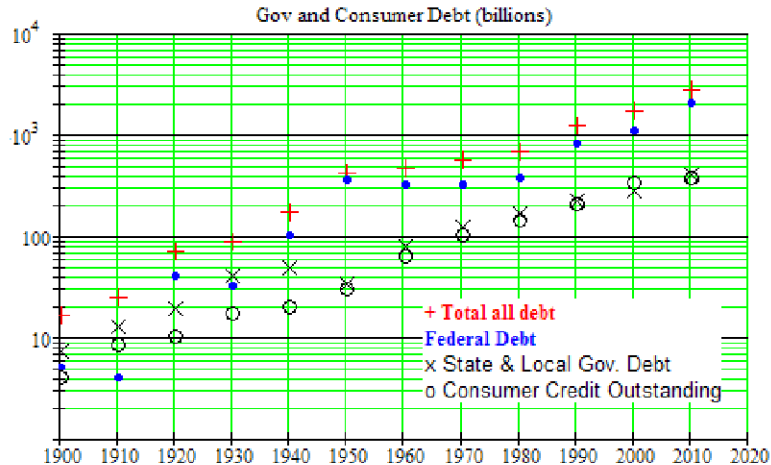


Figure 10.6: Government debt (federal and state & local) and consumer credit outstanding (in billions of 1967 dollars) from 1900 to 2010. Total government plus consumer credit debt is also shown. Sources are as follows. For federal debt 1890 to 1970: Bureau of the Census (1965) Series Y 368, pp. 720-721; from 1980 to 2010: U.S. Census Bureau (2011) Table 470, pg. 310. For state and local government debt: from 1902 to 1970: Bureau of the Census (1976b) Series Y 680, pg. 1127; from 1980 to 2010: U.S. Census Bureau (2011) Table 439, pg. 276. For consumer credit outstanding: from 1900 to 1970, Bureau of the Census (1976b) Series F 387, pg. 253; for 1980 to 2010, U.S. Census Bureau (2011) Table 1190, pg. 741 and Federal Reserve Bulletin reported in *The New York Times Almanac* 2008, pg. 334. Where decennial data is not provided, the decennial points in this figure are statistically projected from the nearest years in which data are reported.

What you have done is *sold part of your personal civil liberty of action* in exchange for the loaned money. When any agency of government spends in excess of its available tax revenue, it is in effect mortgaging the personal civil liberty of every citizen who lives under its jurisdiction. Encourage a man to borrow and you encourage him to indenture himself. Now, almost every person finds it necessary at some point in his or her life, particularly in the early years of legal majority, to borrow money. A single borrowing event is usually without adverse consequences to the borrower provided the loan principal and periodic interest payments fall within the discretionary income level of the borrower such that he can pay off a part of the principal along with the scheduled interest payment required by the creditor. When the borrower's personal income level is rising, additional debt may be accrued provided that the total debt load still falls within the discretionary income level of the borrower in the same way. However, because future revenue income is always uncertain, it is generally unwise to make an habitual practice of carrying more debt as income rises. A reasonable indicator of whether or not the debt load is being responsibly managed is whether or not the borrower is also accruing savings in the form of capital (interest-bearing savings accounts, income-yielding investments, etc.). If no capital savings are being accrued, debt load is too high. These guidelines are generally applicable to corporate persons as well as real persons.

Borrowing habits and savings habits are learned habits. I sometimes marvel that these simple principles are not taught to every person beginning at the latest in adolescence. They were taught to me by my parents when I got my first job at age ten. By age eleven I was already quite a busy little capitalist, having already taken on my first employee-partner. In a civil Community these principles are a necessary part of the civics planning function and the civil planning function in every person's education. Only in the simplest sorts of hunter-gatherer Societies where the instrument of money has not been invented – such as BaMbuti Pygmy Society or, until recent times, Kalahari Bushman Society – can these lessons be safely ignored. George Clason wrote,

"A bag heavy with gold or a clay tablet carved with words of wisdom; if thou hadst thy choice, which wouldst thou choose?"

By the flickering light from the fire of desert shrubs, the sun-tanned faces of the listeners gleamed with interest.

"The gold, the gold," chorused the twenty-seven.

Old Kalabab smiled knowingly.

"Hark," he resumed, raising his hand. "Hear the wild dogs out there in the night. They howl and wail because they are lean with hunger. Yet feed them, and what do they? Fight and strut. Then fight and strut some more, giving no thought to the morrow that will surely come.

"Just so it is with the sons of men. Give them a choice of gold and wisdom – and what do they do? Ignore the wisdom and waste the gold. On the morrow they wail because they have no more gold.

"Gold is reserved for those who know its laws and abide by them." [Clason (1955), pp. 57-8]

Figure 10.6 charts the U.S. federal government debt, state and local government debt, consumer credit outstanding, and the total of all three in constant 1967 dollars from 1900 to 2010. A flat line indicates that debt load is constant with respect to cost of living changes; a rising slope indicates increasing debt load beyond the increase in cost of living. A declining slope indicates a declining real debt load. The total debt load increases in every decennial period throughout the 20th century and on into the 21st. As all gross sums representing the corporate person of a nation are abstract quantities, this total debt load is assignable to and borne by no one specific person or group of persons. The abstract nature of this and the other mathematical quantities presented in the figure are such that their concepts generally lie beyond the contextual experience of most people and are for that reason lacking in real meaning. However, it is also usually the case that if a person is told about numbers like these, he feels intuitively that they somehow really do mean *something*. The first question to be faced, then, is: What meaning shall be ascribed to these numbers? It is not enough to say "the corporate person of the United States" unless we have a practical implication or consequence by which this "corporate person" is affected by the debt.

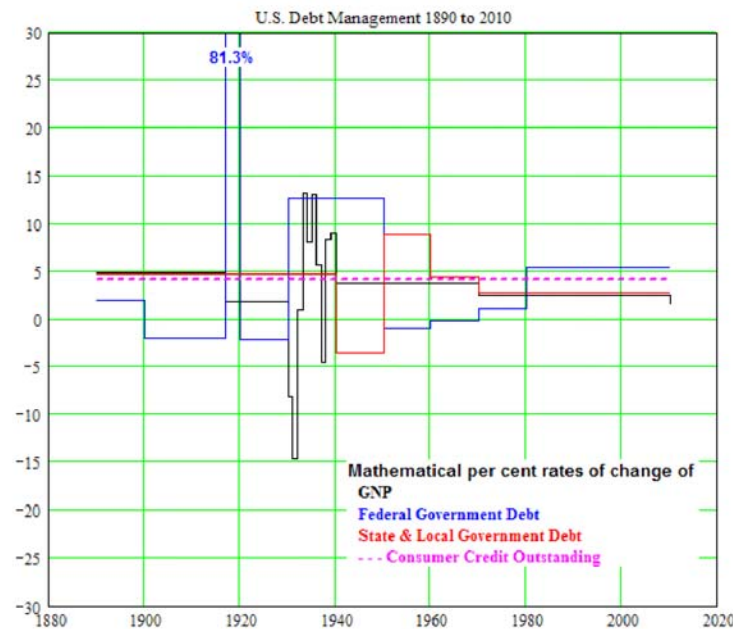


Figure 10.7: Calculated per cent rates of change of U.S. GNP, federal government debt, state and local government debt, and consumer credit outstanding from 1890 to 2010.

The immediate practical effect of personal debt is the incurring of legal liabilities, ones that are *just* under the social contracts of almost all nations and limit the borrower's civil liberty of action in regard to what he may do with his tangible wealth assets⁹. Interest must be paid when due and the principal amount must be returned to the lender, usually by some specified time. A failure to fulfill these external Duties enables the lender to realize (make actual) whatever actions his warranty grants to him under the stipulated terms of the loan, and it makes it the Duty of those officials of government duly appointed to enforce the laws to assist the lender in this. If a person would not make himself a social criminal, he must thereafter determine his liberty of action in such a way as to be able to meet his debt obligations. The degree to which he is justly free to determine his actions is partially determined by his debt obligations in comparison to his supply of revenue and his store of capital stock, i.e., by his available tangible wealth assets.

In a Society the complex dynamics of social interaction are partially determined by individual civil liberties of action. As the total amount of accumulated debt distributed among the members of the Society increases, a larger portion of the civil liberties available in determining people's interactions becomes restricted to a likewise increasing degree. Actions that are possible when the accumulated distributed debt load is small in comparison to the wealth of the Society become increasingly impossible to realize by *civic* means. These restrictions have not only immediately local effects on the individuals involved, but also, through the Enterprise-protein dynamics of the social network, propagate beyond local situations to affect a larger proportion of the population. Gross national product is one abstract measure of the degree of civil liberty available in the mass interrelated actions of a Society-as-a-whole. A relative comparison of the total debt load to GNP is therefore a *qualitative* measure of a Society's corporate *Personfähigkeit*.

With the single exception of the decennial year 1920 – a decade distinguished by an historical excess of debt accumulation – the total debt accumulation characteristics of the 20th century are remarkably simple from one decade to the next. There are four periods distinguishable by the rate of increase in total debt within each period. The decennial year 1920 can be mathematically regarded as being comprised of two processes: (1) the debt accumulation trend of the larger period of which it is a part; and (2) an unusual event signaled by the amount of debt accumulated in excess of the expected amount if the normal trend had been followed. I hereafter call (2) a **deviation event** (or just "a deviation" for short). In engineering terminology it would be called a "noise event" and in physics it would be called a "fluctuation." Disregarding the deviation for the moment, the four total debt accumulation periods are modeled by the expectation functions:

$$\begin{aligned} A_1 (1900 - 1930): \quad T_1(y) &= 15.44610 \cdot (1.059132)^{y-1900}, R_1 = 0.9966217 \\ A_2 (1930 - 1950): \quad T_2(y) &= 85.21802 \cdot (1.080795)^{y-1930}, R_2 = 0.9955134 \\ A_3 (1950 - 1980): \quad T_3(y) &= 411.1517 \cdot (1.015944)^{y-1950}, R_3 = 0.9924781 \\ A_4 (1980 - 2010): \quad T_4(y) &= 769.1810 \cdot (1.047233)^{y-1980}, R_4 = 0.9931499. \end{aligned}$$

The amounts T_i , $i \in \{1, 2, 3, 4\}$, are expressed in billions of 1967 dollars.

These four debt accumulation rates (5.91%, 8.08%, 1.59% and 4.72%) can be directly compared with average GNP growth rates of change in the same time periods. Figure 10.7 graphs these GNP rates of change along with those of the three constituent components of A . The result of this comparison can be called the *debt management characterization* of the U.S. economy. The proximate cause of the total debt deviation event of 1920 is immediately apparent in this figure

⁹ It is, of course, always possible that a specific individual might have no intention honoring the pledge of obligation he is required to make at the time the loan agreement is made. This, however, is an uncivic act on his part and deontologically it is an act justly held to carry criminal culpability.

from the enormous upward spike in the rate of change of federal debt from 1917 to 1920; the emergency event was the U.S. entry into World War I.

Use of figure 10.7 helps to bring debt management characterization of the 20th century United States into fairly clear focus. To begin with, by adding the concept of deviation events to the characterization of outstanding consumer credit a rather remarkable peculiarity of this debt factor emerges. From 1910 to 2000, the rate of change of outstanding consumer credit is basically constant at about 4.3% with deviation events in 1900, 1920, 1940, and 1950. If the trend actually continues past the year 2000, there is also a deviation event in 2010 (corresponding to the recent financial meltdown of 2008 brought on by an extended period of fiscally-unsound unregulated mortgage lending policies).

Consumer credit outstanding is the outstanding amount owed on short-term and intermediate-term loans. It does not include home mortgage loans. Figure 10.8 compares residential non-farm mortgage debt and consumer credit from 1900 to 2010. Qualitatively the two graphs more or less mirror each other and from 1965 on the rate of growth of mortgage debt parallels that of outstanding consumer credit. If mortgage debt is plotted vs. consumer credit debt on a logarithmic scatter plot the correlation between them is $R = 0.9814396$ (the correlation between them is $R = 0.9778581$ on a linear scatter plot). Fitting mortgage debt as a function of consumer credit debt returns the result that on the average mortgage debt is 3.77 times greater than consumer credit debt. These correlation coefficients tell us mortgage debt and consumer credit debt do not follow one and the same social-natural law, but that there is *some* more general social-natural law under which they are special cases. It is not unreasonable to speculate that this higher law is some law of a social network, modeling American Society's Enterprise-protein structure, rather than a social-natural law of single-person decision-making.

All this additionally implies that the American public exhibits, on the average, fixed habits of debt accumulation so consistent as to be called a folkway. Two principal differences between residential mortgage debt and consumer credit are: the former tends to be larger (3 times larger or greater in most years in figure 10.8); and it is a long-term installment debt. Consumer credit, by contrast, represents short-term and intermediate-term debt, either as revolving credit (short term loans) or intermediate term installment credit. The psychology suggested by these graphs tends to imply most Americans do not distinguish between different types of debt, i.e., they are naïve borrowers. If so, this would confirm what Clason wrote,

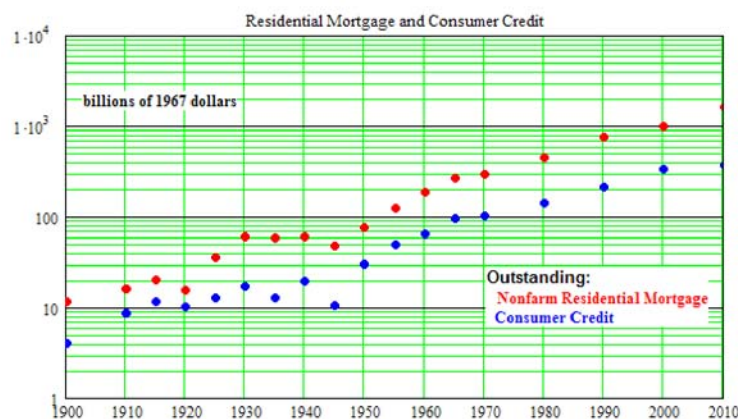


Figure 10.8: Residential non-farm mortgage debt outstanding compared to outstanding consumer credit in billions of 1967 dollars from 1900 to 2010. Source of the mortgage data: (1) from 1900 to 1970, Bureau of the Census (1976b) Series N 262-3, pp 647-8; (2) from 1980 to 1990, Bureau of the Census (1998) Table 816 pg 521; (3) from 2000 to 2010, U.S. Census Bureau (2011) Table 1192 pg 742.

"Some of your members, my students, have asked me this: 'How can a man keep one-tenth of all he earns in his purse when all the coins he earns are not enough for his necessary expenses?' So did Arkad address his students upon the second day.

"Yesterday how many of thee carried lean purses?"

"All of us," answered the class.

"Yet, thou do not all earn the same. Some earn much more than others. Some have much larger families to support. Yet, all purses were equally lean. Now I will tell thee an unusual truth about men and sons of men. It is this. That which each of us calls our 'necessary expenses' will always grow to equal our incomes unless we protest to the contrary."
[Clason (1955), pp. 28-29]¹⁰

Consumer credit and public debt administered by state and local governments together made up the majority of the total debt line in figure 10.6 during the first decades of the 20th century up to the Great Depression. The single exception here was the large increase in public debt administered by the federal government resulting from the United States' entry into World War I. By and large, state and local government debt qualitatively tends to mirror outstanding consumer credit up until 1970, when the rate of growth of state and local government debt slowed relative to consumer credit debt. Figure 10.7 illustrates this quite clearly. This is not too surprising when one considers that a great deal of state and local debt must be approved by the voters in bond elections. It seems unlikely a bond issue significantly at variance with voters' private borrowing habits would pass through the filter of a bond election.

The period of greatest divergence between state and local public debt and consumer credit debt occurred in the decade from 1940 to 1950 (the war years following the Great Depression). From 1940 to 1950 state and local governments acted to reduce the public debt load (while consumer credit debt accumulation continued to grow). This effort, however, was cancelled out in the decade from 1950 to 1960, when state and local public debt rose more rapidly than consumer credit debt (figure 10.7). On the average the growth rate in state and local public debt and the growth rate in consumer credit debt are statistically indistinguishable from 1890 to 1970. Other than for the deviation events in 1935, 1940, 1945, and 1950 (when national circumstances had a more or less immediate impact on the general public at large) it would have to be said that consumer credit borrowing largely ignores GNP. The growth rate in consumer credit debt tracks the growth rate of GNP until around 1917, outpaced it until 1930, ignored its gyrations during M_3 , matched its pace from 1940 to 1970, and then outpaced it again from 1970 to 2010. Public debt administered by state and local governments, on the other hand, matches its rate of growth to that of the GNP, although it did so only *on the average* from 1940 to 1960, except during the period from about mid-way between 1910 and 1920 until 1930 – during which time the rate of growth of state and local public debt outpaced the growth rate in GNP by around a factor of two.

Taken together, the qualitative and quantitative features of consumer credit debt and the public debt administered by state and local governments tend to align with epochs M_1 through M_5 . The public debt administered by the general government (federal debt) has a qualitatively distinct character from both of these. From 1890 to 1900 federal public debt grew at a rate slower than the growth rate in GNP, and from 1900 until World War I Congress indeed acted to reduce the national debt. This debt reduction action was suspended during the war years – as it would be expected to do given the general government's Constitutional objective to provide for the common defense – and was immediately resumed after 1920. Growth rate in the federal public debt again outpaced the growth rates of GNP during the second periods of national emergency from 1930 to 1950 – as again is required by the aforementioned objective plus the Constitutional

¹⁰ It is my professional opinion as an educator that Clason's book should be on the required reading list of every American adolescent at the junior high school level. It was written for American business executives so children should have no trouble understanding it.

objective to promote the general welfare that applied in emergency proportions during the Great Depression. Immediately after 1950 Congress again pursued a policy of reducing the national debt from 1950 to 1960, although not as vigorously as it had prior to World War I and the Great Depression, and Congress held its rate of growth effectively to zero from 1960 to 1970. It must be concluded that the general government was acting in fiscally-responsible ways from 1890 until 1970. Even the very mild growth rate in federal public debt from 1970 to 1980 cannot be labeled as irresponsible when one considers that the decade of the 1970s was a period of general economic stagnation with a quite noticeable and prolonged business slowdown (note the drop in rate of growth in GNP that began in 1970).

However, beginning in 1980 there was a sharp upsurge in the growth rate of federal public debt that has continued to 2010. Over this period the real rate of growth of federal public debt has outpaced the growth rate of GNP by a factor of around 2-to-1; this is the only non-emergency period in the whole of the 20th century when that has occurred. It signals a prolonged 30-year interval of fiscally irresponsible behavior on the part of the Congress of the United States.

In summary, then, the overall character of public and consumer debt lends further support to the hypothesis that the 20th century was composed of five distinct socio-economic epochs. The next consideration is the business and financial side of the socio-economic picture.

§ 5. Business and Financial Outcomes in the 20th Century

Public and consumer debt and their debt management practices are one thing. What about that corporate person entity called a corporation? Figure 10.9 graphs corporate debt in comparison to GNP in billions of 1967 dollars from 1915 to 2008. The data can be partitioned into six distinct periods: (1) prior to 1920; (2) 1920 to 1930; (3) 1930 to 1950; (4) 1950 to 1970; (5) 1970 to 1980; and (6) 1980 to 2008. Periods (1) and (3) can be justly characterized as periods of fiscally responsible debt management. The other four periods must be characterized as irresponsible.

In examining the debt trends it is important to note that by 1920 an era had ended in American business and a new one was beginning. Of the so-called "Great Captains of Industry" in the 19th century – men like C. Vanderbilt (1794-1877), L. Stanford (1824-1893), G. Pullman (1831-1897),

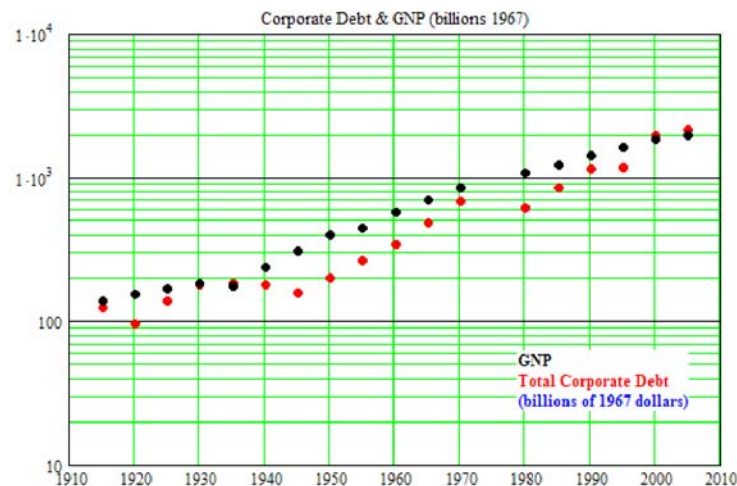


Figure 10.9: U.S. corporate debt compared to GNP in billions of 1967 dollars. Sources: (1) from 1915 to 1970, Bureau of the Census (1976b) Series X 399 pg 989; 1980 to 1995, Bureau of the Census (1998) No. 863, pg 544; (3) 2000-2008, U.S. Census Bureau (2011) Table 753, pg 496.

A. Carnegie (1837-1919), J.P. Morgan, Sr. (1837-1913), J.D. Rockefeller (1839-1937), E.H. Harriman (1848-1909), and Henry Ford, Sr. (1863-1947) – only Rockefeller and Ford were still alive and only Ford was still active in business. The "Gilded Age" of the so-called Robber Barons was over and the peculiarly uncivic reign of the professional corporate manager had begun.

A manager job is no more and no less than one of the many specialized divisions of labor. The person holding a management position is an employee like any other, a fellow entrepreneur wage-earner among other entrepreneur wage-earners in a large corporation. There is no particular shortage of business managers who would be glad to claim the mantle of a Carnegie or a Rockefeller, and it is true that in a great many large corporations the hierarchy of managers is set up in a mimicry of British aristocracy, complete with the corporate equivalents of kings, viceroys, dukes, earls, viscounts and barons at the higher levels with sheriffs and burgomasters at the lower ones. It is not uncommon for an executive in a large corporation to surround himself with sycophants who treat him as if he were a feudal lord, or for him after a time to act as if he were one. It would be difficult to find a better example of baseless self-aggrandizement since most of these pseudo-nobles' careers are better characterized by lack of real business success than by real success. In point of fact, men like Andrew Carnegie regarded their manager corps as no more than hired help. Carnegie was even somewhat contemptuous of them:

One great source of this trouble between employers and employed arises from the fact that the immense establishments of today, in which alone we find serious conflicts between capital and labor, are not managed by their owners but by salaried officers, who cannot possibly have any permanent interest in the welfare of the working-men. These officials are chiefly anxious to present a satisfactory balance-sheet at the end of the year, that their hundreds of shareholders may receive the usual dividends, and that they may therefore be secure in their positions and be allowed to manage the business without unpleasant interference either by directors or shareholders. [Carnegie (1886), pg. 116]

Where Carnegie came up with his idea that "serious conflicts between capital and labor" are only found in "immense establishments" is unclear. Perhaps it is simply that the much more numerous "small" work stoppage events that occur in the business world (those involving only a relatively few people) are not widely reported and he did not know about them. Or perhaps he did not regard a strike by, say, ten or so workers in a small business to be a "serious" dispute. As I show a bit later on, such strikes make up around 90% or so of all work stoppages.

Carnegie was very much the owner of the Carnegie Steel Company. The present-day version of the stock corporation was a relative late-comer in the age of industrialization in post-1870 America. When Carnegie began his investments in business stock, there were relatively few shares, dividend rates were generally much larger (on the order of 1% per month rather than the 0.12% per year more typical of today), and, indeed, Carnegie did not approve of the newer type of stock corporation that became today's commonplace:

The day is not far past when the industrial world saw its millennium in the joint-stock idea. Every department of industry was to be captured by it. Shares in every conceivable enterprise were to be distributed among the people *en masse*, thus insuring the much-needed redistribution of wealth, where every man was no longer a consumer only, but his own manufacturer, his own transporter, clothier, butcher, baker, and candlestick-maker. There was nothing to prevent him being in one sense his own undertaker . . . Every employee in mill or factory, in railway or steamship service, was soon to become an owner, with a possible future seat on the board.

Though all these over-sanguine expectations have not been realized through the laws establishing corporations, thus encouraging the massing of the innumerable small savings of the public in general, yet few new forms have been productive of so much benefit to the

thrifty and aspiring people with small savings . . .

Another highly important step forward in this domain resulted from the authorization of limited partnerships, by which the undoubted advantages of individual over corporate management could be secured without danger of ruin to the members, whose liability is limited to the amount of the capital stock of the partnership. In the great corporation the shares are generally bought and sold upon the stock exchange, and the real owners are unknown. All depends on salaried officials, who may or may not have a dollar in the enterprise. In the limited partnership, on the contrary, only shareholders can be members; the shares are not sold to outsiders, and thus is insured the eye of the master over all. [Carnegie (1900), pp. 86-87]¹¹

From 1920 to 1930 corporate debt load increased at 6.38% per year compared to a GNP growth rate of 1.77% per year. The period from 1930 to 1940 was one that saw no net increase in corporate debt and even witnessed a small decline. Debt briefly increased from \$180 to \$189.2 billion (1967) dollars in 1941 before falling back to a low of \$158.2 billion in 1945. After this it rose raggedly back to \$197.1 billion before resuming a steady growth rate of 6.02% per year from 1950 to 1970, vs. a GNP growth rate of 4.40% during the same period. Corporate real debt did decrease from 1970 to 1980 in the teeth of the decade's recession-and-high-inflation environment. Corporate debt then took off again in 1980, climbing 6.08% per year to the year 2000, vs. a GNP growth rate of only 2.47% per year. It would seem that 6% is the corporate manager's preferred rate of debt load increase for risking other people's money. Model fits for real corporate debt, B, and gross national product, G, compare as follows:

$$\begin{aligned}
 (1920-1930): \quad B &= 97.98258 \cdot (1.063826)^{y-1920}, R = 0.9947528 \\
 (1915-1930): \quad G &= 139.1017 \cdot (1.017756)^{y-1915}, R = 0.99964 \\
 (1930-1950): \quad B &\text{ erratic}; \quad (1935-1950): \quad G = 178.1614 \cdot (1.055164)^{y-1935}, R = 0.9991063 \\
 (1950-1965): \quad B &= 195.9782 \cdot (1.060327)^{y-1950}, R = 0.9983948 \\
 (1955-1970): \quad G &= 446.3093 \cdot (1.043962)^{y-1955}, R = 0.9972781 \\
 (1980-2000): \quad B &= 617.2052 \cdot (1.060802)^{y-1980}, R = 0.9990996 \quad (\text{excluding 1995}) \\
 (1970-2008): \quad G &= 852.6472 \cdot (1.024663)^{y-1970}, R = 0.9976194.
 \end{aligned}$$

It is a common bit of present-day neo-conservative propaganda to denounce the U.S. general government as fiscally irresponsible (which it is) and to promise that all would be well if the U.S. general government would be run like – or, better, by – "businessmen" (meaning corporate top-level executives). From 1980 to 2010 the mean federal debt growth rate has been 5.51% annually. "Businessmen" would do a better job of running the federal government? It appears this would not be true judging by the rate corporate America's managers run up their companies' debt loads.

¹¹ I also do not approve of the anonymous stock corporation, although I do approve of the employee-owned corporation. This does not mean I object to the stock and other investment markets. In the prevailing state of uncivic free enterprise, the markets have over the past four decades provided me with the bulk of my present tangible stock of economic goods. But I have never kidded myself that I "owned" any piece of any company in which I held shares. What I owned was a right to receive dividend and capital gains payouts – a nice cherry-on-the-top while I was waiting for the stock to become overpriced so I could sell it to you. I have never particularly cared whether the company made computer chips or pretzels. I call this "being a gypsy capitalist" because the behavior is to roam from one investment opportunity to the next. If you and I ever anonymously meet at opposite ends of a stock market trade the one thing you can be sure of is that my sole aim is to put some of your money in my pocket. Most of the time, that's what's going to happen. It's as simple as that. If you don't want to go swimming with sharks, stay out of the water.

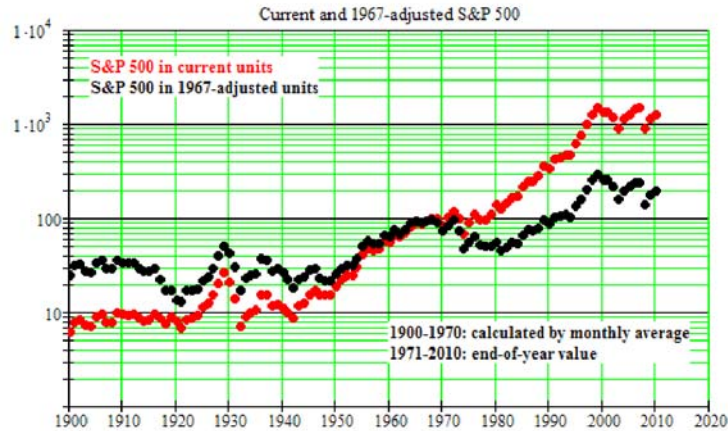


Figure 10.10: The Standard & Poor's 500 Index of Stocks from 1900 to 2010. Red = published index. Black = index re-expressed relative to a 1967 dollars basis.

Capital stock is the other principal way, aside from profits, by which corporations obtain their operating capital. Figure 10.10 graphs one broad measure of stock market performance, the Standard & Poor's Index of 500 Stocks. Also shown in this figure is the S&P 500 index adjusted to a constant-dollar basis in 1967 dollars. The adjusted S&P reflects real gains and losses in the U.S. stock market, which is generally regarded by most economists as a leading indicator of the general state of the U.S. economy. The S&P 500, like other stock indexes, is not expressed in dollar units. It is a weighted average of 500 of the largest U.S. companies who, taken together, are regarded as presenting a sufficient statistic for describing the stock market as a whole. Changes are made from time to time to the list of companies comprising the S&P 500, as well as to the weightings given to each company's stock price in computing the numerical value of the index. But although the index number does not have units of dollars, stock prices are still reflected in the index number and go into its calculation. Therefore to examine the real performance of the general investment market it is still necessary to adjust the index to factor out inflation. Thus figure 10.10 shows both the official S&P 500 index and the inflation adjusted index based on constant 1967 dollars.

The behavior of the S&P 500, like that of other stock indexes, does not exhibit a natural birth-death process. One could call it a sort of peculiar electroencephalogram of a mob psychology. In the cases of the far greater majority of trades, it is the rule rather than the exception that stock market performance is governed by mixtures of greed, fear, panic, and what Alan Greenspan once famously called "irrational exuberance." There are many analysts, myself among them, who study this peculiar mob psychology in its own right and base trading decisions either wholly or in part on the outcomes of that analysis. There are a number of techniques employed to do so, and many books have been written on this subject, e.g., Clasing (1978). The great majority of investors, however, do not do this – which is one reason why the aforementioned techniques work as well as they do; people who know their behavior is being scrutinized change that behavior.

Historically it is true, as the aphorism goes, that "in the long run" buying stock in a "good company" and just holding on to it will, in time, net you a return on your investment. The two factors relevant here, though, are: (1) "in the long run" means just that; "the long run" is measured in decades or lifetimes; and (2) a company that is a "good company" today does not necessarily remain a "good company" forever. The makeup of management teams change, new technologies render old products obsolete in the marketplace, companies hire people with MBA degrees to run businesses they know nothing substantial about, and social mores and folkways inside a company alter its Community and, quite often, lead, through perpetuated violations of the social contract

that binds its entrepreneurs, to the breakdown and disintegration of what was at one time "a good company." Managers tend to miss the significance of the word **company** in describing businesses.

On top of this, you may add the fact that among higher-level executives in the great majority of large U.S. companies one finds a truly astounding level of ignorance regarding the most basic precepts of simple economics. The guy who owns your local plumbing business probably has a better intuitive grasp of economics than does the typical MBA or general manager in a Fortune 500 company. I have personally seen high-priced general managers and over-priced "superstar" Chief Executive Officers make astounding blunders that a freshman economics student would not make. For these and other reasons, most transactions on Wall Street adopt a short-term or, at most, an intermediate-term perspective for trading stocks. As one Wall Street saying has it, a typical investment banker's idea of a long-term investment is twenty-four hours.

Even though the stock market does not exhibit a birth-death process in its dynamics, the investor-mob does exhibit "moods" that tend to be infectious. Most investor decisions are little more than subjective judgments of taste, and as a particular mood grows within the mob market trends tend to develop as a consequence. Examine the real S&P index in figure 10.10; six – and probably seven – such trends appear, dividing the twentieth century into six distinguishable periods of market behavior. Leading up to 1910 is seen a flat trend corresponding to the mildly deflationary movement exhibited by the consumer price index at that time. From 1910 to around 1932 can be seen an unsettled (unstable) mood period characterized by sawtooth-like swings in market prices. This period corresponds precisely with a drop in the growth rate of GNP (figure 10.5). From 1932 to about 1952 there is a long recession in stock prices, corresponding to the years of national emergency (the Great Depression, World War II, and the flare up of the Cold War following the end of World War II). During this period, stock prices declined at an overall average rate of about 5.5% per year. For most Americans, these were lean years of tough times.

Then from 1952 to the real peak in 1968 came the great mid-century economic boom period. The dating of these endpoints emerges with great clarity from the sort of trend line analysis that a technical analyst uses in timing buy and sell decisions or in trading options on the Chicago Board Option Exchange (CBOE). This sixteen year period was the period of general optimism most of the so-called "baby boom generation" grew up during. However, the onset of a dampening of this optimistic mood stands out between 1964 and 1969, precisely the period of the greatest intensity in the U.S. civil war of the 1960s and early 1970s over civil rights and the Vietnam War. America in 1969 was a badly divided nation.

The mood turned into pessimism in the 1970s as a twelve-year recession (figure 10.10), onset of further slowing of the growth rate of real GNP (figure 10.5), a rapid uptick in unemployment from an average of 4.5% to 6.3% (figure 10.4) and a period of extremely rapid inflation began (figure 10.1). It was a combination that befuddled the Platonic traditional economists of that time, whose mathematical theory had maintained that recession and inflation at the same time were impossible. Democratic Party propaganda was quick to dub this "Nixonomics," but the bear market, the recession, the unemployment, and inflation all continued unabated during the years of the Carter administration. Business-wise, I remember the 1970s as the richest period for trading put options on the CBOE I have ever seen¹².

¹² Put options are a limited liability method for selling stocks short. They were an excellent way to make very good returns in the 1970s by "betting" against stocks. The objective of option trading is, as a lawyer friend of mine from New York City once put it, "to stick somebody with bad paper." The introduction of programmed trading in the early 1980s put an end to the fun (which was just as well; the next breakpoint in the S&P came in 1983 with the start of what was called "the Reagan rally"). I don't recommend the strategy today. Programmed trading gave large institutional investors a lopsided advantage over private investors in regard to option trading. The rule is a simple one: When the lions show up, it's time for the cheetahs to go.

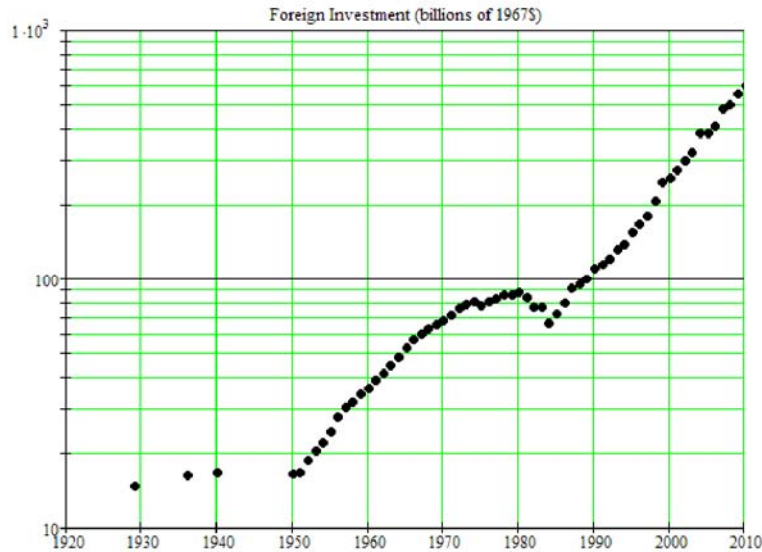


Figure 10.11: Direct foreign investments by U.S. investors expressed in billions of 1967 dollars. Sources are as follows. From 1929 to 1970, Bureau of the Census (1976b) Series U41, pg. 870; for 1971, Bureau of the Census (1974) No. 1313, pg. 781; for 1972, Bureau of the Census (1975) No. 1347, pg. 801; for 1973-74, Bureau of the Census (1976a) No. 1396, pg. 828; for 1975-78, Bureau of the Census (1980) No. 1529, pg. 865; for 1979, Bureau of the Census (1981) No. 1501, pg. 836; for 1980, 1985, 88-89, Bureau of the Census (1993) No. 1338, pg. 801; for 1981, Bureau of the Census (1984) No. 1460, pg. 824; for 1982-83, Bureau of the Census (1986) No. 1423, pg. 800; for 1986-87, Bureau of the Census (1990) No. 1397, pg. 797; for 1990 to 1997, U.S. Census Bureau (1998) No. 1310, pg. 792; for 1998 and 1999, U.S. Census Bureau (2005) No. 1288, pg. 806; from 2000 to 2003, U.S. Census Bureau (2006) No. 1278, pg. 800; from 2004 to 2010, U.S. Census Bureau (2011) No. 1296, pg. 800. These data sets tend to show significant revisions from one *Statistical Abstract* to the next and for that reason must be regarded as "noisy" data sets.

During the 4th period (1952-1969) S&P 500 real market value grew at an average annual rate of about 8.9%. During the 5th period (1969-1983) it declined at an average rate of 5.5%. The 6th period began in 1983 and lasted until 2007, during which the real market value of the S&P 500 grew at an average annual rate of about 7.2%. America is now in another bear market period in which, so far, the average rate of decline is about 3.6%, although I would not be shocked if that rate of decline were to worsen over the next few years. At present I do not expect this bear market to last for longer than to about 2033 at most. It has been so far a milder version of the 1932-to-1952 bear market of the 3rd period. At present I do not expect to see the S&P 500, in terms of 1967 dollars, go lower than around an index value of 70 for any extended length of time and I do not expect any sustained drop to below 100 during the remainder of this decade¹³.

The domestic stock market is not the only market for investors. Figure 10.11 graphs direct investments in foreign countries by U.S. residents in billions of 1967 dollars from 1929 to 2010. Until 1970 "direct investment" meant investment in a foreign enterprise in which one individual, either directly or indirectly, owned or controlled 25% or more of the voting stock. After 1970 it meant ownership or control by one individual of 10% or more of the voting stock.

Direct foreign investment reveals a peculiar naivety on the part of those Americans who decide to undertake them. The habits of thinking and behaviors involved are, of course, conditioned by the American legal fiction that a person who owns stock in an enterprise in some

¹³ If you're wondering, yes, I was out of the stock market by the beginning of 2008, as soon as I saw the trend break and before the infamous "crash" later that year. I have not re-entered stocks as of yet. As for what I am doing now – well, that's none of your business. Not yet, at any rate.

way owns the enterprise, or a piece of it, itself. This is merely a nominal definition – or to be more accurate, not a definition of all because it is presumed that "everyone knows what it means to own something," which is patently not true. If you own 100 shares of Amalgamated XYZ Corp and tell me that therefore you own a piece of Amalgamated XYZ Corp "itself" (i.e., in its corporate personhood), I will tell you your claim is practically toothless. What you actually own is: (1) a right to receive dividend payments and return-of-capital distributions; (2) to periodically receive unaudited and audited reports from the company alleging to keep you informed of how "your" company is doing; (3) the right to vote your shares at the annual shareholders meeting, which you will in all likelihood not attend in person, to vote 'yes' or 'no' on a small number of things the board of directors wants to do that you are now hearing about for the first time; and (4) the right to sell your shares to somebody else any time you choose. That's it. Your 100 shares do not empower you to go down to XYZ's headquarters to give the Chief Executive Officer a piece of your mind about how he's running "your" company. Unless you're Warren Buffet or otherwise possess the tangible and persuasive *Personfähigkeit* to make life unpleasant for the hired help actually running "your" company, you'll get no farther than some corporate public relations officer – assuming you get past the receptionist in the first place. Some owner you are. This fiction of ownership is little different from the fiction in feudal Japan that the Shogun¹⁴ served the Emperor. Humbug. The Shogun paid lip service and a small living allowance to the Emperor and nothing more. The Emperors were smart enough to take what they could get and leave it at that.

A person, or oftentimes a corporate person, who invests his capital in foreign enterprises and assets often seems to assume that U.S. laws governing shareholder ownership are magically universal in scope. Nonsense. Other countries have their own mores and folkways, their own ways of looking at things, and are often just as passionately nationalistic about their homeland as the typical American is of his. As different as the cultures are in each of the fifty United States, they are even more different in foreign countries. When a direct foreign investment is made, the tangible wealth-assets the investment capitalizes are located in the other country, most of the people working together in the corporate enterprise are citizens or residents of that country, the government of that country is the government of *its* people. If that government decides it is in the best interests of their country to nationalize those assets and boot "the foreigners" (the U.S. investor) out – "Thanks for the help; we'll take it from here" – then there isn't a damn thing the U.S. investor can do about it other than go crying to our government for help.

If Standard Oil decides to invest twenty billion or so of its capital to develop oil producing facilities in Upper Mudovia and Upper Mudovia turns around later and seizes those assets, I personally don't give a damn. Standard Oil didn't consult with me, or any of the rest of us, before it decided to gamble its capital in a foreign venture. They certainly weren't going to split the profits with me or anyone else. If they take the risk and get stiffed, I say that's their tough luck. I would not see one drop of eighteen-year-old American blood spilled to protect Standard Oil's balance sheet. When the Big Three Detroit automakers decided to teach Japan how to build cars, they had no kick coming when Japan decided to do precisely that and drive General Motors, Ford, and Chrysler to the edge of bankruptcy. The managers who decided to undertake that plan were either just plain stupid or else astoundingly ignorant of the most basic common facts of social contracting, social experience, social-natural economics, or history.

What direct foreign investment does do is divert limited capital from investment in enterprises involving American citizens living in the United States. The capital assets that went to Upper Mudovia did not go to Houston. Most of the beneficial multiplicative effects of circulating capital were effects felt in Upper Mudovia, not in Texas. This is the social context that must be kept in mind in studying the history of U.S. foreign investments figure 10.11 lays out.

¹⁴ The Shogun was the supreme military dictator and actually ruled feudal Japan.

There are six distinguishable periods in the history of U.S. foreign investment. Prior to 1951 the data is too sparse and too unreliable to form any conclusions or models other than one. Most likely, annual foreign investment in this period did not exceed about 10% of GNP. Enterprises involve taking risks, and 10% is more or less a good practical rule of thumb for acceptable risk in business if by taking that risk the potential for reward is great enough – say a 10× capital return or greater. At that risk/reward profile, if you succeed one time in ten you'll break even; two times in ten and you make a 100% profit. This is the main principle underlying option trading.

From 1951 to 1959 there was a vigorous growth spurt in direct foreign investments. Foreign investments grew at an average annual rate of about 9.9% during this period. This was the great period of rebuilding following the calamity of World War II and the U.S. was the only viable source of investment capital for financing this at that time. In 1959 direct foreign investment was \$34.2 billion in 1967 dollars while estimated GNP stood at about \$538 billion – again, less than a 10% level of foreign investment. The annual rate of growth slowed to about 6.6% per year in the third period from 1959 to 1968. Foreign investment in 1968 was \$62.4 billion vs. a GNP of just under \$840 billion. The growth rate in foreign investments slowed again from 1968 to 1974, declining to an average annual growth rate of only about 3.7% to reach \$71.5 billion. Estimated GNP in 1974 stood very close to \$900 billion with a growth rate of 3.8%.

Foreign investment entered a long period of instability and uncertainty in 1974 that lasted for almost the next twenty years (to 1992). Economically and politically this was a tumultuous time in U.S. history. A U.S. President had resigned his office in disgrace. The long war in Vietnam had been lost. The October 1973 War between Egypt, Syria, and Israel had provoked the Arab Oil Embargo and the famous Energy Crisis of the 1970s. OPEC (the Organization of Petroleum Exporting Countries) had come into the spotlight as an economic Community to be reckoned with on the world stage. U.S. investors were being treated to the sight of Japanese automobile companies administering a sound financial beating to the U.S. Big Three, something soon to be re-experienced by the U.S. electronics industry at the hands of Asian electronics companies after those managers mimicked the splendid example of the Big Three's brilliant policy of educating its own hungry competitors. Comparing figures 10.11 and 10.10, it is evident that foreign investment psychology mirrored the mob psychology of Wall Street with its emotional constituents of fear, uncertainty and avarice. Foreign investment reached a low point of \$65.6 billion in 1984 before climbing back up in ragged and uneven spurts to reach \$119.5 billion in 1992. Estimated GNP in 1992 stood at around \$1.5 trillion 1967 dollars in 1992 – still at more than a 10:1 ratio of GNP to foreign investment.

Then from 1992 to 2010 foreign investment ignited in a somewhat wobbly but strong growth surge at an annual rate of about 9.5%. The annual growth rate in GNP, on the other hand, was only 2.6% until 2000 and then slowed to around 1.6% from 2000 to 2010. In 2010 foreign investment stood at \$598 billion in 1967 dollars vs. a GNP of just over \$2 trillion. This is a ratio of foreign investment to GNP of 30%, the highest in U.S. history. Some have asked what happened to the "trickle down" that was supposed to accompany the policy so-called "Reaganomics" by its critics; the answer would seem to be that it fled America and went sporting afield in other countries. Every penny of this invested capital is at risk, and that is the concern of the investors themselves. But the outflow of investment capital from U.S. to foreign enterprises at this level of investment cannot help but hinder growth in the U.S. economy. One dollar in every three is a big fraction. The saving grace in this is that foreign investors do not appear to be any wiser than U.S. ones; the rate of foreign investment in the U.S. has also risen dramatically. The difference is that foreign investors can count on U.S. laws and the U.S. court system, while American investors in foreign enterprises cannot. The U.S. Supreme Court has no jurisdiction over Upper Mudovia.

In terms of a social-natural science of economics, the source of these investments is important.

Table 10.1: Sources of Foreign Investments 1950 – 1970

Year	Source	Amount (billions of 1967\$)	Per cent of total investment
1950	Total	16.35	100
	Mining	1.129	9.6
	Manufacturing	5.314	32.5
	Trade	0.762	6.5
	Petroleum	3.390	28.8
			<u>77.4</u>
1960	Total	35.91	100
	Mining	3.378	9.4
	Manufacturing	12.45	34.7
	Trade	2.652	7.4
	Petroleum	12.18	33.9
			<u>85.4</u>
1970	Total	67.23	100
	Mining	5.304	7.9
	Manufacturing	27.74	41.3
	Trade	----	---
	Petroleum	18.67	27.8
			<u>77.0</u>

Source: Bureau of the Census (1976b) Series U-41, pg 870

Table 10.2: Sources of Foreign Investments 1991

Year	Source	Amount (billions of 1967\$)	Per cent of total investment
1991	Total	110.3	100
	Manufacturing	42.97	39.0
	Petroleum	14.50	13.1
	Finance & Insurance	28.69	26.0
			<u>78.1</u>

Source: Bureau of the Census (1993) No. 1338, pg. 801

Table 10.3: Sources of Foreign Investments 2000 – 2010

Year	Source	Amount (billions of 1967\$)	Per cent of total investment
2000	Total	255.3	100
	Mining	13.99	5.5
	Manufacturing	66.72	26.1
	Trade	18.22	7.1
	Information	10.16	4.0
	Depository Inst.	7.789	3.1
	Finance & Insurance	42.12	16.5
	PST Services ^a	6.38	2.5
	NBHC ^b	Not Available	
			<u>64.8</u>
2010	Total	598.3	100
	Mining	26.87	4.5
	Manufacturing	89.69	15.0
	Trade	29.62	5.0
	Information	24.76	4.1
	Depository Inst.	20.45	3.4
	Finance & Insurance	122.9	20.5
	PST Services ^a	12.97	2.2
	NBHC ^b	235.6	39.4
			<u>94.1</u>

a: Professional, Scientific, & Technical Services

b: Non-bank Holding Company

Source: Bureau of the Census (2011) Table 1295, pg. 799

Unfortunately, the way the Census Bureau reports data after 1970 makes it impossible to do a direct meaningful comparison of the distribution of capital sources over the entire period covered by figure 10.11. The best that can be done in this treatise is to present a sampling at some selected years. Tables 10.1 through 10.3 provide this data. There are a few features of these observables that bear noting. First, the percentage of foreign investment by wholesale trade enterprises makes up only a small portion of the total foreign investment, holding in the range from 5% to 8% of the total foreign investment portfolio.

Second, foreign investment by manufacturing and petroleum enterprises combined has fallen dramatically since the 1960s. The combined percentages for 1950, 1960, and 1970 were, respectively, 61.3%, 68.6%, and 69.1%. In 1991 manufacturing and petroleum combined made up only 52.1% of the total. By the year 2000, the Census Bureau was counting petroleum as a part of manufacturing, the totals for which were 26.1% in the year 2000 and 15.0% in 2010. Indeed, since the 1970s the investment trend has somewhat reversed, with foreign investors capitalizing an increasing number of U.S.-based affiliate companies. This is, in fact, advantageous to the U.S. economy, as I discuss below. This means the disadvantages accrued by the U.S. economy, as reflected in its declining rate of growth in GNP, is *not* primarily due to U.S. manufacturing and oil companies.

Third, finance and insurance enterprises have assumed a larger percentage of the foreign investment portfolio. In 1970 and earlier years, their combined foreign investments did not add up to enough for the Census Bureau to list them separately. In 1991 they amounted to 26% of the total portfolio. This dropped to 16.5% in 2000 then rose back up to 20.5% in 2010.

Finally, the most noticeable change to have taken place over the course of the 1990s and into the 21st century has been the appearance of non-bank holding companies as significant investors in foreign enterprises. Apparently NBHCs were not on the Census Bureau's radar screen yet in 2000, but by 2010 they amounted to 39.4% of total foreign investment. The Statistical Abstract does not define what a NBHC is. The category certainly holds some individual private investors investing directly in specific foreign stocks; but it is most likely primarily composed of mutual funds trading in foreign stocks and brokerage houses holding shares for individuals in so-called "street name." This is the constituency of the smaller private investor. It is not possible to estimate the distribution of amounts from data supplied in the 2012 Statistical Abstract of the United States. It is known that privately-owned U.S. assets in foreign countries slightly more than doubled from the year 2000 to the year 2010 [U.S. Census Bureau (2011) Table 1289, pg. 796], but the significance of this statistic is unclear. What is clear is that NBHCs are the dominant factor driving the increase in foreign investments from 2000 to 2010. They accounted in 2010 for 235.6 billion (1967) dollars of the 598.3 billion (1967) dollars invested in foreign enterprises. By comparison, *total* foreign investment in 2000 was 255.3 billion (1967) dollars.

Adam Smith drove home repeatedly that *how* and *where* capital is employed and circulates is crucial to the wealth or poverty of nations. The following excerpts are a bit lengthy but very pertinent to the point at hand:

Though all capitals are destined for the maintenance of productive labor only, yet the quantity of that labor which equal capitals are capable of putting into motion varies extremely according to the diversity of their employment; as does likewise the value which that employment adds to the annual produce of the land and labor of the country.

A capital may be employed in four different ways: either, first, in procuring the rude produce annually required for the use and consumption of the society; or, secondly, in manufacturing and preparing that rude produce for immediate use and consumption; or, thirdly, in transporting either the rude or manufactured produce from the places where they abound to those where they are wanted; or, lastly, in dividing the particular portions of

either into such small parcels as suit the occasional demands of those who want them. In the first way are employed the capitals of all those who undertake the improvement or cultivation of lands, mines, or fisheries; in the second, those of all master manufacturers; in the third, those of all wholesale merchants; and in the fourth, those of all retailers. . . .

The capital of the retailer replaces, together with its profits, that of the merchant of whom he purchases goods, and thereby enables him to continue his business. The retailer himself is the only productive laborer whom it immediately employs. . . .

The capital of the wholesale merchant replaces, together with their profits, the capitals of the farmers and manufacturers of whom he purchases the rude and manufactured produce which he deals in, and thereby enables them to continue their respective trades. It is by this service chiefly that he contributes indirectly to support the productive labor of the society [that does the farming or manufacturing] and to increase the value of its annual produce. His capital, too, employs the sailors and carriers who transport his goods from one place to another . . . This is all the productive labor which it immediately puts into motion, and all the value which it immediately adds to the annual produce. Its operation in both these respects is a good deal superior to that of the capital of the retailer.

Part of the capital of the master manufacturer is employed as a fixed capital in the instruments of his trade and replaces, together with its profits, that of some other artificer of whom he purchases them. Part of his circulating capital is employed in purchasing materials and replaces, with their profits, the capitals of the farmers and miners of whom he purchases them. But a greater part of it is always . . . distributed among the different workmen whom he employs. It augments the value of those materials by their wages and by their master's profits . . . It puts immediately into motion, therefore, a much greater quantity of productive labor and adds a much greater value to the annual produce of the land and labor of the society [that does the manufacturing] than an equal capital in the hands of any wholesale merchant.

No capital puts into motion a greater quantity of productive labor than that of the farmer. . . . In agriculture . . . nature labors along with man; and though her labor costs no expense, its produce has its value as well as that of the most expensive workmen. The most important operations of agriculture seem intended . . . to direct the fertility of nature towards the production of the plants most profitable to mankind. . . . Of all the ways in which capital can be employed, it is by far the most advantageous to the society.

The capitals employed in the agriculture and the retail trade of any society must always reside within the society. Their employment is confined to a precise spot . . . They must generally, too, belong to resident members of the society.

The capital of a wholesale merchant, on the contrary, seems to have no fixed or necessary residence anywhere, but may wander from place to place . . . The capital of the manufacturer must no doubt reside where the manufacture is carried on; but where this shall be is not always necessarily determined. . . . It is of more consequence that the capital of the manufacturer should reside within the country. It necessarily puts into motion a greater quantity of the productive labor, and adds a greater value to the annual produce of the land and labor of the society. [Smith (1776), pp. 320-326]

Smith points out that there is a crucial difference between "balance of trade" vs. "produce and consumption," and that it is the latter which is far more important for the wealth of a nation:

There is another balance . . . very different from the balance of trade and which, according as it happens to be either favorable or unfavorable, necessarily occasions the prosperity or decay of every nation. This is the balance of the annual produce and consumption. If the exchangeable value of the annual produce . . . exceeds that of the annual consumption, the capital of the society must necessarily increase in proportion to this excess. The society in this case lives within its revenue, and what is annually saved out

of its revenue is naturally added to the capital, and employed so as to increase still further the annual produce. If the exchangeable value of the annual produce, on the contrary, fall short of the annual consumption, the capital of the society must annually decay in proportion to this deficiency. The expense of the society in this case exceeds its revenue and necessarily encroaches upon its capital. Its capital, therefore, must necessarily decay, and together with it the exchangeable value of the annual produce of its industry. [*ibid.*, pg. 439]

Direct capital investment in other countries, especially in manufacturing, disadvantages the ratio of annual produce to consumption in this country. When manufacturing capital drains from one nation into another, the result is a bleeding out of the wealth of the first nation. That is why I do not invest in foreign enterprises and why I do trade locally in my own consumptions as much as local conditions make it possible to do so. The character of direct foreign investment by residents of the United States during the sixth period noted above has turned uncivic and detrimental to the wealth of the United States and its people. It is not an unreasonable speculation to tentatively conclude that the reason the Reagan administration "trickle down" effect has so dramatically failed to manifest itself in the U.S. economy is because there was instead a "trickle out" effect – i.e., capital bleeding out of the U.S. economy and into foreign economies instead. This is consistent with the deontological servicing of Duties-to-oneself by individual investors, but it is wholly incongruent with the social contract binding a great nation together. It is also *not* in the long-range best interests of the capitalist-investor himself; when the economy of your nation collapses, there is nowhere *anyone* can hide nor is there any means to secure yourself from being taken down along with everyone else. As Donne mournfully wrote,¹⁵ "No man is an island, entire of itself . . . therefore never send to know for whom the bell tolls; it tolls for thee."

§ 6. Labor Unions

The modern U.S. labor union came into being during the last decades of the 19th century and reached a membership population of one million wage-earners at the turn of the century. Figure 10.12 graphs union membership from 1880 to 2010. Figure 10.13 displays this data as per cent of U.S. labor force for the years 1930 to 2010. The data can be classified into seven notable periods.

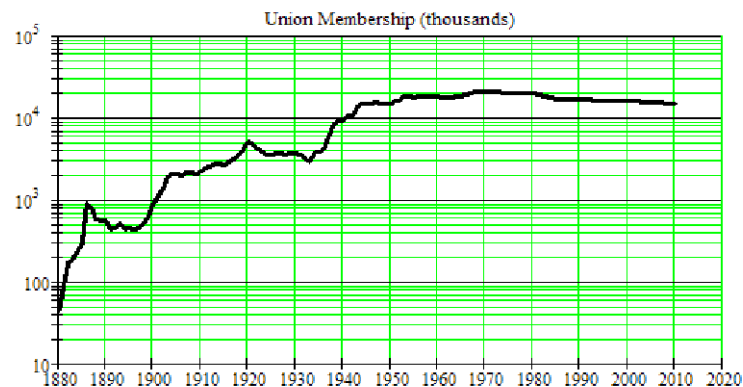


Figure 10.12: Union membership (in thousands of members) from 1880 to 2010. Sources for this data are as follows. 1880-1896: Wolman (1924) Table 1, pg. 32; 1897-1923: Wolman (1924) Table I, pp. 110-119; 1924-1970: Bureau of the Census (1976b) Series D 927, 935, pp. 176-177; 1977 and 1980: Bureau of Labor Statistics, published in *The Times Almanac* 2008, pg. 747; 1985-2010: Bureau of the Census (2011) Table 664, pg. 429. There are 7 periods: 1880-85; 1885-97; 1897-1904; 1904-32; 1932-45; 1945-82; 1982-2010.

¹⁵ John Donne (1572-1631), *Devotions upon Emergent Occasions*, 17.

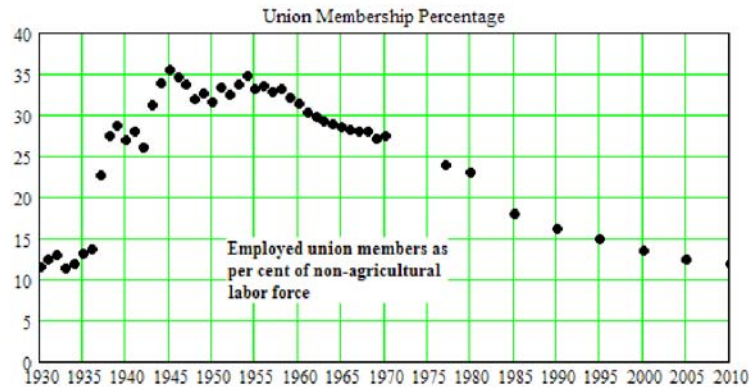


Figure 10.13: Union membership as per cent of non-agricultural U.S. labor force from 1930 to 2010.

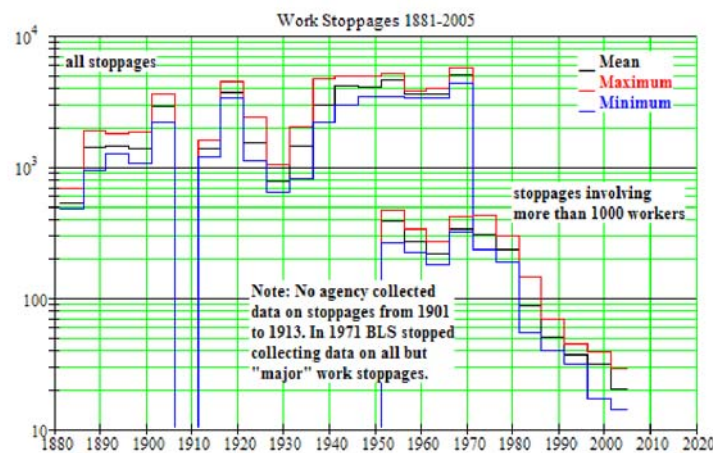


Figure 10.14: Average, maximum, and minimum numbers of work stoppages at five year intervals from 1881 to 2005. There are 6 periods: 1880-1901; 1901-21; 1921-35; 1935-45; 1945-82; and 1982-2005.

Labor unions were nothing new to the United States. The first one had formed shortly after the beginning of the Economy revolution of the late 18th century when journeyman shoemakers organized in 1792. The first American union movement was shattered by the panic of 1857 and unions by and large disappeared until the National Labor Union grew out of the Baltimore Labor Congress of 1866 and the Knights of St. Crispin was organized at Milwaukee in 1867. The Noble Order of the Knights of Labor was founded in 1869 by Uriah S. Stephens, a Philadelphia tailor. The Knights of Labor was the first attempt to unite American workers into one large union, and they were politically active in promoting state and federal labor laws [Morison & Commager (1930), pp. 702-7].

The period from 1880 to 1885 is significant for the first major national strikes that forced some of the large capitalists, such as Jay Gould during the great railroad strike of 1884, to meet with labor on equal terms for the first time. The period is characterized by numerous strikes, many of which turned deadly violent before either being resolved or being crushed by state or federal armed forces. Figure 10.14 graphs the average number of work stoppages (strikes or lockouts) over five year intervals from 1881 to 2005, along with the peak and minimum number of strikes that occurred during each period. Note that after 1970 the U.S. Bureau of Labor Statistics stopped collecting and reporting data on all strikes and lockouts in favor of reporting only "major" work stoppages – those involving a minimum of 1000 workers. As the overlap of

statistics displayed in the figure indicates, this change in BLS policy had the effect of not reporting on the order of 90% of all work stoppages actually occurring. Because *any* strike by wage-earners signifies antibonding relationships between a business entity's non-management and management labor forces, this systematic underreporting of labor problems in the U.S. has the effect of suppressing important information concerning the state of domestic tranquility in the U.S. and makes socio-economic circumstances falsely appear to be better than they actually are. If I were a labor union leader, I'd be doing everything I could to see to it that *every* strike and walkout that happens anywhere in the U.S. was highly publicized.

This is because, with the notable exception of period 5 from 1932 to 1945 (the Roosevelt administration), state and federal governments have exhibited a long track record of taking sides in labor disputes by issuing court injunctions and passing laws favoring managements which tend to suppress labor unions. Period 1 (1880-85) saw the formation of modern labor unions and their first successes in obtaining benefits in pay rate, length of the workday and workweek, and other benefits most Americans today take for granted. Period 2 (1885-97) witnessed a backlash against labor unions. This was a period of so-called "union busting" activity by major capitalist-owners (e.g. Andrew Carnegie, George Pullman, and others) abetted by court injunctions and rulings favorable to these large-capital-resources owners. Not surprisingly, these efforts were largely successful, just as Adam Smith had said they would be, although they failed to wipe out labor union organizations:

What are the common wages of labor depends everywhere upon the contract usually made between those two parties [employer and employed], whose interests are by no means the same. The workmen desire to get as much, the masters to give as little as possible. The former are disposed to combine in order to raise, the latter in order to lower the wages of labor.

It is not, however, difficult to foresee which of the two parties must, upon all ordinary occasions, have the advantage in the dispute and force the other into compliance with their terms. The masters, being fewer in number, can combine much more easily; and the law, besides, does not prohibit their combinations, while it prohibits those of the workmen. We have no acts of parliament against combining to lower the price of work, but many against combining to raise it. In all such disputes the masters can hold out much longer. A landlord, a farmer, a master manufacturer, a merchant, could generally live a year or two upon the stocks they have already acquired. Many workmen could not subsist a week, few could last a month, and scarce any a year without employment. In the long-run the workman may be as necessary to his master as his master is to him, but the necessity is not so immediate.

We rarely hear, it has been said, of the combination of masters, although frequently of those of the workmen. But whoever imagines upon this account that masters rarely combine is as ignorant of the world as of the subject. Masters are always and everywhere in a sort of tacit but constant and uniform combination not to raise the wages of labor above their actual rate. To violate this combination is everywhere a most unpopular action, and a sort of reproach to a master among his neighbors and equals. We seldom, indeed, hear of this combination, because it is the usual, and one may say, the natural state of things, which nobody ever hears of. Masters, too, sometimes enter into particular combinations to sink the wages of labor even below this rate. These are always conducted with the utmost silence and secrecy till the moment of execution, and when the workmen yield, as they sometimes do, without resistance, though severely felt by them, they are never heard of by other people. Such combinations, however, are frequently resisted by a contrary defensive combination of the workmen; who sometimes, too, without any provocation of this kind, combine of their own accord to raise the price of their labor. Their usual pretences are, sometimes the high price of provisions; sometimes the great profit which their masters make by their work. But whether their combinations be offensive or defensive they are always abundantly heard of. In order to bring the point to a speedy decision, they have

always recourse to the loudest clamor, and sometimes to the most shocking violence and outrage. They are desperate, and act with the folly and extravagance of desperate men, who must either starve or frighten their masters into an immediate compliance with their demands. The masters upon these occasions are just as clamorous on the other side, and never cease to call aloud for the assistance of the civil magistrate and the rigorous execution of those laws which have been enacted with so much severity against the combinations of servants, laborers, and journeymen. The workmen, accordingly, very seldom derive any advantage from the violence of those tumultuous combinations, which, partly from the interposition of the civil magistrate, partly from the superior steadiness of the masters, partly from the necessity which the greater part of the workmen are under of submitting for the sake of present subsistence, generally end in nothing but the punishment or ruin of the ringleaders. [Smith (1776), pp. 58-59]

In periods 1 and 2 union membership was just a small fraction of the civilian workforce. Exact statistics are impossible to obtain for this percentage, but it ranged from about 2.5% up to 8.5% of the non-agricultural labor force during these periods. Period 3, from 1897 to 1904, was a period of reorganizing and rebuilding by labor unions. Wolman wrote,

Changes in total membership over the period were not shared alike or at the same time by the component unions. The time and extent of recession and recovery varied widely among the groups and among the particular organizations. Practically all the groups participated in the steady growth that began in 1897, when the majority of unions were small and just getting on their feet, and was interrupted by the decline in business of 1903-1904. . . . The steadiest growth is found in the three important groups of building, transportation and printing unions. In all of these groups, the dominant organizations are the old and well-established unions which were operating with considerable force even before 1897. After the first phase of rapid growth, terminating somewhere between 1904 and 1905, these unions were only slightly affected by the business recessions prior to that of 1920. [Wolman (1924) pp. 34-35]

The first three periods of union membership (1880-1904) fall into the same time interval as the first period of work stoppage statistics (1880-1901) so far as can be assessed from available data. No agency collected statistics on work stoppages from 1901 to 1913; this is a dark age in the data collection. Labor unions benefitted briefly in period 4 (1904-1932) from the political popularity of anti-trust sentiments during the "progressive" era of the Theodore Roosevelt and Woodrow Wilson administrations, but legislation favorable to unions began being diluted by court decisions almost immediately. Indeed, the Sherman Antitrust Act, which was such a toothless piece of legislation when it came to trusts, was anything but toothless when it was used against unions. Morison & Commager wrote,

The difficulties of dealing with the various social and economic aspects of the labor problem . . . are greater in the United States than in England or Continental Europe. This is due largely to three factors: the reluctance of the American public to acquiesce in legislative regulation of business; the limitations of written constitutions embodying out-worn *laissez-faire* ideas and rigidly interpreted by the courts; and the existence of a federal rather than a centralized state. Important, too, has been the indubitable fact that the American working man was more highly paid than any other worker in the world, which led unthinking people to snap at the comfortable theory that all agitation for social reforms was inspired by socialist teachings dangerous to American institutions, and not by any real need or suffering.

The very existence of organized labor has often been threatened; its chief weapons, the strike and the boycott, have frequently been paralyzed by injunction or judicial decisions. . . . Business and government invoked the injunction against [the strike] time and time again – in the great railroad strike of 1877, in the Pullman strike of 1894, and on scores of other

occasions. The Clayton Anti-Trust Act of 1914 contained a special article forbidding the use of the injunction in labor disputes, except to 'prevent irreparable injury'; but this article has been emasculated by a series of court decisions [Duplex Printing Press Co. v. Deering et al. (1920), *Truax v. Corrigan* (1921)] and eight years after its enactment the United States Attorney-General issued the most sweeping injunction in American history. The boycott of employers who would not accept union terms has been adjudged an unlawful combination in restraint of trade, and thus a violation of the Sherman Law, in two leading cases: *Gompers v. Bucks' Stove and Range Company* (1907) and the *Danbury Hatters' Case* (*Lawlor v. Loewe*) of the following year. The decisions of the court in these cases effectively crippled the use of the boycott. More recently [United Mine Workers of America v. Coronado Coal Co.] the Supreme Court has held that labor organizations, even though unincorporated, may be prosecuted for violations of the Sherman Law. Similarly, the practice of picketing has been so hedged about with judicial restrictions as to be practically impotent. [Morison & Commager (1930), pp. 709-710]

Court rulings have held that boycotts (and in some cases strikes) are 'violations of due process of law' committed by unions against employers. It is not too difficult to see the justice in this argument in cases where one or a few major capitalist-entrepreneurs (e.g. Andrew Carnegie) are *de facto* owners of a company (e.g. Carnegie Steel). It is another matter when the ruling is applied in a case of the legal fiction holding an incorporated business to be a "legal person." This is because in that circumstance the court is ruling in favor of an abstract (non-real) entity against the interests of actual people. The argument hinges on holding-to-be-true that the anonymous shareholders of a corporation "own" the company – a practical fiction of peculiar convention.

Courts in the United States do not legislate; their role is called "judicial review" and their task is one of interpretation of the intent of laws passed by state legislatures and Congress. This is one contributor to the fact that while the United States has a very complex legal system, it does not have a republic's justice system. Walker and Epstein tell us,

Judicial review, as [Alexander] Hamilton suggested, would be a most potent power of federal courts, but it is not a power explicitly stated within the Constitution. Rather, it is one the federal courts claimed for themselves as early as 1796 in the case of *Hylton v. United States*. . . . It was not until 1803 in *Marbury v. Madison* that the court invoked judicial review to strike down legislation deemed incompatible with the U.S. Constitution. [Walker & Epstein (1993), pg. 8]

It is true that judicial review is not an explicitly stated Constitutional power of the courts. But I put to you the proposition that it is an *implicitly* stated power found in the Preamble – specifically in the general objective of government "to establish justice." I can offer you no explanation why court rulings historically have not referenced the objectives of government in the Preamble and have been narrowly confined to rulings pertaining to the Articles of the Constitution. This seems a peculiarly unintelligent fixed habit of judges and lawyers.

However, the enactment of prejudicial legislation and the selective enforcement of it under judicial review, which sides with the interests of one group of mini-Communities over another, is an enormity against the social contract of the American republic, hence is *unjust* and minimally a deontological moral fault (and, at worst, is a deontological crime) committed by agents of government. It is not surprising that politicians and political parties look first to their own interests and Duties-to-themselves in legislating – they are, after all, people and comprised of people – and follow the winds of public opinion shaped by propaganda. Even so, it is still a violation of civic Duty by agents of government and by political parties, tainting the ideal of the government of a republic with a plutocracy of rulership natural under non-consensus democracy and its maxim of *majority rules*. The lust to rule is an antisocial form of political avarice not deontologically different from that which Cicero held to be a vice in his day:

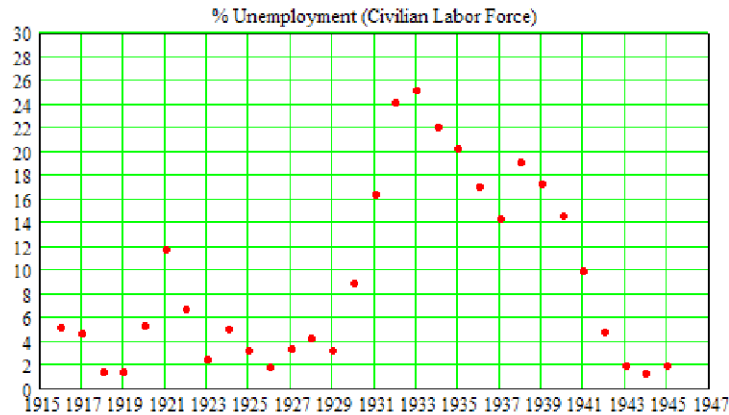


Figure 10.15: Unemployment rate among the civilian labor force from 1916 to 1945.

There is, then, to bring the discussion back to the point where it digressed, no vice more loathsome than avarice, especially in those who stand foremost and responsible for administering for the public welfare. To exploit the public for personal gain is not only disgraceful, but even heinous and vile. And so the oracle which Pythian Apollo uttered, that "Sparta should not fall by any other reason than avarice," seems to come not solely to the Lacedæmonians, but to all wealthy nations as well. They who are answerable for public affairs can win over the benevolent regard of the multitude by no means more easy than by self-restraint and self-control. [Cicero (44 BC), Bk II, xxii (77), pg. 252]¹⁶

You might or might not deem it surprising to see union membership rising rapidly once again during the Great Depression and World War II (period 5). If so, do not overlook the GNP data presented earlier showing that a national economic recovery was already underway by the mid-30s even though a decline in total unemployment lagged, as it historically does, this economic recovery in time. Figure 10.15 presents unemployment rate among the civilian labor force from 1916 to 1945. By the end of 1941 unemployment rate had come back down to levels on par with those of the first full year of the Great Depression, and the U.S. entry into World War II saw this rate pushed to one of the lowest since colonial times. This cannot be accounted for by the fact that a great number of men went to serve in the Armed Forces at this time. Census data shows that the civilian non-agricultural labor force *also* increased in total population during this same period. It was not a simple case of the unemployed going off to the army. Working people could see that economic prosperity was returning; nothing more complicated than the service of Duty-to-oneseelf is needed to explain why wage-earners would want to share in that recovery along with their employers. Unions also had a federal administration in office that was friendly to their interests during this time, and it was during Roosevelt's New Deal era that most of today's labor-friendly laws were enacted.

The end of the war saw the peak in union membership as a per cent of civilian labor force and ushered in period 6 of union membership. From that point until 1982 the total population of union members held more or less steady while as a per cent of labor force it underwent a slow and steady decay. During this period, which is possibly the most prosperous in U.S. history even with wars and recessions factored in, it seems there was little real incentive favoring or opposing union membership.

¹⁶ This translation has been rendered by your present author. Walter Miller's classic translation tends to re-make Cicero into the image of St. Paul. Cicero was indeed a noble statesman, but he was no saint and often a politician and a lawyer of iron practicality. His *dictum* quoted here applies as fully to hired-help managers of a corporation posing as an Enterprise of enterprises as it does to agents of political governance.

This changed in 1982 during the first term of the Reagan administration with President Reagan's dramatic firing of the Air Traffic Controller's Union during their short strike. It seems rather an irony in retrospect that this union was the only one that had endorsed Reagan during the 1980 election campaign. In any case, the national reaction to this event was almost immediate. In state after state, local state legislatures began passing anti-union "right to work" laws prejudicial to unions' abilities to bargain with employers on anything resembling equal terms. This ushered in the 7th and latest period in union membership – a period possibly bearing witness to the collapse of organized labor in the United States. It marks a return to anti-union prejudicial government policy that was characteristic of Republican Party administrations at the beginning of the century. By 2010 union membership as a percentage of the civilian labor force had declined from a peak of 35.5% in 1945 to a mere 11.9% in 2010 – a return to percentage levels characteristic of 1930.

Along with this came period 6 in work stoppages. There is no government-published data regarding the total number of work stoppages that have occurred since 1982, but that there has been a steep downward trend in so-called "major" incidents since 1982 is quite obvious. This reflects the powerless position unions have been forced into by anti-union legislation dating from 1982. To one-sidedly persecute unions is to persecute a mini-Community of American citizens.

§ 7. Summary

The principal premise of this chapter is the empirical hypothesis that the 20th century is characterized by five main epochs. The observation of significant changes in population growth rate suggested the hypothesis and other macroeconomic observables were then examined to see if there was stronger evidence for the *Dasein* of epochs. Ten observables were found that gave clear evidence of different periods in their trends. These ten by no means exhaust the possible suite of observables that might be found.

Figure 10.16 provides a timeline illustration of these observables' trend periods from 1880 to 2010. Coincidences in the occurrences of different observable periods can be seen in this timeline with sufficient regularity to support the general five-epochs hypothesis. The observables can be logically divided in regard to 20th century epochs into two classes. The first class I call probable primary correlates; the second I call probable secondary interaction observables.

Mere correlation or temporal coincidence of observables does not impute that the observables are themselves causative factors producing social epochs. Under Critical metaphysics imputations of that sort hold no objective validity because observables such as these must be regarded as outcomes of underlying causative factors. Furthermore, it is not objectively valid to say some one observable (observable O_1) causes or produces a second (observable O_2). Observables are nothing more than divers appearances of American Society regarded as a corporate person. This corporate person is the representation of an organized being and, as such, the observables must be regarded as mutually co-determining (epistemological Relation of community¹⁷), not as factors standing in a Relation of causality & dependency with one another.

Individual human beings are the social atoms and fundamental causative agents in every social-natural phenomenon. The discovery of epochs in the 20th century provides a signpost to point the investigation in such directions as to explore in more depth to understand actual causes that underlie the sorts of mass behaviors the observables reviewed in this chapter present. The macroeconomic observables dealt with in this chapter are impersonal insofar as not one of them refers immediately to any individual human being or even to any particular mini-Communities of human beings. To critique the development of the institution of education in the 20th century United States, the investigation must penetrate down to at least the mini-Community level.

¹⁷ refer to Wells (2009) chapter 5, §4, for an explanation of Kant's categories of understanding.

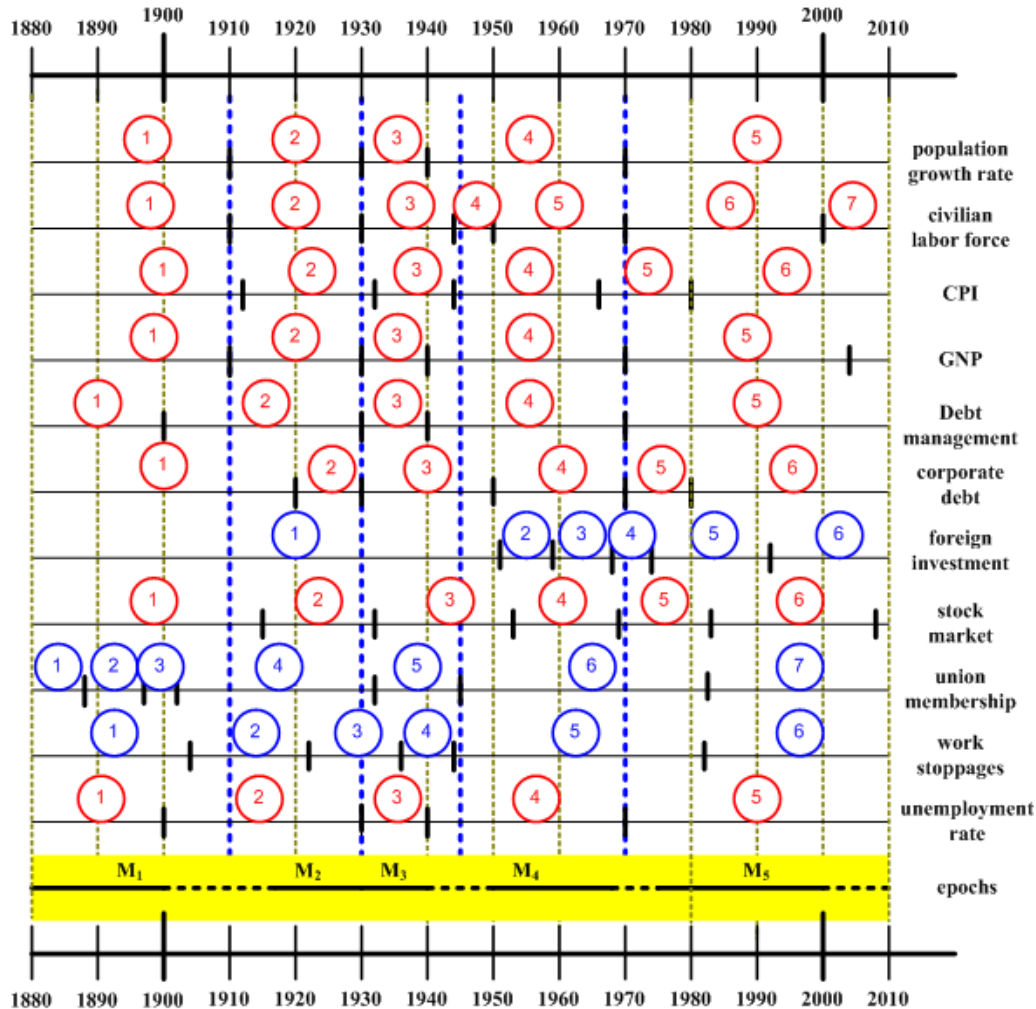


Figure 10.16: Timelines of observable factors and their alignments with the five epochs of the 20th century. Red denotes probable primary correlates; blue denotes probable secondary interaction observables.

The root causative factors the science seeks to understand must eventually reduce to individual human actions and reactions. These, in turn, are grounded in individuals' practical manifolds of rules each person builds for himself through his personal experiences in life. It is upon the foundations of commonality, difference, cooperation, and competition among these primary rules of human actions that the continued real *Existenz* of a civil Society depends. The observables time-lined in figure 10.16 can give us no more than a starting point. More discriminating observables, bearing more directly on mini-Communities and individuals must be examined next. This is undertaken in chapter 11.

The review presented in chapter 11 is found to reinforce a human characteristic only hinted at by the macroeconomic review just completed in this chapter. It is this. The epochs exhibited by the macroeconomic outcomes describing the U.S. as a whole in the 20th century all share with each other a common character of general satisficing and reactionary public responses to socio-economic change. In neither individual, business-corporate, nor governmental perspectives of U.S. economic conditions is evidence found that implicates any sort of U.S.-Community-wide long term planning nor any evidence of shared civil-Community social principles by which the overall Community of the United States responds after the occurrence of emergent events having national impact.

This is not surprising because it is an overall social behavior pattern consistent with an utter lack of any public education functions addressing either civic or civil planning, skills of social enterprise, cooperative skill enterprise, and civics or civil contracting. The pattern is also consistent with inadequate public education pertaining to the skills of civil liberty function of public education. That the U.S. economic environment should have remained in a merely partially mediated state of uncivic free enterprise that traces its roots to the Economy revolution of the 18th century is indicative of two educational factors. First, it is indicative of an inadequate level of history education pertaining to economic lessons of the past. Second, it is indicative of a general lack of pertinent and practical education in economics of the sort the individual can put to use in his individual pursuit of happiness and fulfillment of his Duties-to-Self.

These are all outcomes fully consistent with the Critique of public instructional education in the United States at the close of the 19th century as presented in figure 8.24 of chapter 8. The 20th century macroeconomic outcomes also provide a leading indication of what Critique of the U.S. institution of public education will present for the 20th century. Specifically, the socio-economic outcomes reviewed in this chapter indicate that throughout the 20th century's major movements of education reform, those reform movements all continued failing to address the most basic real objectives for the institution of public education by the American Community.

This is hardly a failing unique to the United States. There is no a country in the present-day world that can lay scientifically valid claim to having done better in its public institution. However, the mere fact that institutions of public education in Western civilization are alike in this way can in no responsible manner be taken as a *justification* for these omissions. It only means that Western countries have not learned the most important history lesson revealed by Toynbee, namely, that civilizations fall from within and by the breakdown and disintegration of the corporate body politic formed by the social contracts adopted by nations.

The blunt truth is that the United States and other Western countries exhibit in their interconnected networks of socio-economic interactions profound widespread ignorance of most of the very fundamental *social-natural* principles of economics. Some countries' experiments with their systems of economics have been far more disastrous than others. The Soviet Union's failed experiment with Communism is perhaps the foremost example of this, although the record of the Czarist Russian government prior to its collapse during World War I gives the Communist experiment a run for its money. The luxury of economic ignorance comes with a high price tag. Societies pay the cost of this ignorance by the sacrifice of their own *Existenz*.

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