

AGGREGATED COST BENEFIT ANALYSIS OF THE  
EFFICACY OF VOCATIONAL-TECHNICAL  
EDUCATION 1945-1998

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EDUCATION 1945-1998

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I hope that this study, at least in some small way, will help repay your investment in me through more effective use of our taxes and our time, more effective and longer lasting economic development, better and more stable employment, a better understanding, and possibly greater control, of our world.

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## CHAPTER I

### INTRODUCTION

#### The Problem and Its Setting

Much of current Vocational Education is redundant, obsolete, and superfluous when only the economic expectations of those who participate in and fund this activity are used as criteria. Many of the remaining activities are also rapidly becoming non- or counter- productive when evaluated using mainly economic or employment related criteria. This does not appear to be due to any sudden lack of commitment or abrupt failure on the part of the institution of Vocational Education or those who participate in and fund it, but rather due to continuing basic and fundamental structural shifts in the American society, culture, and economic organizations which both well served and were well served by Vocational Education for many years. Indeed, the cost in time and money to produce competent and qualified employees for jobs of ever-increasing complexity and responsibility has been continually reduced. The problem is that the traditional formulas no longer meet the learners' objectives of increased income and employment stability, the general public's expectations of economic growth and development, and the government's objectives of increasing revenues while lowering tax rates, improving social conditions and increasing citizen engagement/ participation. Given the technological basis of much of our

society and culture, Vocational Education has an increasingly vital role in education, but not its traditional one.

### Statement of the Problem

Given that enormous amounts of time, effort and money are being invested in Vocational Education and that rapid and massive structural changes have occurred and continue to occur in the economic and other structures of the United States, it is reasonable to perform a critical, effectively zero-based, evaluation or reassessment of the apparent effectiveness and efficiency of Vocational Education in meeting its major stated and implicit expectations, goals and objectives under recent, current, and projected conditions. This is particularly true in that a preliminary literature review did not discover such a critical evaluation or assessment which overtly considered the drastic economic, social and cultural changes in the United States from about the end of the war in Vietnam (1968) to the present (1998).

### Significance of the Problem

The lack of such a critical assessment or evaluation has caused legislators, policy makers, (potential) practitioners, employers, learners, and other stakeholders in Vocational Education to base their decisions on what may be obsolete information and theoretical cognitive models or paradigms. While in many cases useful or expected outcomes are still obtained when obsolete / obsolescent models and information are used, in many more cases either no positive out-comes are produced or even worse, counter-productive

outcomes result. Two examples of non- or counter- productive outcomes, which the nation can ill afford, can easily be projected:

- There will be a continuing massive mis-allocation of scarce resources of time, money and attention in non- or counter- productive efforts; and
- The existing loss of faith in “The System” will be amplified and exacerbated, increasing the already excessive perceptions of distrust, alienation, separation and abuse by those who have “played by the rules,” but have still “lost.”

Although many other factors are important, there is a need to concentrate on the apparent economic impact of Vocational, Occupational and Technical Education [VOTE]. That concentration is based on two primary observations.

First, the quintessentially American attitudes and perceptions of many, probably most, Americans as succinctly expressed in the following phrases:

- “Show Me the Money!”
- “What’s the bottom line?”
- “Greed is good!”
- and the ever-popular and ubiquitous phrase “Cost / Benefit Analysis.”

Second, when students, voluntarily attending school (that is post-secondary), are surveyed<sup>1</sup> to determine their reasons for continuing their education, at least 75 per cent of the responses include some variation of:

- To get a better job. (To do a better job was never mentioned!)

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<sup>1</sup> Sources for this statement are included in later sections, or see the Cooperative Institutional Research Program [CIRP] studies, for example <http://www.uvc.ohio-state.edu/chouse/trnman.txt>

- To make more money.

Indeed, because the aggregate data included schools such as the Yale School of Divinity and the Union Theological Seminary, the frequency of these rather crass but highly pragmatic objectives probably reaches 90 percent or more, when only students in the trades, occupations and professions (other than clergy) are considered.

Therefore, if a major factor in most current decisions and the primary stated reason for participation in voluntary (post-secondary) education / training is economic, it is entirely justified to perform a primarily economic (impact) analysis of a substantial component<sup>2</sup> of post-secondary education, that is VOTE.

#### Definitions

Disputations– This study operationally defines “disputation” as a disagreement or argument that has continued for an excessive amount of time with no apparent progress toward a broad convergence of opinion or even any agreement of the terms and definitions used. This indicates an inordinately high content of “articles of faith” in the ideological or theological sense, which by definition are not subject to empirical proof or disproof, therefore *“disputations” by definition are not capable of “resolution” in the usual positivist/realist sense of the word.* As such, items identified as disputations are included for informational purposes only.

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<sup>2</sup> Indeed, if the number of current students / learners and graduates / alumni is used as a criteria, VOTE is the major component of post-secondary education.

VOTE – VOTE is an acronym which stands for “Vocational, Occupational and Technical Education.” There seems to be currently general agreement about VOTE on the following points<sup>3</sup>:

- It is education / training which is not intended to lead to a baccalaureate degree.
- It is practical education / training overtly intended to enable the student / learner to engage in and to improve or at least maintain their economic situation in specific fields, occupations or trades.

There is substantial, although less universal agreement on the following:

- It is post-secondary, that is post-high-school, education / training.
- Its primary objectives are not to produce or result in personal growth, self-discovery, personal satisfaction or general knowledge, although this frequently results. Such objectives are more properly those of adult education<sup>4</sup>. Under this definition it is entirely possible to have both VOTE and Adult Education occur for students seated side by side in the same class at the same time.
- It should be specifically noted that the accepted definition and expectations of VOTE has continually changed across time from before its Federal implementation under the Smith-Hughes Act of 1918 to the present.

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<sup>3</sup> Wirth, A. G. (1980) Education in the technological society: The vocational-liberal studies controversy in the early twentieth century Lanham, MD: University Press of America

<sup>4</sup> Elias J. L. And Merriam, S. B. (1995) Philosophical foundations of Adult Education 2nd ed. Malabar, FL: Krieger Publishing Company

- As unsatisfactory as it may be, the most comprehensive method of defining VOTE may be to use the Buddhist technique of negation<sup>5</sup>, that is VOTE is education that is not Special Education, not Remedial Education, not Academic Education, not Primary Education, not Secondary Education, not . . .

Skill(s) Premium<sup>6</sup> – “Skill(s) Premium” is a term discovered to be in common use in some branches of Economics. It specifically refers to the additional amount of wages a person will earn, over and above the commonly accepted floor or minimum wage, because of their possession of a specific skill or ability. This concept has proven to be the key for resolving a large number of problematics involving the words “labor shortage.” “Skill Premium” is discussed in greater length in the section in Appendix E labeled “Skills Premium.” In Economics, and by extension much of higher level organizational management, a “shortage” is defined to exist if the “skill premium” is greater than zero. That is if the wages and benefits required to completely fill all desired positions are above the commonly accepted (or legal) minimum wage. Thus it can be seen that the use of the word “shortage” by economists and higher level management has nothing whatsoever to do with the common usage of the word. Indeed, by the economists’ definition, a “labor shortage” continues to exist in the United States even for high-school dropouts in that their average wage is still above the legal minimum wage. (See Chart edwages 4 in Chapter IV and “Skills Premium” in the Appendix)

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<sup>5</sup> This seems to be in common use in Buddhist scriptures. An example is Warren, Henry Clarke (1968) *Buddhism in translations*. New York: Atheneum. p128-133.

<sup>6</sup> Card D. & Krueger, A. B. (1995 May) Time-Series Minimum-Wage Studies: A Meta-analysis *American Economic Review* 85.2 238-243.

Linear (Stage) and Accretion Models of Economic Evolution – Models of development (for example social, personal, economic / political) have long been the intellectuals' stock in trade. Regardless of the correctness or validity, the power of models should never be underestimated. For example, the socio-political / economic models developed or popularized by Rousseau<sup>7</sup>, Marx<sup>8</sup> and Hitler<sup>9</sup>, utterly destroyed long established governments and created others, caused wars to be waged between continents and resulted in the deaths of hundreds of millions of people. The model developed to organize and contextualize this study is not expected to have such dramatic effects. The “accretion” model developed in this study is an extension and elaboration of Rostow's<sup>10</sup> economic stage theory. An in-depth discussion of this model is included in the appendix. The important points of the accretion model for VOTE are:

- New economic, social, political and cultural developments or layers do not abruptly replace existing structures in most cases, but rather co-exist with them, generally for very long periods of time.
- The relationship between these layers are benign, symbiotic, parasitic or antagonistic, either alone or in some combination. For example, the layer termed “cannibalistic” or ‘value-extraction’ capitalism, is parasitic in that it depends on the existence of susceptible and accessible organizations which have sufficient net worth to justify the time and expense of the liquidation

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<sup>7</sup> Rousseau, J. J. (1995 ed.) The Social Contract and Other Writings New York: Barnes and Nobel.

<sup>8</sup> Marx, Karl, 1818-1883 (1977) Capital : a critique of political economy New York : Vintage Books, 1977

<sup>9</sup> Hitler, Adolf, 1889-1945 (1977) Mein Kampf Boston : Houghton Mifflin

<sup>10</sup> Rostow, W. W. (1971b) The Stages of Economic Growth: A Non-Communist Manifesto New York: Cambridge University Press.

Rostow, W. W. (1978) The World Economy: History & Prospect Austin, TX: University of Texas Press.

process, and it generates little or nothing of value for society in general. An example of a symbiotic relationship is that between “value-extraction” capitalism and the current latest layer, that of trans- or multi- national corporations. By acting as scavengers on momentarily weakened and vulnerable economic sectors that may have been neglected, had a policy of dis-investment or suffered egregious mismanagement, “value-extraction” capitalism provides an opening for the trans-nationals by providing an immediate demand and market for goods and services which temporarily are no longer domestically produced in sufficient volumes or of sufficient quality to meet indigenous requirements.

- It is entirely possible for individuals, groups and organizations, even nation-states, to repeatedly shift between layers which is specifically excluded under a linear stage theory.
- The beliefs, attitudes, perceptions, and social/cultural practices which are utile, perhaps vital to survival in one layer, may be useless or even counter-productive in another layer. *This explicitly includes VOTE and “education.”*
- VOTE was specifically developed for and is ideally suited to the “heavy industry - mass production” stage, however this has been overlaid by at least two later stages in the United States and as a result both this stage and VOTE are rapidly diminishing in both absolute and relative economic significance.



Gini Index (Or Coefficient) – As explained by Todaro [695] the Gini coefficient is an aggregate numerical measure of income inequality ranging from 0 (perfect equality) to 1 (perfect inequality). It is measured graphically by dividing the area between the perfect equality line and the Lorenz curve by the total area lying to the right of the equality line in a Lorenz diagram. The higher the value of the coefficient, the higher the inequality of income distribution; the lower it is the more equitable the distribution of income. The GINI coefficient is explained in more depth when it is used in later sections and has found to be significantly correlated with many commonly accepted “quality-of-life” factors such as life expectancy, death rates and individual tax burdens.

### Limitations

There are several important qualifications or limitations on this study which the reviewer should be overtly aware:

1. While the data presented are numerically correct, the significance or meaning of the data is always subject to interpretation. The distribution of full-time employees by income level is a fact (assuming accurate data collection) but the significance of this “fact” is highly subjective and a large degree of judgment is involved. For example, it can be shown that the fraction of full-time employees below a federally defined poverty income level is increasing, but the poverty income level is subject to much debate. Why was an individual annual income of \$7,763<sup>11</sup> or less in 1995 the

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<sup>11</sup> Bureau of Census data available: <http://www.census.gov/hhes/income/defs/poverty.html> and <http://www.census.gov:80/hhes/income/incmeas/papers/weinberg.html>

“official” poverty cutoff point? Why not \$7,531 or even \$8,765? Other data such as the Consumer Price Index [CPI] used extensively in this study to convert economic time series to constant value dollars are also the subject of considerable on-going legitimate debate.

2. Although the quality is frequently challenged, the adult population United States, when compared to the rest of the world, has a very high fraction of high school completers (c. 60% to 90%) and college graduates (c. 20% to 30%) in the time periods of primary interest. If a wider range of population educational attainment were available, under similar economic conditions, different results may have been obtained. That is a plateau effect may exist and U. S. areas with the lowest attainment may be above the plateau point.
3. For a variety of reasons, much of the economic data for United States and other major industrial countries is not directly comparable because of “revised” definitions and standards. For example, only the United States includes individuals in the military and employed prisoners in the total of employed persons used to calculate unemployment statistics<sup>12</sup>, which decreases the reported U. S. unemployment rate in comparison to other countries. Additionally, much United States internal economic data is not consistent across time because of “revisions” in the content, methods and standards used to calculate their calculation. The justification for the use of this known inconsistent data is that the “revisions” uniformly reduced

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<sup>12</sup> Bureau of Census available: <http://www.census.gov:80/cao/www/fedreg/noticefr.html>

the reported rates of inflation, level of poverty, rate of unemployment or other item of interest, and *even with this known attenuation the same conclusions are reached* although the time required to reach a certain level may be extended by a few years.

4. The methods of mathematical extrapolation used are necessarily arbitrary. These were selected from those available<sup>13</sup> in the MicroSoft Excel spreadsheet program on the following basis: (1) least complicated formula; (2) which provided a reasonable  $r^2$  value; (3) which visually provided a “good” fit to the data points; and (4) some rationale could be found for its use. For example using an exponential equation for what could reasonably be expected to be compound growth process.
5. Extrapolation is always risky in that it assumes minimal (or off-setting) changes in inputs over time. However the relatively high  $r^2$  values of most trend-lines provide a high level of confidence for projections up to 5 years. Considerable caution should be used for projections much beyond this. It should also be noted that projection techniques can also result in physically or economically impossible forecasts such as negative volumes or prices. This does not necessarily indicate an incorrect forecast but rather an inflection point such as the condensation of a gas to a liquid such that the previous “equation of state” no longer applies. For example, in the discussion of Agricultural Education in a later section, the per bushel price of corn is projected to reach zero in 2008 and to be negative thereafter.

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<sup>13</sup> User's Guide MicroSoft Excel 5 for Windows Redmond, WA: MicroSoft Press p352-353

(See Chart corn01 in Chapter IV) This is an obvious impossibility, but this does provide valuable information in that this indicates drastic changes in the current process of growing corn in the United States will occur in the near future as the current average price is at or below the average cash cost of production and thus *the current trend cannot continue nor can it even be sustained*.

6. While the basic findings and the “Accretion” model of economic development or evolution developed in this study should remain valid even if considerable structural economic change should occur, such as the abrupt imposition of mercantalistic trade policies or non-tariff trade barriers, economic data *extrapolations* will most likely not remain valid.

### Research Questions

Preliminary investigation, primarily based on governmental non-agricultural income data, generated two specific research questions:

1. Given that median wage rates are either stable or decreasing for all educational attainment levels below advanced degrees, how can a general “labor shortage” be declared to exist, if the “law of supply-and-demand” is still considered to be valid? (See Graph edwages in Chapter IV)
2. While selected individuals within identifiable target groups can be documented to have attained improvements in their economic status and stability, why has it been so difficult to improve the economic status of their entire group or cohort? Indeed, official governmental data indicates

that the fraction of all U. S. full-time employees with incomes below the poverty level has not fallen but has *increased at an almost constant rate of about 0.25% per year* from about 24% in 1973 to 31% in 1995. (See Graph povwages in Chapter IV for details and source)

Although this study concentrates mainly on the non-agricultural aspects of vocational education, Agricultural Education formed one of the legs of the triad which supported the introduction of vocational education and it continues to be a major component of vocational education in many rural areas, especially at the secondary level. Therefore this study also asked, at least in an introductory way:

1. Does governmental or other credible data exist which indicates any clear trends for Agricultural Education similar to the data for Vocational Education, and if so what do these trends generally indicate?

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Introduction

Practical or vocational education was not invented in the United States in 1917 by Prosser or Dewey, but has been known and advocated from at least the Reformation / Renaissance. Comenius is cited as the earliest known example of the modern era and some examples of his precepts are listed. Some of the more notable or striking events which occurred in the period between the end of the American Civil War (1865) and the enactment of Smith-Hughes (1917) are listed to help the reviewer sense the social, cultural, economic and political environment which existed and to provide specific instances and examples of the extensive unrest, turbulence, and tumult of that period. These events were also chosen to rationalize and justify the identification of the three fundamental VOTE *stakeholder* groups, their overt or explicit goals, objectives and expectations and to provide justification and rationalization for the attributed or implicit VOTE goals, objectives and expectations of those groups. Sources of primarily economic data from the end of the Second World War to the present such as wage rates by educational attainment, Dow Jones Averages, commodity crop prices, treasury and corporate bond yields, Consumer Price Indexes [CPI] and Producer Price Indexes [PPI]

are briefly discussed. The inter-relationship of these data with VOTE is discussed in depth in Chapter IV.

### Review

Despite common perception, the concept of “education” as a preparation for life and not as an initiation into esoteric lore which identified the cognizant as a member of an elite, was not an American invention by John Dewey or even Charles Prosser. Rather it has existed from at least the very troubled and violent period in Europe during which then new social-political-economic structure of national-mercantilism gradually over-laid and displaced the older medieval-manorialism<sup>1</sup> as the dominant economic/political/social/cultural structure and organization. John Amos Comenius (1592-1670) in many ways personifies this period of violent and turbulent transition. *From his time to the present, unsettled conditions seem to have promoted an interest in “education” by many of those adversely affected by the changes.* To very briefly contextualize his writings, Comenius was the leader of a small Protestant group that regarded John Hus as their founder located in the province of Moravia which is located for the most part in the present Czech Republic. The “Thirty Years War,” one of the last great European “Wars of Religion” (which later analysis showed was waged more because of political and economic factors than theological disputations) was fought in this region during his lifetime by a number of outside forces. Those wars devastated and depopulated Moravia and the surrounding regions, and in the end, Comenius and the surviving members of his community were

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<sup>1</sup> A work of fiction *El Ingenioso Hidalgo Don Quixote de la Mancha* by Spanish novelist Miguel de Saavedra Cervantes in 1615 gives considerable insight into the tensions and desonances generated by the accretion and co-existence of profit and patriotism onto chivalry and personal honor.

forced to seek asylum in Poland. Comenius was an extremely well educated man, and was one of the first writers on the education of children. He also published one of the first picture books for children, a teachers' handbook, and one of the first elementary Latin textbooks designed for instruction rather than simply using one or more of the classical Latin texts by noted Roman authors<sup>2</sup> as an example and model. It is strange that Comenius is more widely known in Europe than the United States, given his positions on education, which seem to anticipate Dewey, Lendeman and other educational reformers by 250 years by stressing free compulsory universal education, contextualization, life long learning and constructivism, as indicated in the following quotations from his work *Didactica Magna*<sup>3</sup> (The Great Didactic) published in 1649.

- “Not only the children of the rich or of the powerful only, but of all alike, boys and girls, both noble and ignoble, rich and poor, in all cities and towns, villages and hamlets, should be sent to school.”
- “Education is indeed necessary for all, and this is evident if we consider the different degrees of ability. No one doubts that those who are stupid need instruction that they may shake off their natural dullness. But in reality those who are clever need it far more, since an active mind, if not occupied with useful things, will busy itself with what is useless, curious and pernicious.”
- “The proper education of the young does not consist in stuffing their heads with a mass of words, sentences, and ideas dragged together out of various

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<sup>2</sup> For example: Livy, Pliny, Cicero, and Seneca.

<sup>3</sup> Available: <http://www.moravian.edu/misc/docs/comenius.htm>



authors, but in opening up their understanding to the outer world, so that a living stream may flow from their own minds, just as leaves, flowers, and fruit spring from the bud on a tree.”

- “If we examine ourselves, we see that our faculties grow in such a manner, that what goes before paves the way for what comes after.”
- “If we acknowledge that no expense should be spared in order to give one youth a through education, what can we say when the gate is opened to the universal education for all?”
- “The pupil should understand that what he learns is not taken out of some Utopia or borrowed from Platonic ideas, but is one of the facts which surround us, and that a fitting acquaintance with it will be of great service in his life.”
- “If, in each hour, a man should learn a single fragment of some branch of knowledge, a single rule of some mechanical art, a single pleasing story or proverb (the acquisition of which would require no effort), what a vast stock of learning he might lay by. Seneca is therefore right when he says: “Life is long if we know how to use it.” It is consequently of importance that we understand the art of making the best uses of our lives.”

### Context and Conditions Leading to the

### Smith-Hughes Act of 1917

The time in America between the Civil War (1861-1865) and World War I (1914-1918, American participation 1917-1918) was exceptionally unstable. Partially because of

the radical shift in economic and socio-political power caused by the civil war, but also due to the upheavals in social, economic and political norms generally attributed to the inter-related phenomena of large-scale industrialization, massive immigration and internal migration of both skilled and low-cost labor which not only supported but also drove industrialization and urbanization. While it is difficult to quantitatively assess the amount or degree of stress on societies or culture widely separated in time that result from rapid change, clearly American society in this period experienced stress comparable to those of the reformation and disappearance of feudalism. While the overall changes in world-view may not have been as great, the speed with which these changes occurred was much greater, typically in a single generation. As encapsulated by Wirth in his book Education in the technological society (1980)

“Industrialized America was a society in which powerful organizations emerged with nationwide constituents. In the rough-and-tumble of the post-Civil War period, the threat of social chaos often loomed large. In the absence of the ability of any one group to dominate policy, the tendency grew for rivals to join in appeals to the federal government for actions which might advance mutual interests.” [p21]

To provide specifics for the above statement and help establish the context in which the enabling legislation for the establishment of federally funded VOTE was first enacted, that is the Smith-Hughes Act of 1917, a few of the more notable events between the end of the Civil War and the enactment are listed below. This is not to suggest that these events somehow “caused” the enactment, but rather they are provided to help the reviewer “recreate” that environment. From a multi-perspective or post-modern viewpoint, it should also be noted that individuals from differing socio-economic or ethnic backgrounds most likely had very different perceptions and feelings about what these

events “meant.” The following events have been selected to demonstrate that America in this period was indeed turbulent, bellicose, aggressive, expansionist, and deeply divided. It is also worth noting how similar these events are to current concerns and problems. This is by no means an exhaustive or extensive list but only a few of the more notable events<sup>4</sup> which appear to have had some influence that occurred in this period. The events were chosen to support the identification of primary VOTE stakeholder or interest groups, and to justify their sometimes implied or attributed expectations, motives and expected outcomes. An appreciation of this historical / evolutionary economic backdrop is an integral component in the economic analysis of the viability of VOTE. The events emphasize just how extraordinary was the creation of a consensus by Charles Prosser among the groups affected, and their cooperation to obtain the passage of any legislation, or indeed the implementation of any coordinated inter-group activities at any level.

1866 -- The United States forces the removal of French troops from Mexico and prevents the establishment of a Mexican government controlled by France

- 1867 – Alaska purchased from Russia.
- 1867 – More than half of all U.S. working people are employed on farms.
- 1867 – The New York State Legislature votes to establish a free public school system.
- 1867 – Midway Islands in the Pacific are taken in the name of the United States August 28 by Capt. William Reynolds of the U.S.S. Lackawanna.

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<sup>4</sup> Unless otherwise indicated all events are from The People's Chronology contained on the MicroSoft CD ROM bookshelf 1994.

- 1869 – The first U.S. plow with a moldboard entirely of chilled steel is patented by James Oliver who has established the Oliver Chilled Plow Works.
- 1869 – Wall Street has its first “Black Friday” September 24, ruining small speculators. Financiers Jay Gould, James Fisk, and other freebooters including President Grant’s brother-in-law try to corner the gold market, driving the price up to \$162 per ounce by noon, and are on their way to destroying half the banks and businesses in New York when Secretary of the Treasury George Boutwell begins selling government gold, bringing the price down to \$133 inside 15 minutes.
- 1870 – Only two Americans in 100 of 17 years and older are high school graduates, a figure that will rise to 76 percent by 1970. Sixty-seven percent of children between 5 and 17 are students, a figure that will rise to 78 percent by 1920 and to 87 percent by 1975.
- 1874 – The U.S. public high school system wins support from the Supreme Court which rules against a citizen of Kalamazoo, Mich., who had brought suit to prevent collection of additional taxes. The court upholds the city’s right to establish a high school and to levy new taxes to support the school.
- 1874 – A meeting of the unemployed held in New York’s Tompkins Square January 13 to bring public attention to widespread poverty following last year’s Wall Street collapse brings a charge by mounted police: hundreds are injured.

- 1883 – An Owasco, N.Y., cannery installs the first successful pea-podder machine, replacing 600 employees.
- 1883 – The first fully automatic machine gun is invented by American-born English engineer Hiram Stevens Maxim, 43, whose Maxim/Vickers gun will be adopted in 1889 by the British army and thereafter by every other major army. Maxim's gun is an advance over the 1861 Gatling gun in that the recoil energy of each bullet is employed to eject the spent cartridge, insert the new round, and fire it.
- 1884 – Chinese farm workers account for half of California's agricultural labor force, up from 10 percent in 1870. The Chinese have raised dikes at the mouths of the San Joaquin and Sacramento Rivers and are reclaiming millions of acres of rich farm lands.
- 1884 – Congress establishes a Bureau of Labor in the Department of the Interior as severe coal strikes occur in Pennsylvania and Ohio.
- 1886 – The Haymarket Massacre at Chicago gives the U.S. labor movement its first martyrs and marks the beginnings of May Day as a worldwide revolutionary memorial day. Chicago police fire into a crowd of strikers May 1, killing four and wounding many others. The 17-year-old Knights of Labor organization holds a peaceful rally May 4 in Haymarket Square to protest the shooting, someone throws a small bomb that knocks down 60 policemen, killing one and mortally wounding six others, the police fire into the crowd, and the workers sustain three times as many casualties as the police.

- 1886 – Labor agitation for an 8-hour day and better working conditions makes this the peak year for strikes in 19th-century America. Some 610,000 U.S. workers go out on strike, and monetary losses exceed \$33.5 million.
- 1887 – The Hatch Act voted by Congress March 2 authorizes the establishment of agricultural experiment stations in all states having land-grant colleges.
- 1889 – Kansas and Nebraska farmers pay 18 to 24 percent interest rates on loans, with rates sometimes going as high as 40 percent. Local brokers and then local loan companies secure funds from eastern investors and take healthy cuts for themselves.
- 1890 – From 75 to 90 percent of all Kansas farms are mortgaged at interest rates averaging 9 percent. Banks have foreclosed on roughly one-third of all farm mortgages in the state in the past decade, as drought prevented farmers from producing enough to keep up interest payments on loans taken out to buy farm machinery and seed.
- 1890 – Railroad-related accidents kill 10,000 Americans and seriously injure 80,000.
- 1890 – A second Morrill act passed by Congress August 30 supplements the 1862 law, establishing experiment stations, extension services, and agricultural research programs to aid U.S. farmers.
- 1890 – Alfred Thayer Mahan publishes “The Influence of Sea Power Upon History, 1660–1783”

- 1891 – The papal encyclical *Rerum Novarum* issued May 15 by Leo XIII (Gioacchino Pecei) points out that employers have important moral duties as members of the possessing class and that one of society's first duties is to improve the position of the workers.
- 1892 – A wave of strikes for higher wages in the United States is touched off by higher prices that have resulted from last year's poor crops. New York's first Labor Day parade September 5 brings out 30,000 marchers.
- 1892 – "American workmen are subjected to peril of life and limb as great as a soldier in time of war," says President Harrison.
- 1893 – A survey of Brooklyn, N.Y., schools reveals that 18 classes have 90 to 100 students each, while one classroom is jammed with 158.
- 1893 – The Pullman Palace Car Co. reduces wages by one-fourth, obliging workers to labor for almost nothing while charging them full rents in company housing at Pullman, Ill., and charging inflated prices at company food store.
- 1893 – Kelly's Industrial Army marches on Washington, D.C., 1,500 strong to demand relief which is not forthcoming from Congress. Led by "General" Charles T. Kelly, the army of unemployed workers from California arrives for the most part via boxcar.
- 1894 – Pullman Palace Car workers strike May 1 to protest wage cuts, and a general strike of western rail-roads begins June 26 as Eugene V. Debs orders his railway workers to boycott Pullman. U.S. troops enter Chicago

in July to enforce federal laws in the Pullman strike. A federal grand jury indicts Debs for interfering with the mails and with interstate commerce.

- 1896 – William Jennings Bryan proclaims “You shall not press down upon the brow of labor this crown of thorns, you shall not crucify mankind upon a cross of gold,”
- 1897 – Hawaii annexed by the US.
- 1898 – The US battleship Maine blows up in Cuba. The Spanish American war fought and America gains control of Cuba, Guam, Puerto Rico and the Philippines. More U.S. troops in the Spanish-American War die from eating contaminated meat than from battle wounds. The deaths raise a public outcry for reform of the meat-packing industry.
- 1898 – John W. Gates becomes president of American Steel & Wire, which has a virtual monopoly in barbed wire. He has established his own barbed wire company at St. Louis and negotiated a series of mergers and consolidations.
- 1898 – National Biscuit Co. is formed by a consolidation of New York Biscuit, American Biscuit and Manufacturing, United States Baking, and United States Biscuit . Adolphus W. Green heads the new company, whose 114 bakeries comprise 90 percent of all major U.S. commercial bakeries.
- 1898 – Virden, Ill., coal mine operators attempt to break a strike by importing 200 nonunion black workers, an action that provokes violence: 14 miners are killed and 25 wounded in the October 12 Mt. Olive massacre that brings demands for a union.



- 1899 – The American Sugar Refining trust has almost a 100 percent monopoly in the U.S. industry.
- 1899 – E. I. du Pont de Nemours is incorporated in Delaware and now controls 90 percent of U.S. blasting powder production and 95 percent of U.S. gunpowder production.
- 1900 – Hills Bros. in San Francisco begins packing roast ground coffee in vacuum tins to begin a new era in coffee marketing. It is the beginning of the end for the coffee roasting shops common now in every town and the coffee mill seen in almost every U.S. kitchen.
- 1901 – The Industrial Commission hears a government witness testify that a steam sheller can shell a bushel of corn in 1.5 minutes versus 100 minutes for the same job done by hand and that a wheat combine can do in 4 minutes what it would take a man 160 minutes to reap, bind, and thresh by hand.
- 1901 – United States Steel Co. is created by J. P. Morgan, who underwrites a successful public offering of stock in the world's first \$1 billion corporation
- 1901 – American Can Co. is created by a merger of 175 U.S. can makers engineered by W. H. Moore and Indiana banker Daniel Reid. The Can Trust turns out 90 percent of U.S. tin-plated steel cans.
- 1902 – United States Steel Co. has two-thirds of U.S. steel-making capacity.

- 1902 – Smuggler-Union mine manager Arthur Collins is assassinated November 19 in his home at Telluride, Colo., following settlement of a violent strike against the mine by the Western Federation of Miners. Four hundred national guardsmen will go into Telluride next year to suppress the WFM.
- 1902 – United Mine Workers leader John Mitchell leads his 147,000 anthracite coal workers out of the pits May 12 to begin a 5-month strike that cripples the United States. Mine operators and railroad presidents have rejected an invitation from Mitchell to attend a conference, they continue to oppose unionization, and George F. Baker of Philadelphia and Reading Coal & Iron says July 17, “The rights and interests of the laboring man will be protected and cared for—not by the labor agitators, but by the Christian men to who God in His infinite wisdom has given the control of the property interests of this country. . .”
- 1903 – National Cash Register’s J. H. Patterson gives his executive Thomas John Watson, 29, a budget of \$1 million to start a company that will pose as a rival to NCR but will actually take control of the U.S. used cash-register business.
- 1903 – American Brass Co. is created by a merger of U.S. copper companies that include the Guggenheim family’s American Smelting and Refining, United Copper (controlled by Montana mine operator Frederick Augustus Heinze, 34), and Amalgamated Copper (controlled by Standard Oil’s H. H. Rogers and Anaconda’s Marcus Daly).

- 1903 – Private citizens with the connivance of the U. S. government engineer a revolution to seize control of the Isthmus of Panama from Columbia to construct the Panama Canal.
- 1905 – International workers of the World (IWW) founded.
- 1906 – E. I. du Pont de Nemours has bought up or otherwise absorbed the other members of the 34-year-old Gunpowder Trade Association (Powder Trust) and has a near-monopoly in the U.S. powder industry. It produces 100 percent of the privately-made smokeless powder and from 60 to 70 percent of five other kinds of explosives.
- 1906 – Corn Products Refining Co. is created by Standard Oil director E. T. Bedford whose “gluten trust” controls 90 percent of U.S. corn refining capacity. The company’s Karo syrup will soon be a household name.
- 1909 – U.S. Marines oust Nicaragua’s president.
- 1909 – Bakelite, developed by Belgian-American chemist Leo Hendrik Baekeland, 46, is the world’s first polymer.
- 1910 – Seventy percent of U.S. bread is baked at home, down from 80 percent in 1890.
- 1910 – The average U.S. workingman earns less than \$15 per week, working hours range from 54 to 60 hours, and there is wide irregularity of employment.
- 1912 – U.S. Marines land in Honduras in February, in Cuba 4 months later, and in Nicaragua in August to protect American interests.

- 1913 – A sensational report published February 28 by the House Committee on Banking and Currency, chaired by U.S. congressman Arsene P. Pujo (D-Louisiana), exposes the “money trust” that controls U.S. financial power.
- 1913 – The United States has 40 percent of world industrial production, up from 20 percent in 1860.
- 1913 – Sixteenth Amendment to the U. S. Constitution ratified permitting a national income tax, and the Federal Reserve Board established.
- 1913 – The average British worker still earns less than £1 per week (\$5 in U.S. currency) while American workers average more than \$2 per day.
- 1913 – The United Mine Workers strike Colorado Fuel and Iron to protest policies of the company controlled by Standard Oil’s John D. Rockefeller; two mines are set afire, 27 strikers are killed. The Ludlow massacre April 20 climaxes a struggle by Colorado coal miners struggling for recognition of their United Mine Workers union. A battle with state militia near Trinidad ends with 21 dead including two women and 11 children caught in tents that have been set ablaze, angry strikers take possession of the Colorado coal fields, and they do not yield until federal troops with artillery support move in June 1.
- 1914 – The Smith-Lever Act passed by Congress May 8 provides for agricultural extension services by USDA county agents working through the land-grant colleges established under the 1890 Morrill Act.

- 1914 – Threats of labor troubles in early January have led Henry Ford to offer workers a minimum wage of \$5 per day—more than twice the average U.S. wage and more than the average English worker earns in a week.
- 1915 – The Wealth and Income of the People of the United States by economist Wilford Isbell King points out the increasing concentration of income in the hands of the few, an indication of the need for a graduated income tax (see 1913). In 1910, King observed, the richest 1.6 percent of U.S. families received 19 percent of the national income, up from 10.8 percent in 1890. While the richest 2 percent of the population received 20.4 percent of the national income and averaged \$3,386 per capita in income, the poorest 65 percent received 38.6 percent and averaged \$197.
- 1916 – A San Francisco Preparedness Parade July 22 is disrupted by a bomb explosion that kills 9 and wounds 40. Labor leader Thomas J. Mooney, 34, is accused along with Warren K. Billings, 22, of having planted the bomb, both protest their innocence, Mooney is convicted and condemned to death, Billings is given life imprisonment.
- 1916 – Britain's refusal to permit U.S. imports of German knitting needles needed in U.S. mills has drawn a sharp protest from Washington in May, and Washington protests again when the London Official Gazette blacklists some 30 U.S. firms under the British Trading with the Enemy Act of July 18.

- 1916 – Ireland’s Easter rebellion beginning April 24 lasts a week but has little popular support. Former British consular official Roger Casement has had no success in raising a brigade of Irish war prisoners in Germany, a U-boat has landed him April 20 to support the Irish Republican Brotherhood led by Patrick Henry Pearse, but German aid fails to materialize. While 150,000 Irish volunteers fight for the king in Flanders, some 2,000 rebels rise at Dublin, police arrest the rebel leaders. People hiss them but they become martyrs when convicted of treason and hanged August 3.
- 1917 – Berlin notifies Washington January 31 that unrestricted submarine warfare will begin the next day, the United States severs relations with Germany February 3. The United States declares war on Germany April 6.
- 1917 – Smith-Hughes act enacted into law.

At least from the time that Charles Prosser was able to create the coalition of industry, farmers, unions, feminists and governmental agencies which resulted in the passage of the first federal vocational education act in 1917, one of the most fundamental and basic assumptions supporting VOTE was that *all* groups and *the nation as a whole* would benefit from its existence and operation, although probably not to the same extent at all times for everyone involved. *It appears that a fundamental, although tacit and implicit possibly subliminal, assumption among all these groups was that as the perceived “problems” were directly caused by a lack of (or incorrect) “education,” thus “education” with its multitude of nuances and meanings was to be the tool or mechanism by which their objectives was to be obtained.*

However as stated by Gregson<sup>5</sup>: “To gain greater insight it is helpful to recognize two opposing perspectives emerged in the late 1800s and have contributed to the current discourse. One view has been labeled as instrumental because it contends that the purpose of schooling is to increase social and economic efficiency . This view was espoused by two leading educators at the turn of the century, Snedden, then the Commissioner of Education for the Commonwealth of Massachusetts, and Charles Prosser, who later became Executive Director of the National Society for the Promotion of Industrial Education (NSPIE), became leading advocates of secondary vocational education as trade training . Impressed with the research and writings of Frederick W. Taylor<sup>6</sup>, Snedden adapted Taylor's theories on scientific management to schooling in an attempt to better meet the needs of industry.”

While the “Social Efficiency” model has largely fallen into disrepute with most current researchers, it is well to remember that in the last years of the Twentieth century the best predictors of both occupational choice and social/economic status for a student remain the occupation and status of the same gender parent. It is also well to remember that for many, if not most, people at the time Smith-Hughes was enacted, the choice was not between vocational and traditional academic education but rather between vocational education and no education at all. Charles Prosser, “Chief of Staff” for the National Society for the Promotion of Industrial Education [NSPIE] explicitly identified three basic

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<sup>5</sup> Paraphrased from “The school-to-work movement and youth apprenticeship in the U.S.: Educational reform and democratic renewal?” Journal of Industrial Teacher Education, 32(3), 7-29 Available: <http://borg.lib.vt.edu/ejournals/JITE/v32n3/Gregson.html>

<sup>6</sup> Taylor, Frederick Winslow (1856-1915) American inventor, engineer, and efficiency expert noted for his innovations in industrial engineering and management. While not intended as an *ad hominem* attack, it is well to remember that Taylor had no pedagogical experience and is known to have suffered from severe depression and had at least one nervous collapse.

economic sectors with an implicit fourth which VOTE, as defined in Smith-Hughes, was expected to positively impact. (Cuban 48) These were:

- Agriculture;
- Trade and Industry;
- Home Economics; and implicitly
- Government

The division of VOTE interest or stakeholder groups is more meaningful by the following *functional* categories rather than by specific economic sector. The reviewer is cautioned that it is now difficult to separate the goals, objectives and expectations which Charles Prosser used to promote and advance the coalition for Smith-Hughes from those goals, objectives and expectations that were pre-existing, nor can the priorities of these goals, objectives and expectations within the groups then existing now be determined. In view of the incidents and events listed above, and direct and explicit statements in the literature the “official” objectives, goals and expected outcomes of VOTE used by Charles Prosser to obtain the enactment of Smith-Hughes (1917) were:

- Government – Although this period was characterized by the almost universal espousing of laissez-faire economics and free-for-all “states rights” politics, “government” at all levels as an independent self-perpetuating entity and the politicians had considerable self-interest in the assumed and perceived effects of VOTE. In modern terminology these included:
  - National Defense considerations specifically armament production.



- Other National Defense material considerations such as food, communications, transportation, and clothing.
- Economic independence by domestic production rather than import.
- Increased domestic economic activity by domestic production.
- Increased revenue by broadening the tax base, rather than by increasing rates which is always unpopular.
- Increasing citizen support for (or at least acceptance of) existing economic and social order.
- Meeting the employers' needs for trained labor from domestic sources rather than through immigration both to avoid dilution of existing voting blocs and simple xenophobia.
- The Wage Payers or Employers –
  - Adequate or at least an increased supply of trained labor.
  - Increased profits by maximizing production and minimizing waste using existing plant and equipment because of improved employee qualifications and competence.
  - Increased profits through the introduction of new or improved technology and products made possible because of the availability of trained and educated employees.
  - A workforce that “understood” the realities of industrial life and would support (or at least accept) it, thus minimizing labor unrest, sabotage and work stoppages.

- A desire resulting from both self-interest and patriotism to have the American economy as independent as possible, and to produce goods better than, or at least as good as those produced anywhere. The intent was to minimize the need to import and maximize exports.
- Farmers, Ranchers (and other self employed entrepreneurs) –
  - Improved income and decreased work loads as a result of not only their improved knowledge, skills, and methods, but also the (increased) availability and lower costs of new and improved seeds, cattle breeds (products), machinery and equipment made possible by a better educated and trained urban workforce organized for mass production.
  - An implicit or tacit expectation seems to have existed that a better educated and trained urban workforce would spend part of their increased earnings on more and better food (and other goods) thus increasing domestic consumption and raising prices.
- The Wage Earners or Employees –
  - Improved incomes, improved working conditions, and decreased work loads as a result of their improved knowledge, skills, and methods (Working smarter not harder in the modern idiom).
  - Increased employment opportunities because of new industries made possible by the existence of adequately skilled and educated labor.

- Improved social and economic status by advancing from “unskilled” to “skilled” labor.
- Pride in making American products better than, or at least as good as, any produced in the world.
- Pride in (appropriate) participative citizenship by more effectively taking part in activities to improve their community by improving their communications and organizational skills and knowledge of the world.
- The House-Wife –
  - Maximize their contribution to their family unit by improving the quality and quantity of their output such as sewing, baking and canning, while minimizing out-of-pocket costs by improving their knowledge and skills.
  - Produce better citizens through increased knowledge of “correct” child rearing practices and providing the best possible home for their husband and children.
  - More effectively participate in activities to improve their community by improving their communications and organizational skills and knowledge of the world.

By no later than the early sixties, Home Economics had become obsolete because the amount of gain to the overall economy produced by unpaid or non-cash-income producing activities in the home such as canning, baking, and sewing of clothes had proportionally become very small. From a cultural perspective, it appears that the total

benefits from outside cash employment were now perceived by most people to far exceed the total benefits of productive but non-income producing domestic activities.

Agriculture, as discussed in greater detail in the short evaluation of Ag-Ed, has fragmented into two major subdivisions. “Classical” Agricultural Education [Ag-Ed] continues to assume that the individual will participate in this sector as a generally independent entrepreneur, with substantial control over their choice of products, means of production, hours and conditions of labor, et cetera. “Modern” Ag-Ed or agri-business is effectively a sub-division of “Trade and Industry” with food and fiber inputs rather than chemicals, oil and ores, in that the participants are generally paid (although possibly highly paid and technical) labor with little or no control over products produced, means of production, terms and conditions of employment, et cetera. Thus, the *current* basic or fundamental *economic* segments directly effected by VOTE as defined by the current study are:

- Trade and Industry, including service and agri-business (wage payers)
- Classical (cash crop production) Agriculture (self employed entrepreneurs)
- Government

The fourth economic segment with a very large *but not a primary stake* in VOTE are the VOTE teachers, administrators and organizations, collectively identified as VOTE practitioners. The rationale for this separate classification is that VOTE was never intended to provide employment for the individuals<sup>7</sup> in this category nor to establish and maintain organizations independent of the other three groups as a whole. Indeed, if

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<sup>7</sup> Because of considerable personal interest, a due and diligent search was made by this researcher, without result, for a federal, state or local “Vocational Teacher’s and Administrator’s Full Employment Act.”

VOTE as it is presently implemented were to abruptly vanish, the other three groups would continue to exist with some, but generally minimal, change, but if any of the three basic groups listed above were to be greatly reduced or eliminated, VOTE as it is presently defined and implemented would almost certainly disappear or be changed beyond recognition. To include VOTE teachers, administrators and organizations as a basic stake-holder group would be a classic example of “the tail wagging the dog.”

From a functional classification the *current* basic stakeholder categories, in no particular order, are:

- Trade and Industry, including service and agri-business (wage payers)
- Classical (cash production) Agriculture (and self employed entrepreneurs)
- Government as an independent and self-perpetuating entity
- Workers (wage earners)

While there are many objectives, goals and expected outcomes listed above which are not *overtly* economic, nearly all of these considerations are ultimately based on, or at least substantially affected by, “economics,” therefore the following United States economic data, as provided by the United States Bureau of Labor Statistics [BLS], Bureau of the Census[BC], National Agricultural Statistical Service [NASS], other governmental agencies, educational institutions and industry sources, will be combined and examined in detail in the following chapters using the above expectations and common economic assumptions<sup>8</sup> as criteria. Because this information is only minimally informative in isolation, only data titles/descriptions are included below. The actual charts and graphs will be found in Chapters IV (Findings), V (Discussion) and in the appendixes. In some

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<sup>8</sup> Such as the law of supply and demand

cases to preserve the continuity of thought/argument these are combined in a single section. In most cases, if the data in tabular format is sizable, it is located in the “Tabular Data” section in the Appendix.

- Median<sup>9</sup> individual income by educational attainment in current and constant value (CPI) dollars;
- Poverty rates of full time workers as a group and by gender;
- Median individual incomes in total and by gender in current and constant value (CPI) dollars;
- United States GINI coefficient of income distribution;
- Consumer Price Index [CPI] and Producer Price Index [PPI] series;
- Gross Domestic Product [GDP] annualized growth rate by state;
- State education attainment as fraction of population;
- State death rates from murder, accident, and total in occurrences per 100,000;
- Personal and small-business bankruptcies filed under chapter 13 by year
- Dow-Jones stock averages in current and constant value (CPI) dollars in linear and log-linear chart format;
- United States Treasury and AAA corporate yearly average bond yields;

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<sup>9</sup> Where possible median values are used in place of averages because the median minimizes the skewing affect of outlying data points, for example the effect of professional athlete and corporate CEO annual salaries on the “average” income. The median, like the average, is a measure of central tendency which indicates the value such that one-half of all readings are below and one-half of all readings are above it.

- Mid-Year Average [MYA] prices for corn, wheat, soybeans, swine and cattle in current and constant value (CPI) dollars in linear and log-linear chart format;
- Effective individual income tax rates by year;
- Number and types of bankruptcies filed in total and by state.

The commonly held assumption about a long continuing and current (1998) general shortage of qualified retail sales, skilled and technical employees is also investigated. On-line media sources which examine this “shortage” in detail from a local perspective include:

The American Prospect	<a href="http://epn.org/prospect/34/34lestnf/html">http://epn.org/prospect/34/34lestnf/html</a>
Boston City Journal	<a href="http://www.amcity.com/boston/012797/story1.html">www.amcity.com/boston/012797/story1.html</a>
Criner, Oscar H.	<a href="http://www.nbfront.org/html/FrontArticles/TechLaborShortage.html">www.nbfront.org/html/FrontArticles/TechLaborShortage.html</a>
Denver Business Journal	<a href="http://www.amcity.com/denver/stories/052697/story.html">www.amcity.com/denver/stories/052697/story.html</a>
Houston Business Journal	<a href="http://www.amcity.com/houston/stories/051198/story1.html">www.amcity.com/houston/stories/051198/story1.html</a>
Information Week	<a href="http://www.iweek.com/author/runtime7.htm">www.iweek.com/author/runtime7.htm</a>
N. Colorado Business Rpt.	<a href="http://www.ncbr.com/aug97/laborroundtable.htm">www.ncbr.com/aug97/laborroundtable.htm</a>
Wichita Business Journal	<a href="http://www.sfbt.com/wichita/stories/021698/stories1.html">www.sfbt.com/wichita/stories/021698/stories1.html</a>

Two frequently cited sources by researchers in the current socio-economic area are “The End of Work” by Jeremy Rifkin, and “When Work Disappears” by William Julius Wilson. Rifkin uses a macro-global perspective to examine changing economic conditions from the top down, while Wilson concentrates on the specialized niche of minority, predominantly black ghettos in urban America and thus examines changing the conditions from the bottom up. While differing in particulars, both authors agree on the major

affects. Wilson, by confining his research to the indicated niches tends to leave the impression that the ill affects of these changes are somehow limited to minority enclaves in major urban areas. This is not the case. All ethnic groups in all social settings from rural to highly urbanized are affected. Indeed, even those groups who have obtained a rising rather than a falling income from these changes appears to be adversely affected because of increases in crime, random violence, and vandalism which are resulting in increased costs for home security systems, auto alarms and limitations on freedom of movement.

Rifkin tersely states several key facts:

For the whole of the modern era, people's worth has been measured by the market value of their labor. Now that the commodity value of human labor is becoming increasingly tangential and irrelevant in an ever more automated world order, new ways of defining human worth and social relationships will need to be explored. [Rifkin xviii]

Business consultants like John C. Skerritt worry about the economic and social consequences of re-engineering, "We can see many, many ways that jobs can be destroyed," says Skerritt, "but we can't see where they will be created." Others, like John Scully, formerly of Apple computer, believe that the "reorganization of work" could be as massive and destabilizing as the advent of the Industrial Revolution. "This may be the biggest social issue of the next 20 years," says Scully. Hans Olaf Henkel, CEO of IBM Deutschland, warns, "There is a revolution underway." [Rifkin 7]

The fact is that while less than 1 percent of all U. S. Companies employ 500 or more workers, these big firms still employ more than 41 percent of all the workers in the private sector at the end of the last decade. [Rifkin 10]

A 1993 study by the Department of Labor found that less than 20 percent of those who were retrained under federal programs for dislocated workers were able to find new jobs paying at least 80 percent of their former salary. [Rifkin 26]

In our highly industrialized urban culture, most people would probably be surprised to learn that the food and fiber industry is the single largest industry in the United States. More than 20 percent of the GNP and 22



percent of the workforce is dependent on crops grown on America's agricultural lands and animals raised on feedlots and in factory farms. [Rifkin 110]

Government figures on employment are often misleading, masking the true dimensions of the unfolding job crisis. For example, in August 1993 the federal government announced that nearly 1,230,000 jobs had been created in the United States in the first half of 1992. What they failed to say was that 728,000 of them -- nearly 60 percent -- were part-time, for the most part in the low-wage service industries. [Rifkin 167]

The partial transfer of personal loyalties and commitments away from the market and the public sector and to the informal, social economy foreshadows fundamental changes in institutional alignments and a new social compact as different from the one governing the market era as it, in turn, is different from the feudal arrangement of the medieval era that preceded it. [Rifkin 217]

Wilson makes the following penetrating observations:

The problems reported by the residents of poor Chicago neighborhoods are not a consequence of poverty alone. Something far more devastating has happened that can only be attributed to the emergence of concentrated and persistent joblessness and its crippling effects on neighborhoods, families, and individuals. [Wilson 16-17]

The black-white differential in the proportion of males involved in serious violent crime, although almost even at age 11, increases to 3:2 over the remaining years of adolescence, and reaches a differential of nearly 4:1 during the late twenties. However, when Elliott compared only employed black and white males, he found no significant differences in violent behavior patterns among the two groups by age 21. Employed black males like white males, experienced a precipitous decline in serious violent behavior following their adolescent period. Accordingly, a major reason for the racial gap in violent behavior after adolescence is joblessness; a large proportion of jobless black males do not assume adult roles and responsibilities, and their serious violent behavior is therefore more likely to extend into adulthood. [Wilson 22]

One of the earliest studies to examine the effects of persistent unemployment was conducted over fifty years ago by Marie Johoda, Paul F. Lazarsfeld, and Hans Seisel in Mareinthal, a small industrial community in Austria "at the time of a depression that was much worse than anything the United States went through." . . . "One of the main theses of the Mareinthal study was that prolonged unemployment leads to a state of

apathy in which the victims do no utilize any longer even the few opportunities left to them.” . . . Cut off from their work and deprived of contact with the outside world, the workers of Marienthal have lost the material and moral incentives to make use of their time. Now that they are no longer under any pressure, they undertake nothing new and drift gradually out of an ordered existence into one that is undisciplined and empty. Looking back over any period of this free time, they are unable to recall anything worth mentioning. [Wilson 73-74]

## CHAPTER III

### METHODOLOGY

#### Introduction

This section defines descriptive analysis, justifies the use of descriptive analysis, and explains how the more qualitative (subjective) data (the goals, objectives and expectations of VOTE by the stakeholder groups) and the more quantitative (objective) data (economic and demographic) were combined to evaluate recent and current VOTE efficacy and to project trends to forecast VOTE viability.

#### Descriptive Analysis

Emory [12-13] states:

At the most elementary level, an inquiry may be made only to report some data, perhaps statistics . . . The next level of investigation is description. A descriptive study tries to discover answers to the questions of who, what, where, and sometimes how. At this level, the researcher attempts to describe or define a subject, often by creating a profile of a group or problems, people, or events. Such studies may be a single variable frequency distribution, or they may involve bivariate or multivariate relationships. They may or may not have the potential for drawing powerful inferences. They do not answer the question “why.” The descriptive study is popular in business research because of its versatility across disciplines.

Emory adds: [19]

Researchers also have obligations. They are expected to develop a creative

research design that will provide answers to important business questions. Not only should researchers provide data analyzed in terms of the problem specified, but they should also point out the implications that flow from the results. In the process, conflict may arise between what the decision maker wants and what the researcher can provide. The decision maker wants certainty and simple, explicit recommendations, while the researcher often can offer only probabilities and hedged interpretations.

He also insightfully notes: [19]

The researcher will inevitably have to consider the political situations that develop in any organization. Members strive to maintain their niches and may seek ascendancy over their colleagues. Coalitions tend to form, and people engage in various self-serving activities, both overt, and covert. As a result, research is blocked or the findings of objectives of the researcher are distorted for an individual's self-serving purposes.

Using Emory's suggested categories:

1. Who - The basic and primary stakeholder groups of Vocational, Technical and Occupational Education [VOTE] in United States, specifically the wage payers (business), the wage earners (workers), the nation at large as government, and self-employed entrepreneurs, primarily farmers and ranchers.
2. What - How well VOTE appears to be meeting their implicit and overt expectations and goals.
3. Where/When - In the United States after the Second World War (1945), and especially after the end of the Vietnam conflict (1973).
4. How - By comparison of actual results described by governmental and other reliable data with the stakeholder's implicit and overt goals.
5. As indicated, "why" will not be answered. Some intermediate mechanisms are posited (such as special or idiosyncratic word usage), and a plausible

conceptual framework (the accretion model of economic evolution) proposed, but a final or ultimate “why” is not attempted.

### Data and Information Analysis

The procedure was to use the explicit and attributed objectives, goals and expected outcomes of the stakeholder groups, [largely qualitative data] combined with the known “laws” of economics and extant historical (economic) data [largely quantitative data] to probe and analyze the past, current and as far as possible future validity.

The goals, objectives and expectations of VOTE by the various stakeholder groups, while subjective and in some cases implicit and attributed, can in many cases generate testable hypotheses for which objective or positivistic data exist. For example, one of the most basic “assumptions” for an employee or wage earner about VOTE is that the following chain of reasoning is valid:

1. I want to earn more money.
2. VOTE is one way to accomplish this.
3. I have participated in VOTE.
4. *Therefore, I will earn more money.*

The existing governmental economic data allows testing and validation of the conclusion in item 4. A conclusion not in conformance with known facts or conditions indicates either an incorrect (application of) logical inference or, one or more incorrect starting assumption(s).

The reviewer is cautioned that it is entirely possible to begin with incorrect assumptions, apply valid logical/mathematical operations and still obtain “correct” results

or conclusions, therefore correct results do not “prove” the validity or correctness of the initial assumptions or starting “facts.” An example may help to make this more clear.

1. Assume that  $1 = 2$ .
2. It is logically and mathematically correct that if  $a = b$  then  $b = a$ .
3. It is also logically and mathematically correct that if equals are added, the sum is also equal. That is, if  $a = a$  and  $b = b$ , then  $(a + b) = (a + b)$  is a “true” or valid statement.
4. Performing the indicated operation of  $(1 = 2) + (2 = 1)$  the results are  $[(1 + 2) = (2 + 1)]$  or  $3 = 3$  which is a “true” statement, but one which does not prove that  $1 = 2$ .

## CHAPTER IV

### FINDINGS AND RESULTS

#### Introduction

Most of the currently accepted economic shibboleths about VOTE, and education in general, no longer appear to be *generally* operational. While these maxims, rules-of-thumb, slogans, and catch phrases well served the United States and its VOTE stakeholder groups for many years during the time of the expansion of heavy industry, mass production and independent family agriculture (c. 1880-1970), these now appear to be valid only under very specific circumstances and/or with significant qualifications, exceptions and limitations. These should no longer be used indiscriminately as general guides for policy making, student advisement, economic development, or as economic justification for significant personal investments of time or money. The reviewer is specifically cautioned that while this data indicates that what “Everyone Knows” and “They Say” about education and VOTE is no longer *generally* valid, these assumptions are projected to become *increasingly dysfunctional and counter-productive* over the next five to ten years.

## Subjective Quantitative Data

Several data sets which are extensively used in the following analysis are in large part qualitative, even though they are presented in numerical format and appear totally quantitative. The collectors and collators of the data have made every effort to avoid and remove any qualitative components, but factually cannot do so. The Consumer Price Index [CPI] series and Poverty Level series are perhaps the two most subject to this, and the factual basis and validity of much widely accepted governmental data, especially the Consumer Price Index [CPI], much of the Produce Price Index<sup>1</sup> [PPI] series, and the Poverty Level Income [PLI] issued by the BLS, are disputed by some of the more conservative but recognized economists and socio-political organizations<sup>2</sup>. However a more subtle and basic problem exists in that a determination of the [human] meaning and significance must be made of even the most quantitative data. It is not enough to “prove” that the Humperdink<sup>3</sup> Coefficient has increased at an annualized rate of 7.2% for the last seventeen years. The researcher and reviewers must both understand what the Humperdink Coefficient portends to measure and what the significance of a 7.2% annual increase, in the past, current and likely future contexts is, and to whom, *if this study is to be more than an exercise in mathematics.*

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<sup>1</sup> There is also a comparable index maintained for producers. This is the Producer Price Index or PPI. It is interesting to note that over time it appears that one unit of money has developed different values for producers and consumers.

<sup>2</sup> For example the Cato Institute [available: <http://www.cato.org/>]

<sup>3</sup> To the knowledge of this researcher there is no “Humperdink Coefficient.” This name was chosen to represent the multitude of coefficients and indici that are in current use.



## Consumer Price Index

The CPI or Consumer Price Index is an attempt to create a way to meaningfully compare costs and prices between and across different periods of time, or to state it differently, a way to measure the “value” of money<sup>4</sup>. It is obvious to most people that the apparent or perceived value of money continually decreases in that the prices for the “same” goods seem to continually increase, albeit at different rates at different times for different items.

To attempt to measure or quantify this change The Bureau of Labor Statistics created a standard “market-basket” of typical consumer goods and services such as a loaf of bread, a gallon of milk, a pound of hamburger, a gallon of gasoline, a car, rent on a typical apartment, mortgage rates and points, a sofa, a washing machine, insurance, haircuts, and so on. The BLS then has shoppers price these items every month in a large number of locations across the United States. Through a complex mathematical process, the proportionally weighted prices of the items in the standard “market-basket” are then combined and a “total” calculated. This total is compared to last month’s total, and under the assumption that the actual or real value of the goods and services are the same, the change in the value of the money is calculated. A complication is the variation in seasonal demand. For example, the cost of sun tan oil and jumper cables is different in July and January. This requires a seasonally adjusted market-basket.

As complex and subjective as this process is, for example what products/services to include and what weighting factors to use, structural changes in the economy and

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<sup>4</sup> This is a wonderful post-modern problematic or de-construct, which is asking in effect, if money is a measure and store of value, then “what is the value of value?”

culture introduce additional complications which *increase with time*. For example, the introduction of new products (VCRs, Personal Computers, Saranwrap), disappearance of old products (typewriters, LP records, eight track tapes), changes in retail channels (Walmart), the introduction of private or generic products in competition with name brand products, and changes in consumer demand/taste.

Nevertheless, it is obvious that long-term economic analysis requires that the current value of money be restated in constant value dollars if meaningful inquiry is to be done. As the CPI is the most widely recognized data set, even with the above limitations, it was used when conversion to constant value dollars was indicated. Where this was done, the current dollar (not corrected for inflation) data, if available, was also included and charted.

### Poverty Level Incomes

If possible, the determination of Poverty Level Incomes, or PLIs is even more subjective (and contentious) than the CPI. Some of the more conservative writers contend that unless a person is starving and naked in the street, they are not poor. To others, a person that is unable to sustain a suburban middle-class life-style including a new “soccer-mom” mini-van or SUV is “poor.” Because of United States Income-Tax laws and withholding, the reported cash income of all full time wage earners is available. This can be combined with income tax return information such as the number of dependents, to accurately calculate the distribution of incomes for individuals and family units. To this point, this is primarily quantitative data with little subjective input, although even here there is some controversy. Some writers claim that the non-reportable income value of

activities such as the production of food in home gardens and medical care obtained at “free” clinics should be included in their “adjusted” gross incomes when calculating poverty statistics. The grossly subjective element is the determination of the income cutoff point for “poverty.” The minimum acceptable levels of food, shelter, clothing, medical care, and so forth have been (subjectively) determined by investigators with input from several groups and organizations. For example, how much and what types of food and clothing does a person require. The money necessary to purchase the goods and services required to meet this minimum is calculated for individuals and families, and this determines the “official” poverty level income or when combined with area/state income data, the area/state poverty rate. One complication is that these costs are very different for separate areas of the country. For example the cost of “adequate” heating and clothing in rural Mississippi or Louisiana is considerably lower than for up-state New York or Minnesota urban areas. Again, from a pragmatic perspective, roughly equal numbers of investigators and organizations are claiming that the poverty levels/rates are too high and too low. The exact poverty numbers are not particularly important for this study. What is significant is that the governmental definition of a severely Spartan lifestyle<sup>5</sup> as “poverty” has remained reasonably constant (through 1996 when the criteria were revised), and thus provides a useful benchmark, independent of the CPI, for determining changes in economic status/level of the population. A time-line table of the more notable political and economic events from the end of World War Two through 1996 is included at the end of this chapter to assist the reviewer.

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<sup>5</sup> At least from the average middle class perspective.

## Some Common but Incorrect Assumptions

### “Everybody knows” and “They Say” There is

#### A Labor Shortage

This is possibly the core or heart of this entire study. It appears to be taken as a article of faith by most VOTE practitioners and most members of the VOTE stakeholder groups that a long-standing shortage of competent and qualified employees has existed, exists, and will continue to exist, in the United States. When combined with the basic tenant of free market economics, the law of supply-and-demand, this produces a readily testable hypothesis. Specifically, in a general construction or logical syllogism:

1. The law of supply-and-demand states in a free market that if a shortage of a commodity or service exists, the price for that service or commodity will rise.
2. There has been, is, and will be a shortage of labor.
3. *Therefore the cost of labor (wages) has, is, and will be increasing.*

There are three substantially independent data sets which will allow the validity of this syllogism to be tested. These are:

1. Median employee income in constant value dollars. If there is indeed a labor shortage, the income levels should rise.
2. Percentage of full-time employees at or below poverty level income. If there is indeed a labor shortage, the fraction of people below the poverty line should decrease because of increased wages.

3. Unemployment rates. If there is indeed a shortage of employees, the long-term unemployment trend should be down.

And the Facts Are

1. From the median employee income in *constant value (1996) dollars* data as presented in the following Chart MEDEARN.XLS (source: US Bureau of Labor Statistics)
  - 1.1. The *maximum male median income was \$37,184 in 1973*. From the trend-line, the peak value was in 1980 at about \$36,000. The trend line is steeply down.
  - 1.2. The *maximum female median income was \$23,795 in 1990*. From the trend-line the peak value was about \$23,000 in 1992. The trend line is flat.
  - 1.3. The much touted reduction in gender wage disparity appears to be due almost entirely to reduction of male income rather than any increase in female income, which is projected to be essentially flat to 2010 at about \$22,500.
  - 1.4. In approximately 2004, male and female median incomes will be equal at about \$23,000, with male median income falling below the female income after this date. Social and cultural problems likely to result from this are discussed in the appendix in the section titled “Changing gender roles in the American Workplace.”

- 1.5. A very serious anomaly or singularity in the projected male median income is indicated after 2000 because of an increasingly rapid loss of income beyond this point. If the trend lines are followed, the median male income will be below current individual poverty levels in about 2012 and the median male income is projected to fall to zero in about 2020. This is highly unlikely, but does indicate highly unstable and turbulent conditions should be expected. This is discussed in greater detail in Chapter V.
2. From the percentage of full-time employees (1973-1996) at or below poverty level income data as presented in the following Chart 1  
POVWAGES.XLS source: US Bureau of Labor Statistics
  - 2.1. The minimum fraction of full time employees with incomes at or below the poverty level was in 1973 at 13.7%. The maximum fraction of full time employees with incomes at or below the poverty level was in 1995 at 31.6%.
  - 2.2. There is a *consistent increase in the fraction of full time employees with incomes at or below the poverty level* of about 0.25% per year over this period.
  - 2.3. The number of full time employees with incomes at or below the poverty level are projected to increase from about 1 in 4 in 1975 to about 1 in 3 in 2004.
  - 2.4. A somewhat arbitrary division was made by setting 75% of the federal poverty guide-lines as a criteria for significant poverty.

Further examination of this data as detailed on Chart 2 and 3 POVWAGES.XLS indicates that the fraction of full-time employees (female and male, respectively) with incomes *significantly below* the federal poverty guide lines has been increasing with time. *That is in addition to having an increasing fraction of poor that are working full-time, the poor are getting even poorer.* Using this criteria, as indicated in Chart 4 POVWAGES.XLS the lowest fraction of *full time* employees with incomes below 75% of the federal poverty guide lines as a fraction of all full time employees with incomes at or below the poverty level was in 1979 with 18.4%. The highest fraction was in 1992 with 49.8%. The trend line is not favorable in that the fraction at or below 75% of poverty income is increasing at a rate of about 0.22% per year. This data appears to indicate that VOTE efforts specifically targeted at the poorest poor such as displaced homemakers and minorities under a series of Federal programs such as Comprehensive Employment and Training Act [CETA], the Job Training and Partnership Act [JTPA], Worker Adjustment and Retaining Notification [WARN], Business Economic Support Act [BESA], Economic Dislocation and Worker Assistance Act [EDWAA], and Clean Air Employment Transition Assistance [CAETA] *have not been effective.* Of course, the argument can be

1960-1995 Male and Female Median income in CV(1996CPI)\$  
 with 2nd. degree LSBF trend lines 1996-2020 values extrapolated

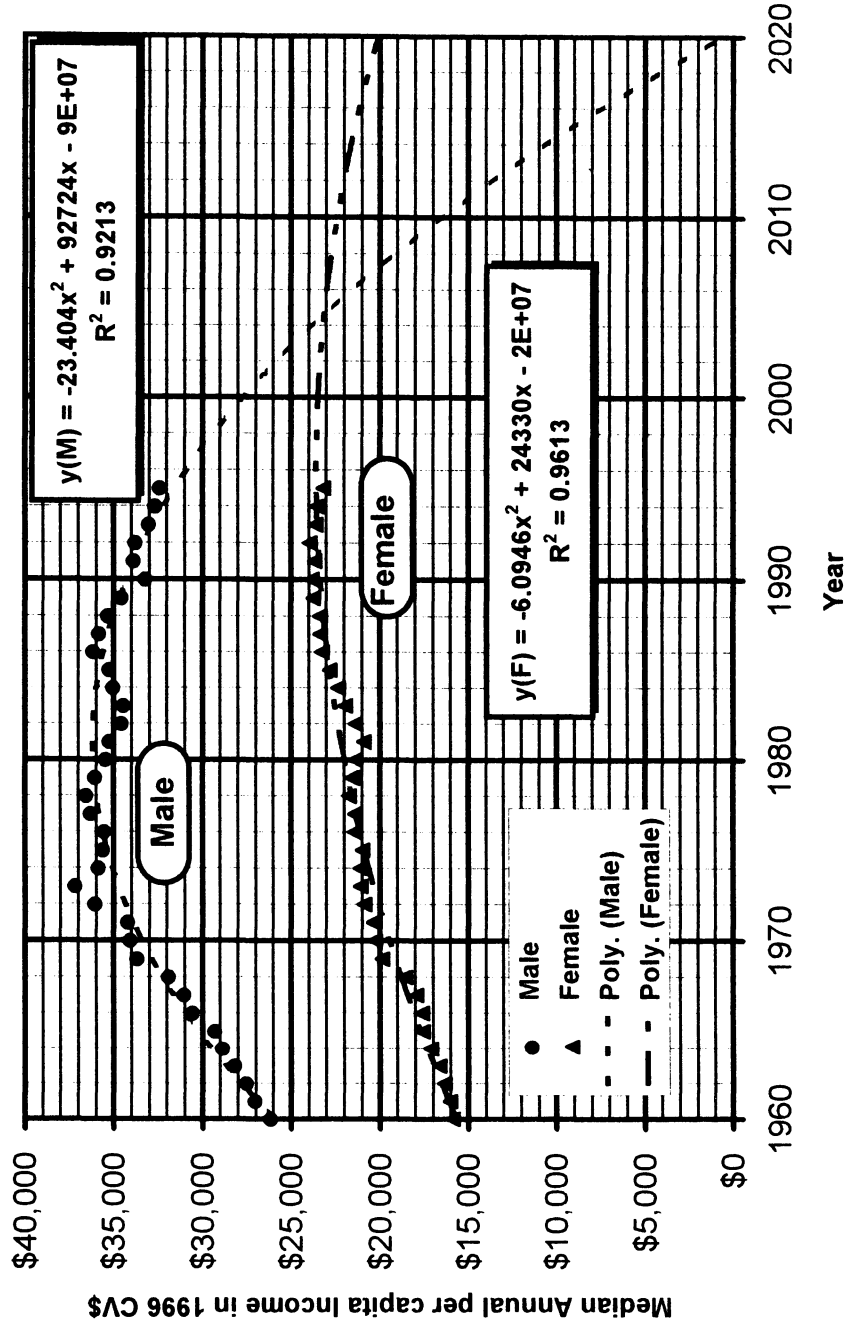
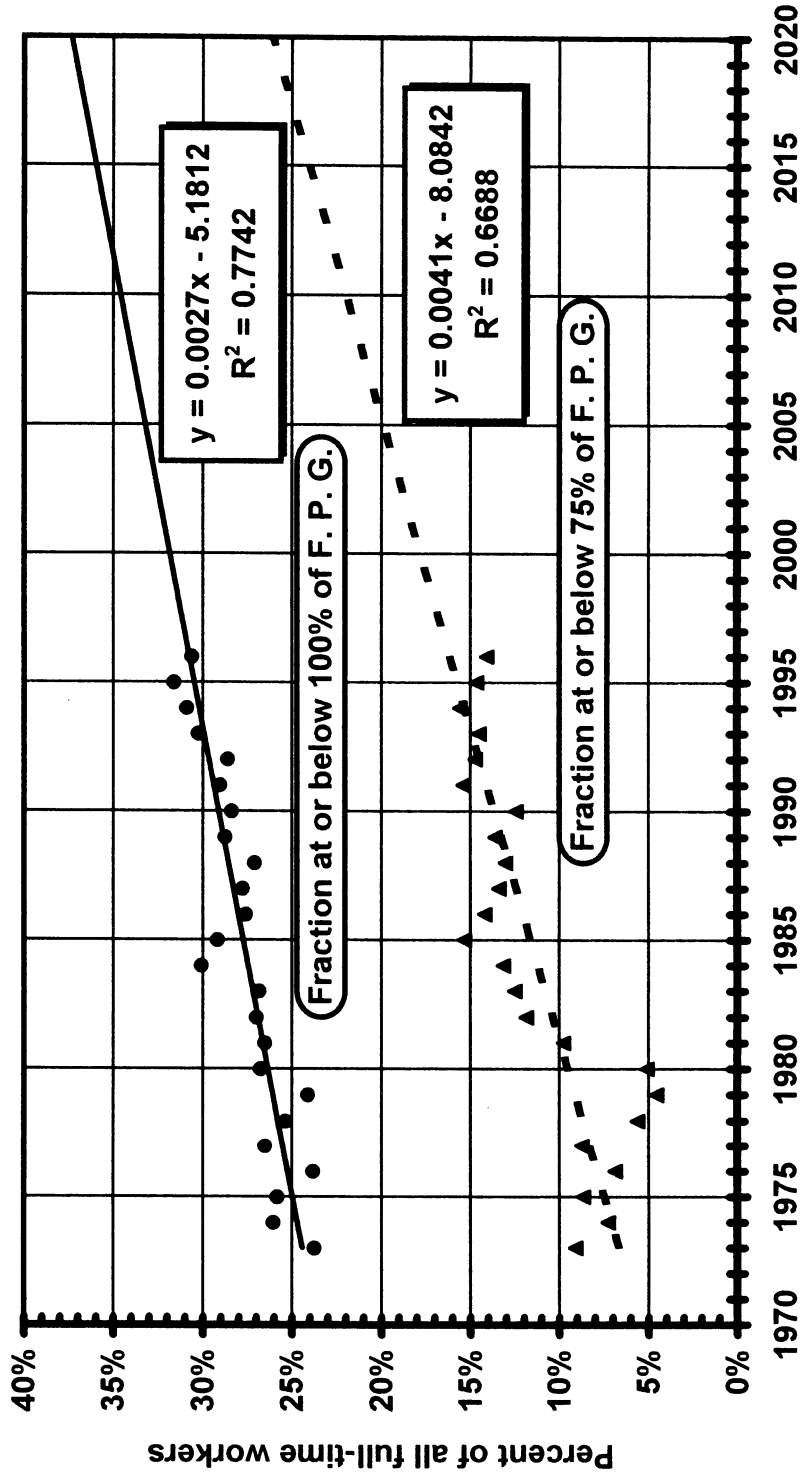


Chart 1 - MEDEARN.XLS



Percent of all U. S. full-time workers at or below Federal Poverty Guidelines



Year

Chart 1 - POWWAGES.XLS

Percent of U. S. Female full-time workers below Federal Poverty Guidelines

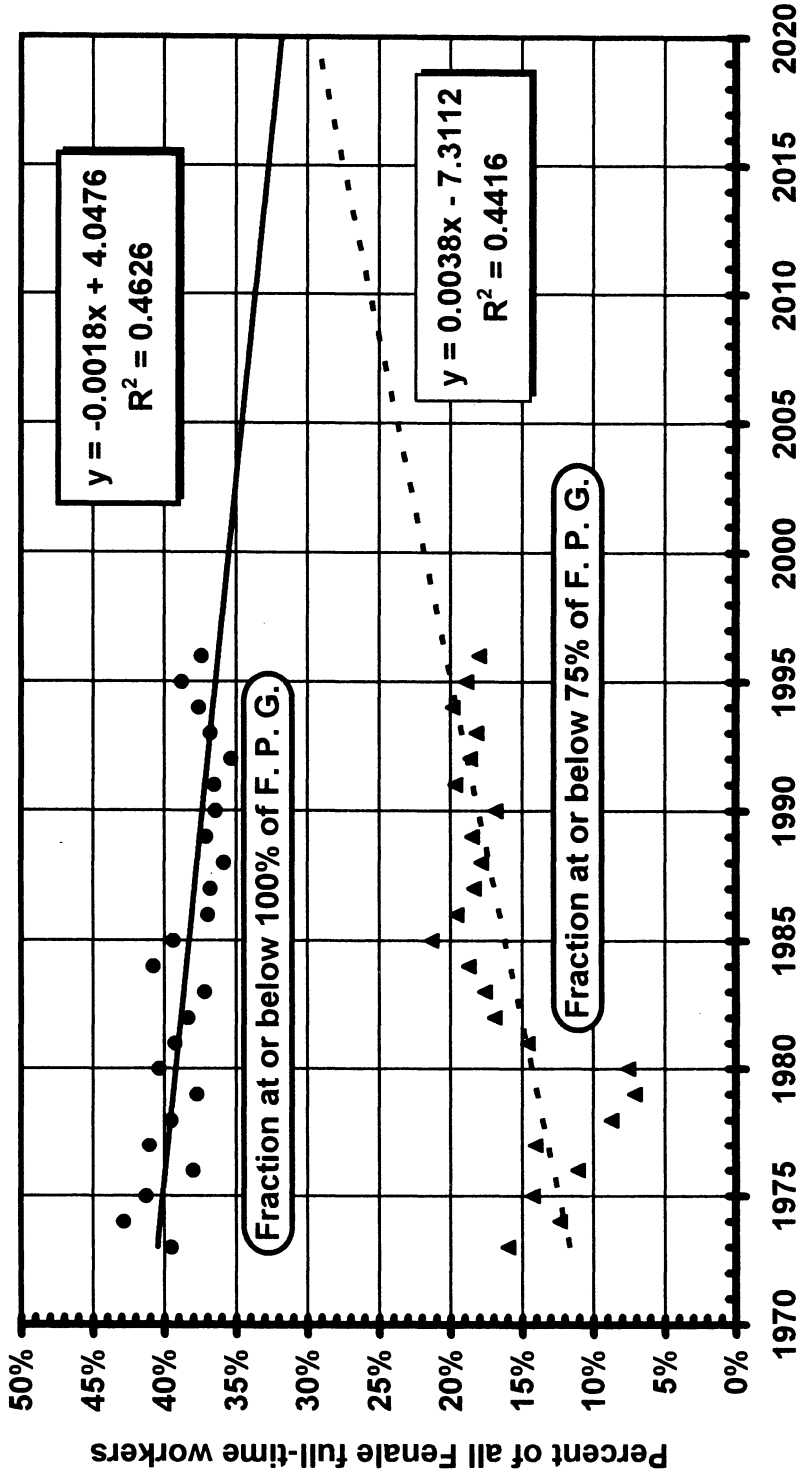


Chart 2 - POVWAGES.XLS

### Percent of U. S. Male full-time workers at or below Federal Poverty Guidelines

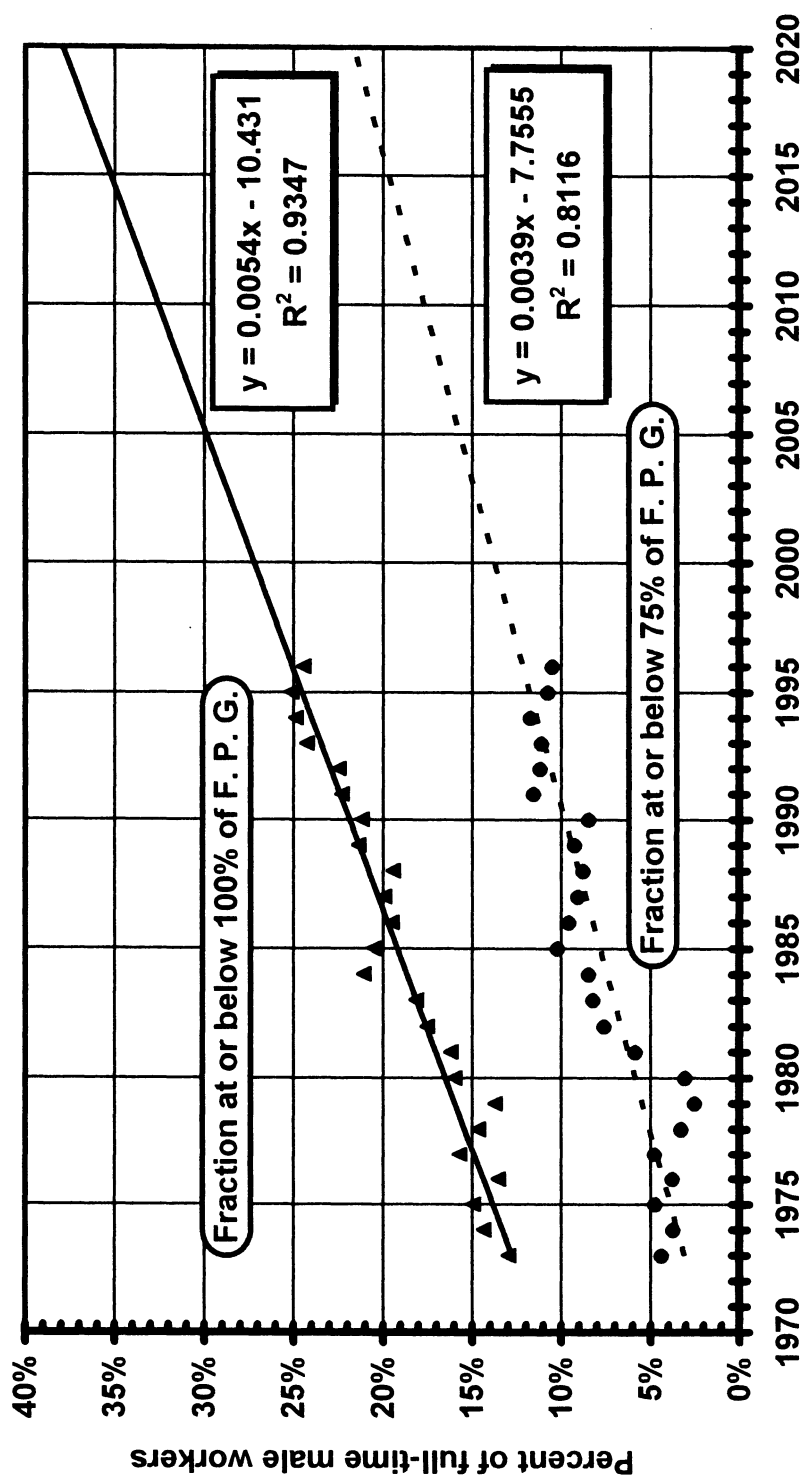


Chart 3 - POVWAGES.XLS

Full-time employees with incomes at or below 75% of federal poverty guide lines as fraction of total full-time employees with below poverty level incomes

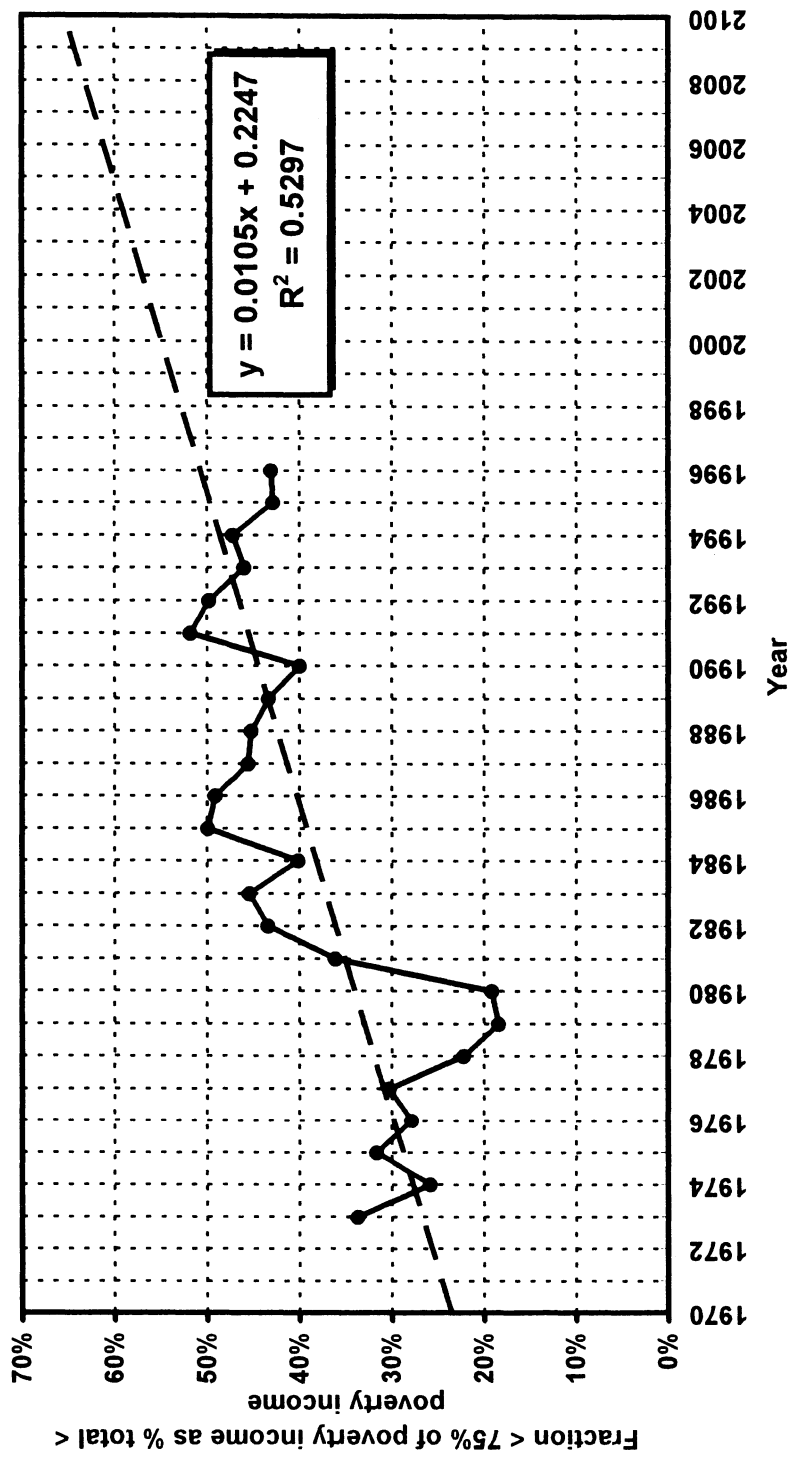


Chart 4 - POVVAGES.XLS

made that even though “poverty” has increased things would have been even worse without these programs.

2.5. Thus not only is the fraction of full-time workers earning less than poverty wages increasing, the fraction of full-time workers earning significantly less than poverty wages (defined as 75% of federal guide lines) is even more rapidly increasing.

2.6. The recent “improvements” in poverty rates do not appear to be the result of any basic or structural economic changes but rather are due to changes in the definition (1996) of poverty.

3. From the unemployment (1948-1994) rate data as presented in Chart 1  
UNEMP.XLS Source: US Bureau of Labor Statistics

3.1. First a caveat for the reviewer. While the best available, this data is *not* consistent across the time period indicated. The “revisions” to the method and definitions used to calculate this rate uniformly tended to *reduce* the reported rate, and as the data indicates the trend is up, not down, *the only effect of these modifications is to understate the rate of increase*. In about<sup>6</sup> 1980, personnel in the armed forces were included for the first time in the number of individuals considered to be gainfully employed full time. In about 1983, civilian prisoners who were employed (most of which are paid at the rate of 10 to 25 *cents* per hour) were also counted as

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<sup>6</sup> Because of the difference between calendar year and fiscal year and the phasing in of the revisions, the exact date of implementation is difficult to pinpoint.

being gainfully employed full-time. This despite the fact that prisoners are excluded from the total of adults who are looking for work. As far as is known to this researcher, none of the other OECD<sup>7</sup> countries count individuals in these categories as being “full-time gainfully employed,” therefore *unemployment data from other industrialized countries is not directly comparable*. Because the United States has a significant fraction of its adult population of working age in either the armed forces<sup>8</sup> (c. 1,500,000) or in prison<sup>9</sup> (c. 1,200,000) this results in an artificially lower unemployment rate relative to other industrialized [OECD] countries.

Additionally, the definition of “adults who are *actively* looking for work” has been regularly revised with the effect that this quantity is minimized, compared to the relatively stable OECD definitions.

Operationally, the current US definition is that if an individual has exhausted their unemployment benefits and is still unemployed, they are not “actively” looking for work and thus are not counted in the unemployment statistics.

- 3.2. The unemployment rate is markedly cyclic. The lowest recorded unemployment rate since WW II was 2.9% in 1953. The highest rate was 9.7% in 1982. Thus, the current unemployment rate of

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<sup>7</sup> Organization for Economic Cooperation and Development. Major European industrial countries, America, and Japan are members.

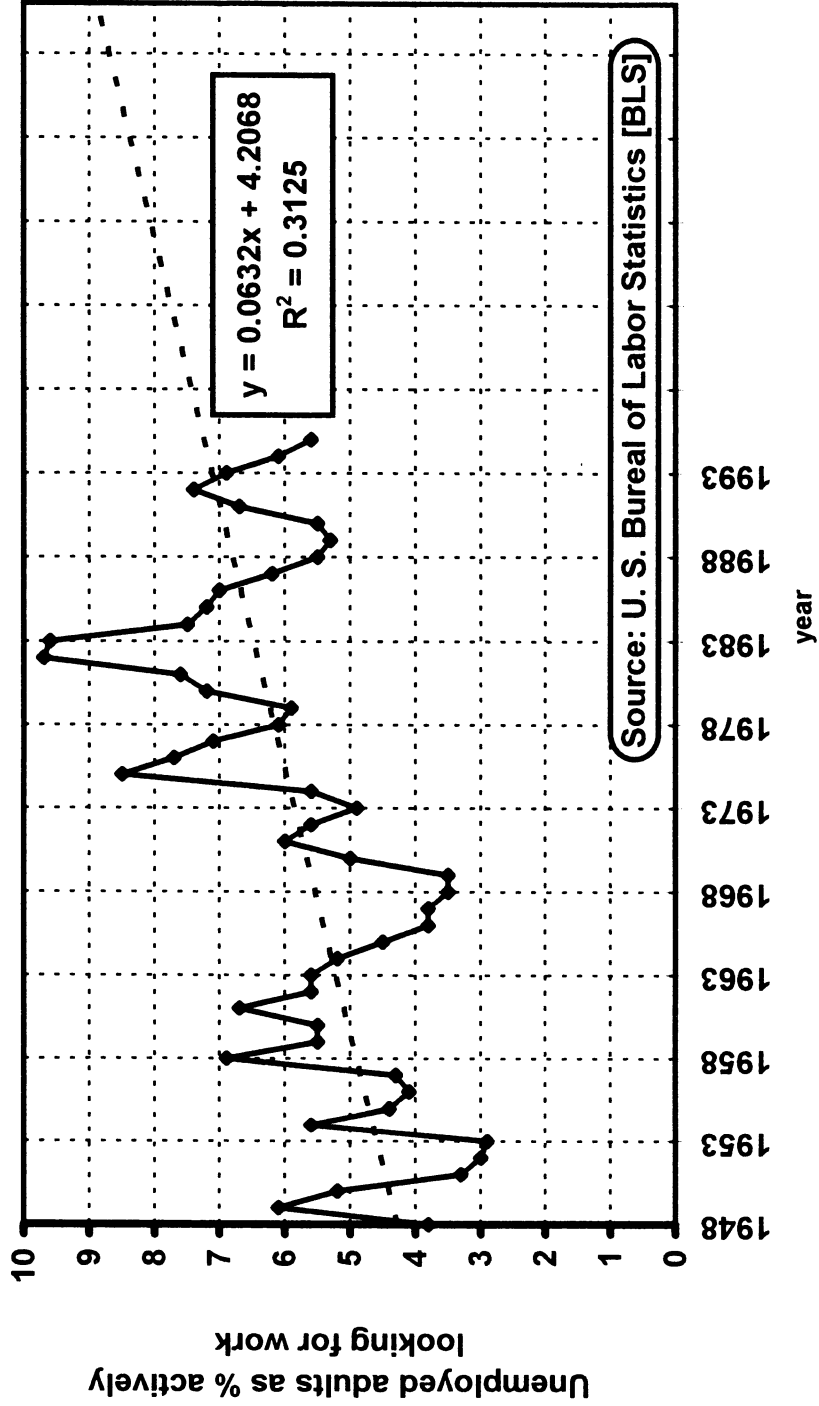
<sup>8</sup> The World Almanac and Book of Facts 1999 p207

<sup>9</sup> The World Almanac and Book of Facts 1999 p 891

about 4.5% is not unusual or exceptional. Two observations from Chart1 UNEMP.XLS:

- 3.3. The trend line indicates a continuing increase with the cyclic changes imposed over it. The base increase is about 0.06% per year from a starting point of about 4.25% in 1945. Significant dips below this line appear to coincide with periods of high military activity such as the Korean War, The Vietnam War, and Reagan Military build-up.
- 3.4. The “swings” or variation in employment between the high and low points of successive major cycles appears to be increasing, although these data covers only a few cycles.
- 3.5. The time between the high and low points appears to be decreasing, that is the rate of change is becoming faster, although these data covers only a few cycles.
- 3.6. In summary, *the unemployment rate is going up, not down*, the magnitude of change between the high and low points of successive major cycles are increasing, and the duration of major cycles has decreased indicating more rapid rates of change or greater instability.

Official U. S. unemployment rate in per cent  
1948-1995 with projection to 2020 added



Source: U. S. Bureau of Labor Statistics [BLS]

Chart 1 - UNEMP.XLS



“Everybody Knows,” and “They Say” – While there might not be a general shortage of labor there was, is and always will be *a shortage of skilled employees with post-secondary training and college degrees.*

It appears to be an even more firmly held article of faith by most VOTE practitioners and most members of the VOTE stakeholder groups that a long-standing shortage of competent and qualified employees as defined as those *with post-secondary training and college degrees* has existed, exists, and will continue to exist, in the United States. *The earnings of employees with post-secondary training/education is of particular interest as this includes the majority of current VOTE participants.* Again, when combined with the basic tenant of free market economics, the law of supply-and-demand, this produces a readily testable hypothesis. Specifically, in a general construction or syllogism:

The basic law of supply-and-demand states in a free market if:

1. A shortage of a commodity or service exists, the price for that service or commodity will rise;
2. A surplus of a commodity or service exists, the price for that service or commodity will fall; and
3. When supply and demand is in balance, the price for that commodity or service will be stable.
4. The claim is there has been, is, and will be a shortage of “good” employees, that is employees with post-secondary training and college degrees.

5. Resulting in the following conclusion: the cost of labor (wages) for employees with these qualifications has, is, and will be increasing.

Another governmental data set is available to test the validity of this syllogism and highly popular assertion. The Bureau of Labor Statistics has collected and issued median earnings by educational attainment for the period 1973 through 1996 although this is in current dollars. Combining this data set with the Bureau of Labor Statistics CPI data generates the same data set in constant value (1996 CPI) dollars. This data is contained in Chart 1 EDWAGES.XLS.

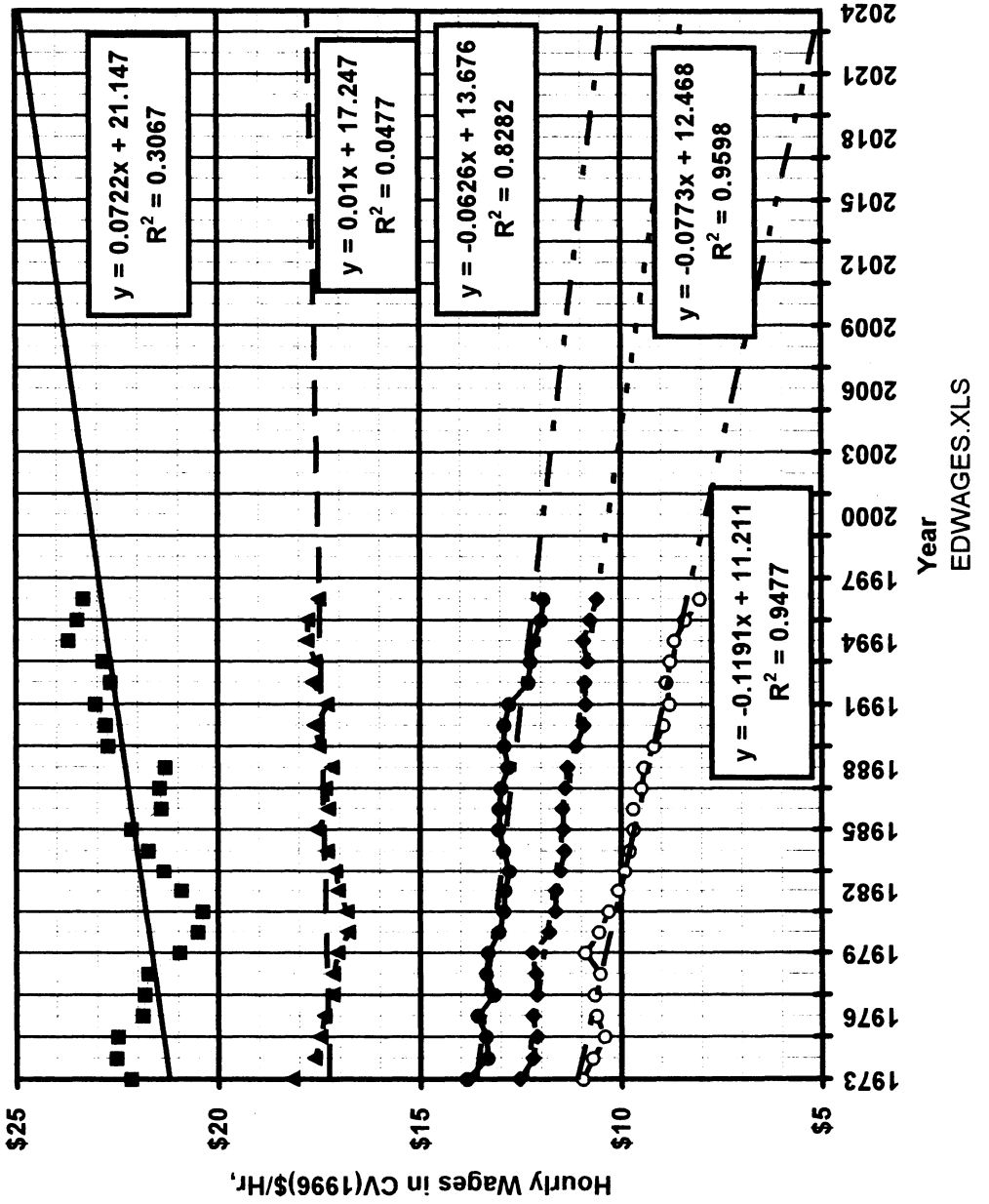
And the Facts Are – Examination of Chart 1 EDWAGES.XLS indicate the following points:

1. The only group with a trend-line with *a positive slope indicating an actual shortage and thus increasing wages* for this 24 year period are persons with post-baccalaureate degrees. A caveat is that this apparent increase may not be due to increased wages per hour but rather additional work time at the same rate or income from non-employment sources such as investments and stock options.
2. The flat trend line for persons with baccalaureate degrees indicates that *the supply of such employees is in balance with the demand*, despite any claims to the contrary.
3. The consistent and continual *decrease* of about 6 cents per hour per year in the inflation adjusted median hourly wage received by individuals with post-secondary but not baccalaureate training/degrees clearly shows that

there is an excess, not a shortage of employees with these qualifications over the entire 24 year period examined.

4. An even greater excess of individuals with a high-school education relative to demand is indicated by the greater average loss in their median hourly wage rate of about 8 cents per hour per year from a lower starting point over the entire 24 year period examined.
5. The group with the greatest over-supply relative to demand is that with less than a high-school education. The loss in the median hourly wage rate for this group is about 12 cents per hour per year from a still lower starting point over the entire 24 year period examined.
6. This clearly indicates the problems in attempting to increase wages by only improving educational / training levels *without other corresponding changes in the economic infrastructure*. For example, if by some magic individuals with less than a baccalaureate degree are transformed into individuals with a baccalaureate degree, the only effect will be to flood the market for employees with a baccalaureate degree, reducing this groups wages, and destroying this group's current stability of income, in effect *redistributing, not increasing total income*.
7. Other observations:
  - 7.1. By 1991 the median hourly inflation adjusted wage rate for individuals with a high-school education had fallen to that of a 1973 high-school non-completer or drop out in constant value dollars.

Hourly Wages and Educational Levels by Year for all Workers in CV 1996\$  
 1973 to 1996 with projection to 2024



- 7.2. In 2014 the median hourly inflation adjusted wage for individual with post-secondary training/education but not a baccalaureate degree *is projected to fall* to those of a 1973 high-school non-completer or drop out.

### Why Does this Popular Misconception Persist?

The most general answer is that humans tend to retain comforting and desirable beliefs regardless of their factual basis. Additionally, this particular perception was supported by the apparent correctness or validity of this assumption for many years when:

1. Most of the products, goods, and services consumed in the United States were produced in the United States;
2. A growing manufacturing infrastructure did indeed have a need for expanding numbers of increasingly skilled and more highly qualified employees;
3. Especially when this was combined with the *diversion of large numbers of 18 to 25 year old males from the civilian job market into the military*;
  - 3.1. where these males were primarily from the socio-economic classes that traditionally provided the bulk of skilled blue collar workers, and
  - 3.2. were largely selected for their “employability” traits such as the ability/willingness to follow direction, promptness, neatness, loyalty, manual dexterity, physical condition and intelligence.

A more specific, and for this study more useful, the answer is that the phrase “labor shortage” has quite different meanings to the general public and a small group of

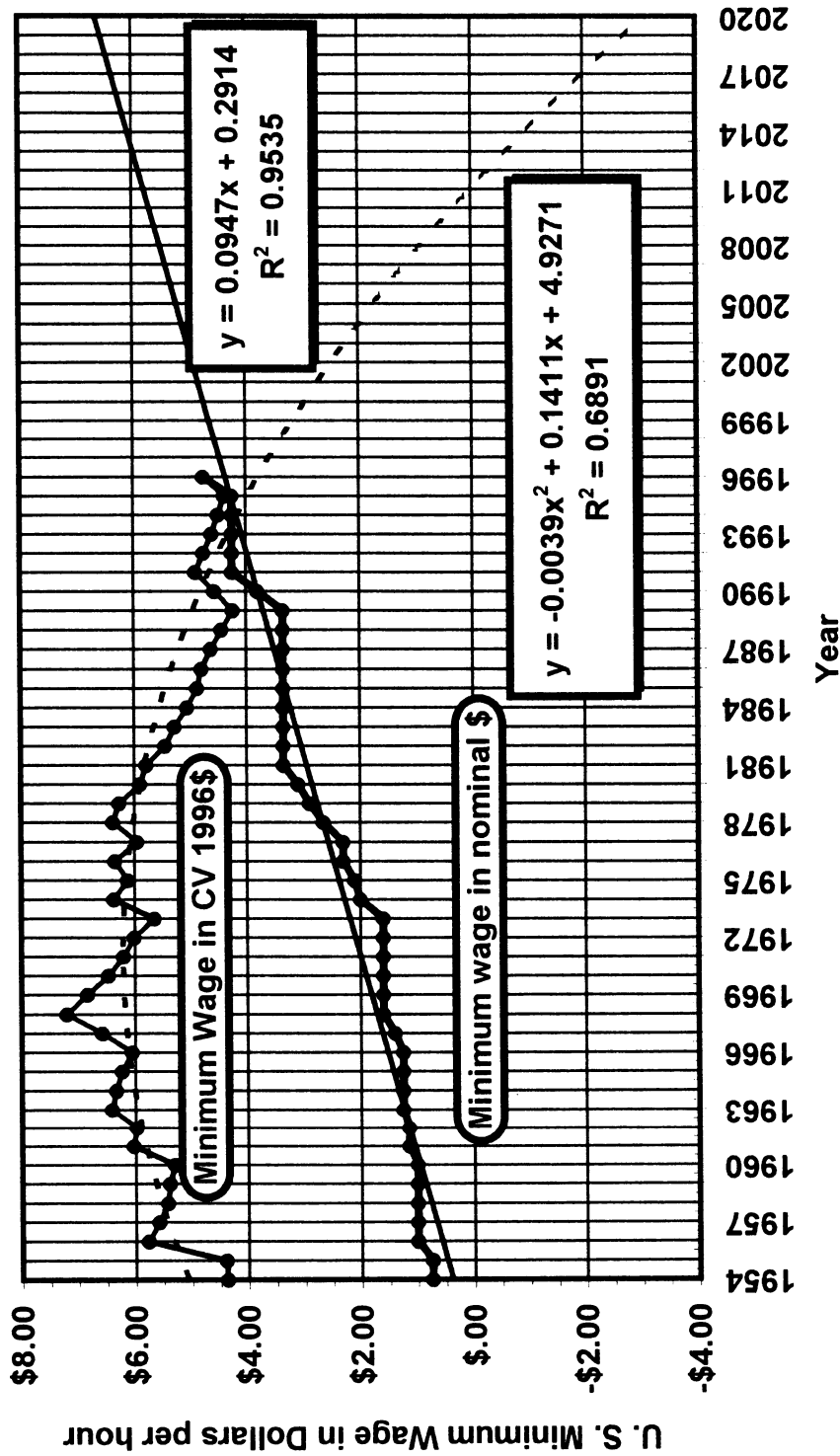
individuals engaged in an arcane discipline called “Labor Economics.” While there is no “smoking gun” it appears that much of the support for a continuing belief in the existence of a general or qualified labor shortage has been produced by researchers in this and other closely related fields. *The crucial difference is that “Labor Economics” has introduced the criteria of “Skill(s) Premium” to determine shortage/surplus rather than using the more common test, as used above, of rising/falling prices (wages).* Many Labor Economists use a theoretical construct of a base, background or minimum wage in a society, and define “Skill(s)<sup>10</sup> Premium” as that amount of additional wages that the employer must pay to obtain adequate numbers of employees with the particular skill, over and above the base wage. In the United States it appears that most Labor Economists define the base wage as the “minimum wage” established by federal law. By *their* definition if the “skills premium” is non-zero, this indicates a labor shortage for that skill. To complete this analysis, it is now necessary to first examine another popular belief:

“Everybody Knows,” and “They Say” – The US minimum wage just keeps going up. The Bureau of Labor Statistics and other resources provide data for the United States legal minimum wage from 1954 to 1996. Indeed, the minimum wage has increased in stair-step fashion from \$0.75 per hour in 1954 to \$5.25 in 1998. However, these data are in *current year dollars*. Combining this data with CPI (inflation) data also from the BLS allows the calculation of the hourly minimum wage in *constant value (1996 CPI)* dollars which give a much different impression. These data and a graph of the results is presented in Chart 1 MINWAGE.XLS on the following page.

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<sup>10</sup> Apparently because skills tend to occur in clusters, the plural seems to be the most common usage.

U. S. Minimum Wage 1954-1996 in nominal and CV(1996)\$  
 with 1st degree LSBF extrapolation to 2020  
 source: BLS



MINWAGE.XLS

In constant value (1996 CPI) [CV] dollars the highest minimum wage was in 1968 at \$7.21 per hour, and the minimum in 1989 at \$4.24 per hour. From the CV dollar data there appear to be two distinct phases: (1) from 1954 to 1968 where the minimum hourly wage did indeed rise at the rate of about 19 cents per hour per year; and (2) 1968 to 1996 when the minimum hourly real<sup>11</sup> wage rate *fell* at the rate of about 10 cents per hour per year. The key point in the following discussion of “Skills Premium” determined labor shortage is the *falling real value of the minimum wage*, however the reviewer may wish to consider the following points:

- The Least Squares Best Fit [LSBF] linear trend line for the current year dollar minimum wage has a high  $R^2$  of 0.953 indicating a good fit.
- Because of the increase and then decrease in the CV dollar minimum wage it was necessary to use a second degree LSBF trend line to obtain a good fit. This line has a relatively high  $R^2$  of 0.689.
- *The current (1996) real minimum wage is about where it was in 1954/55<sup>12</sup>* which calls into serious question the often repeated claims that an over-paid American work-force and excessively high minimum wages are retarding economic growth/development and reducing “competitiveness.”

By combining the CV dollar minimum wage data (MINWAGE.XLS) with the median hourly CV wage by educational data (EDWAGES.XLS) it was possible to create a

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<sup>11</sup> Because of increased taxes and reduced benefits the decrease is greater than indicated from the “raw” hourly wage rate.

<sup>12</sup> Because of grossly higher taxes and reduced benefits such as medical insurance between 1954/55 and the late 1990s the decrease as perceived by the individual is also understated. If “net disposable income” is considered, the drop to 1964/55 levels occurred several years before, and the rate of decrease in the minimum “net disposable income” is even more rapid than this graph indicates.



new data set EDWAGE2.XLS. Two graphs were generated from this data. The first (Chart 1 EDWAGE2.XLS) presents the actual (1974-1996) and projected (1997-2018) earnings by educational attainment and the minimum wage using LSBF 1<sup>st</sup> degree trend lines. The second graph (Chart 2 - EDWAGE2.XLS) presents the “skills premium” by educational attainment as a percentage of the minimum wage above the minimum wage for the same time periods. An example will make the calculation clearer. The minimum wage in 1974 was \$6.37 in CV 1996 CPI dollars. The median hourly wage for high-school non-completers in 1974 was \$10.96 in CV 1996 CPI dollars. Subtracting the minimum wage from the median wage leaves a “skills premium” of \$4.59. Dividing \$4.59 by the minimum wage of \$6.37 indicates a “skills premium” of 72% of the minimum wage. This procedure was repeated for all entries in the combined data set. The reviewer should note that by this procedure the CPI index values are “divided out” and thus do not affect the final results.

The following points are cogent:

1. Because the median wages of all groups were above the minimum wage in the reporting period, all groups had a non-zero “skills premium,” thus indicating a “labor shortage” for all groups when using the “Labor Economists” definition.
2. Because the CPI “value” of the minimum wage is falling more rapidly than the “value” of the median wage of all groups, all groups have a rising “skills premium,” thus indicating an *increasing “labor shortage”* when this is used as the criteria.
3. It should be noted that by this definition, the slight rise in the trend line indicates an existing and increasing shortage, although only a minimal one, *even for high-school non-completers.*

Average Hourly Wage in CV (1996/CPI) \$ 1973-1996 LSBF extrapolated to 2020  
 U. S. Minimum Wage in CV (1996/CPI) \$ 1973-1996 extrapolated to 2020

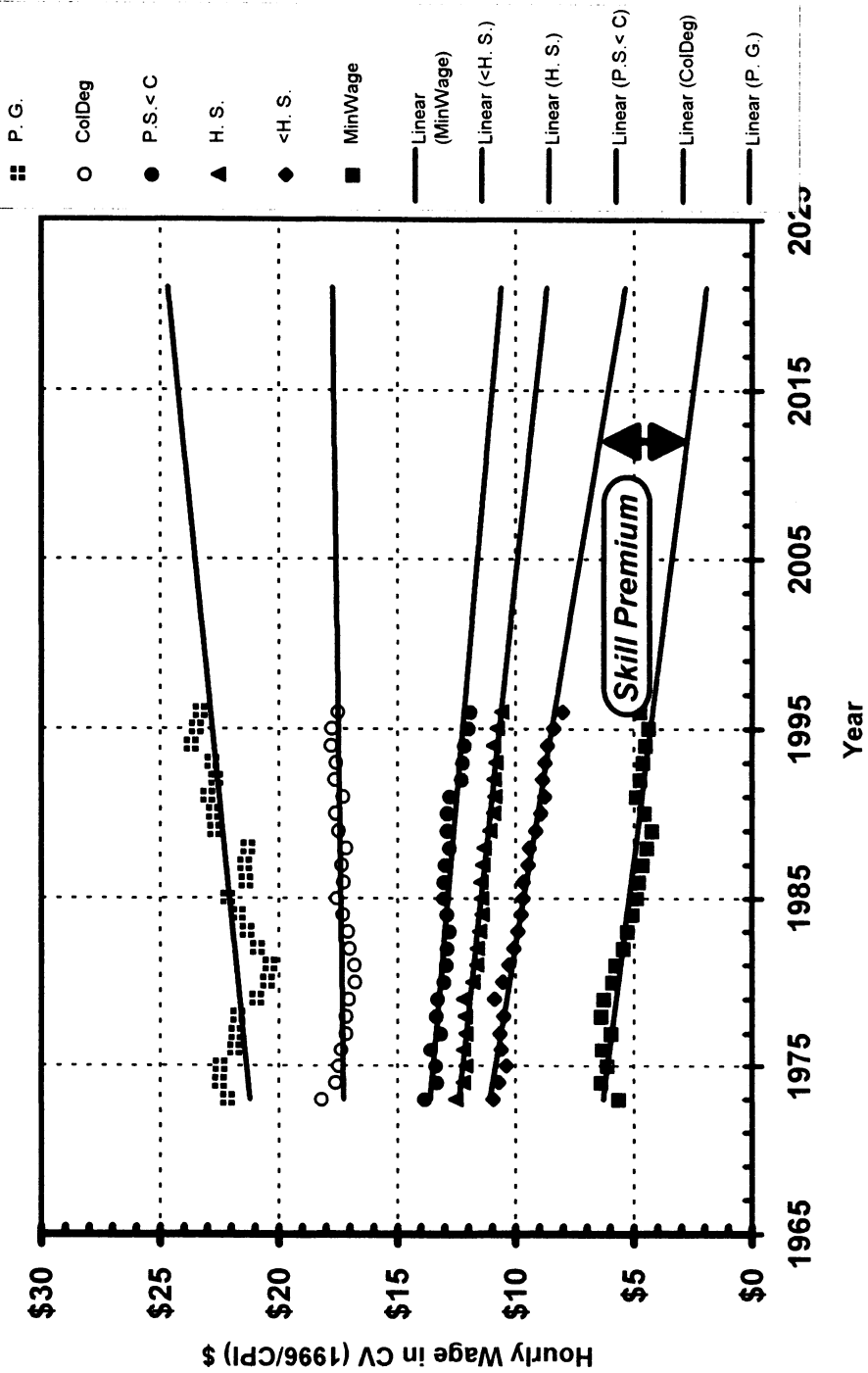


Chart3 - EDWAGE2.XLS

**Educational Skill Premium expressed as % of Min Wage above Min Wage  
1973-1996 with extrapolation to 2020**

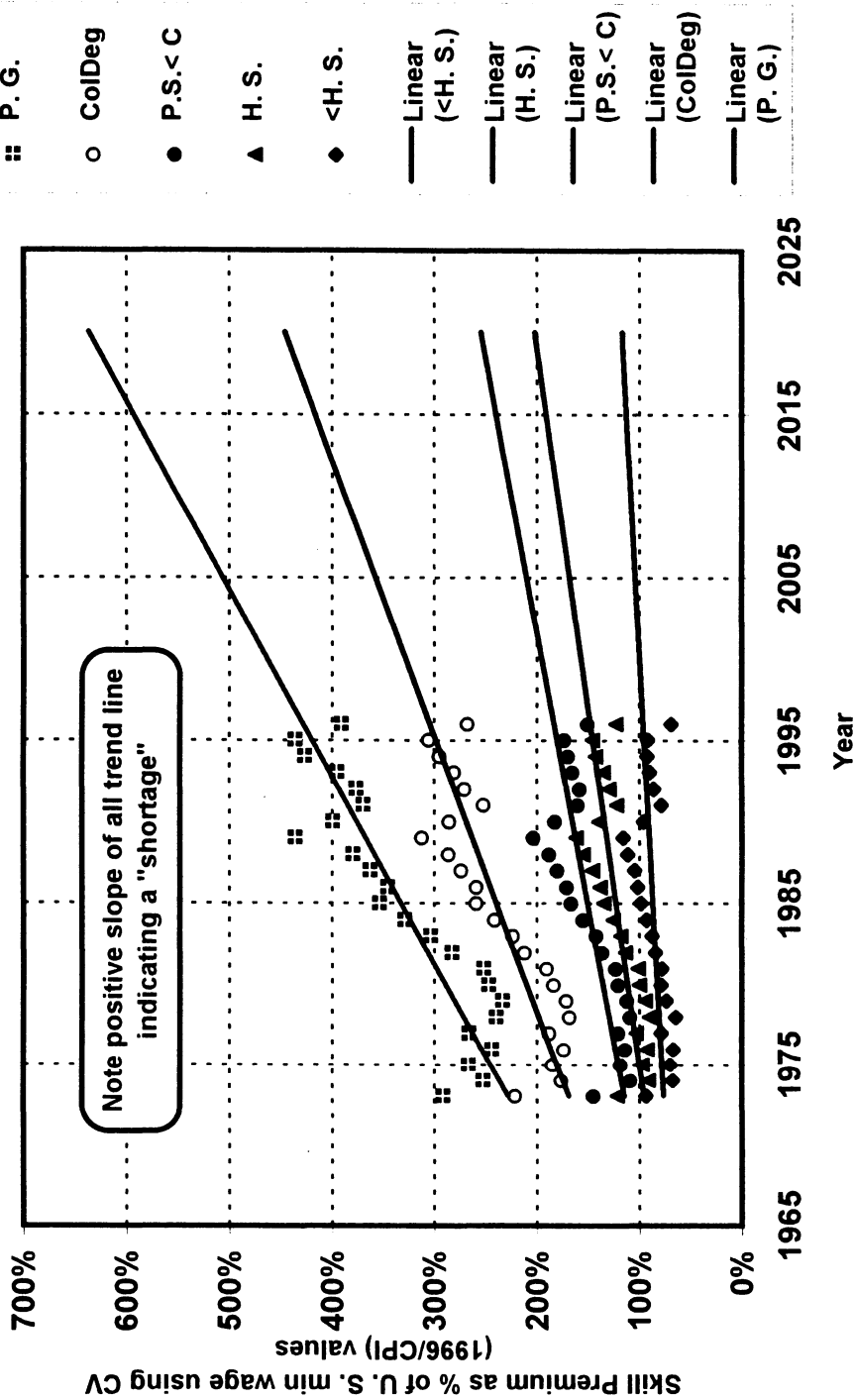


Chart4 - EDWAGE2.XLS

## Employment in the Goods and Service Sectors of the United States Economy

A contributing factor to the trends presented above is the change in the composition of the types of employment available in the United States. The BLS has maintained records of the number of people employed in both the goods producing and service producing sectors. These data are presented in tabular and graphical format in Chart 1 SECTOR.XLS.

The following points are important:

1. By number or head-count, the number of manufacturing jobs have remained relatively constant at about 22 million.
2. Almost all job growth since 1946 has been in the service sector, from about 42 million in 1946 to about 119 million in 1996. (Chart 2 SECTOR.XLS)
3. Due to an increasing population and resulting workforce, the percentage of people employed in the production of goods has fallen from a high of 41.4% to a current (1996) 20.3% while the fraction of full time employees in the service sector has increased from 58.9% to a high of 79.7% in 1996.
4. The trend lines of the fraction employed in these sectors has a very high  $R^2$  (coefficient of correlation) of 0.9879.
5. While the service sector does have many high paying jobs such as medical doctors, lawyers, accountants and stock brokers, the bulk of new service employment appears to be in low wage/low benefit jobs such as fast food, medical/elder care, and discount/convenience market retail sales which require minimal skills and training.

**Number Employed in Goods and Services Sectors In the U. S. 1946-2005(est)**  
 source: BLS / Wall Street Journal Almanac p299

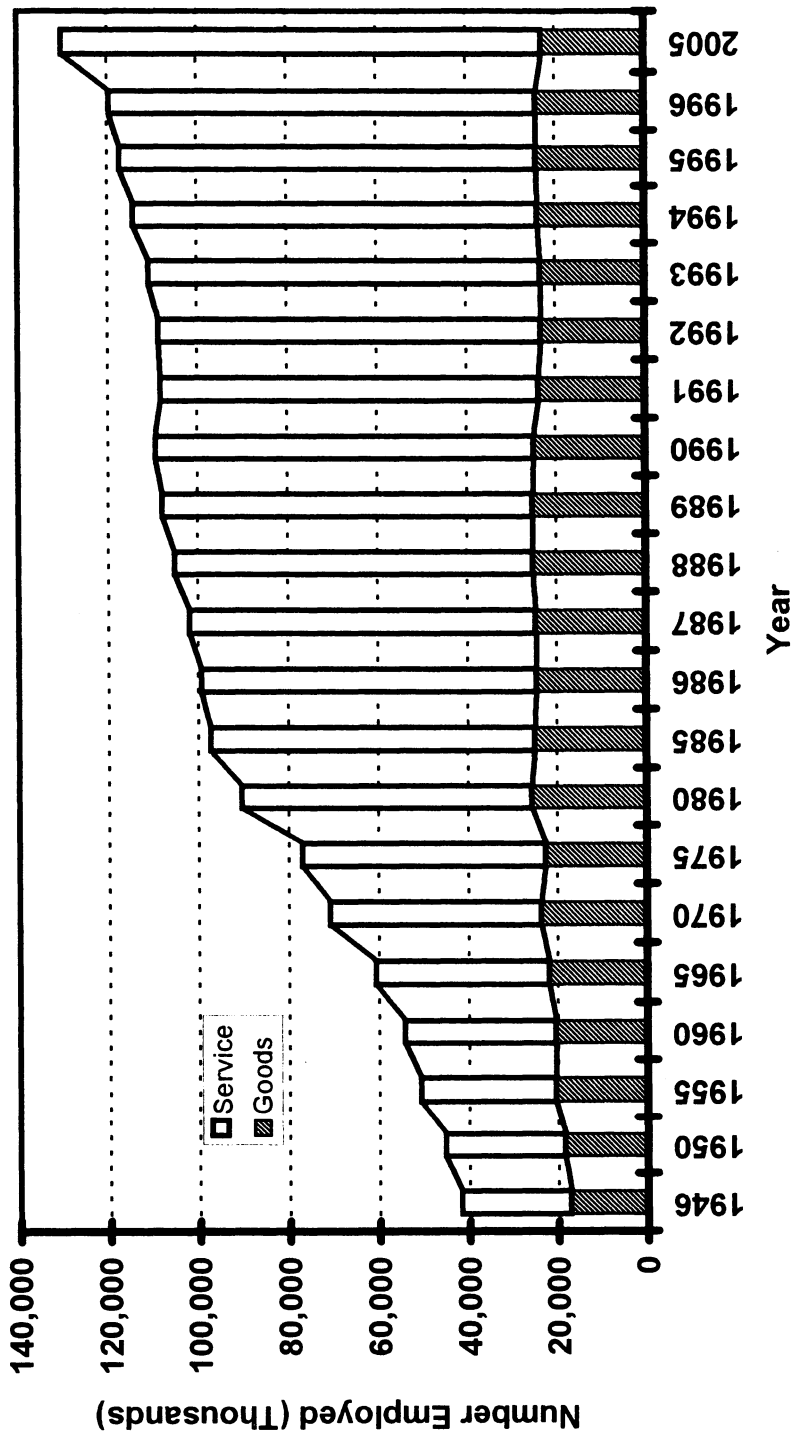


Chart 1 · SECTOR.XLS

Percent of Full Time U. S. Work Force Employed in Goods and Service Sectors  
1946-2005(est)

source: BLS / Wall Street Journal 1998 Almanac p299

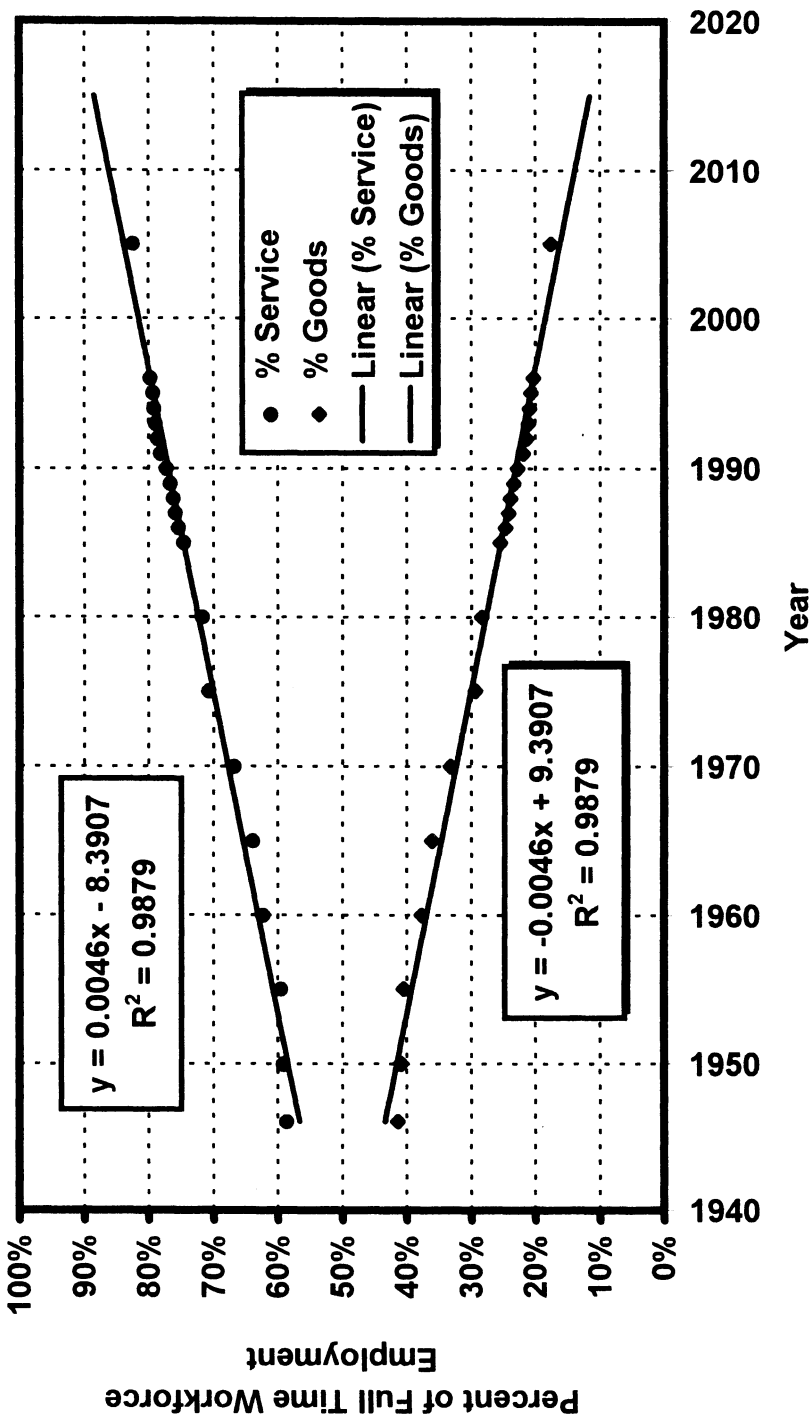


Chart 2 - SECTOR.XLS

“Everybody Knows,” and “They Say” – Education is *the* way to increase the Quality-of-Life. The generation of valid testable hypotheses for this common belief is possible, but are also more subjective, as the meaning of “Quality-of-Life” tends to have very personal meanings. The challenge then is to select some criteria that can be both quantitatively and unambiguously measured and that most people will agree represents at least a significant factor in the indeterminate and vague construct “Quality-of-Life.”

As before, the syllogism used to generate the testable hypothesis is:

- “Education” improves the “Quality-of-Life.”
- Some states have higher levels of education.
- States with higher levels of education therefore have higher “Qualities-of-Life.”

As indicated above, educational attainment as measured by the fraction of the population which completed high-school and college by state is available from the Department of Education. While somewhat simplistic, one easily determined factor in the “Quality-of-Life” factor is “life.” That is if a person dies, that tends to be very quantitative, and the death rates for various age groups by proximate cause are available from the US Bureau of the Census. The last available data was for 1995. The age group chosen was young adults which are defined to be 17-23 years of age, and the proximate causes were (1) total death rate per 100K, (2) accidental death rate per 100K, (3) homicide death rate per 100K, and (4) suicide death rate per 100K. The total death rate also includes a category described as “other” which only a few states used (which was omitted) so the total death rate is very slightly higher in some cases than the sum of categories 2-4. This data is presented in graphical format in the following pages.

Young Adult Total Death Rate per 100K Vs Fraction of state's population with high school diploma

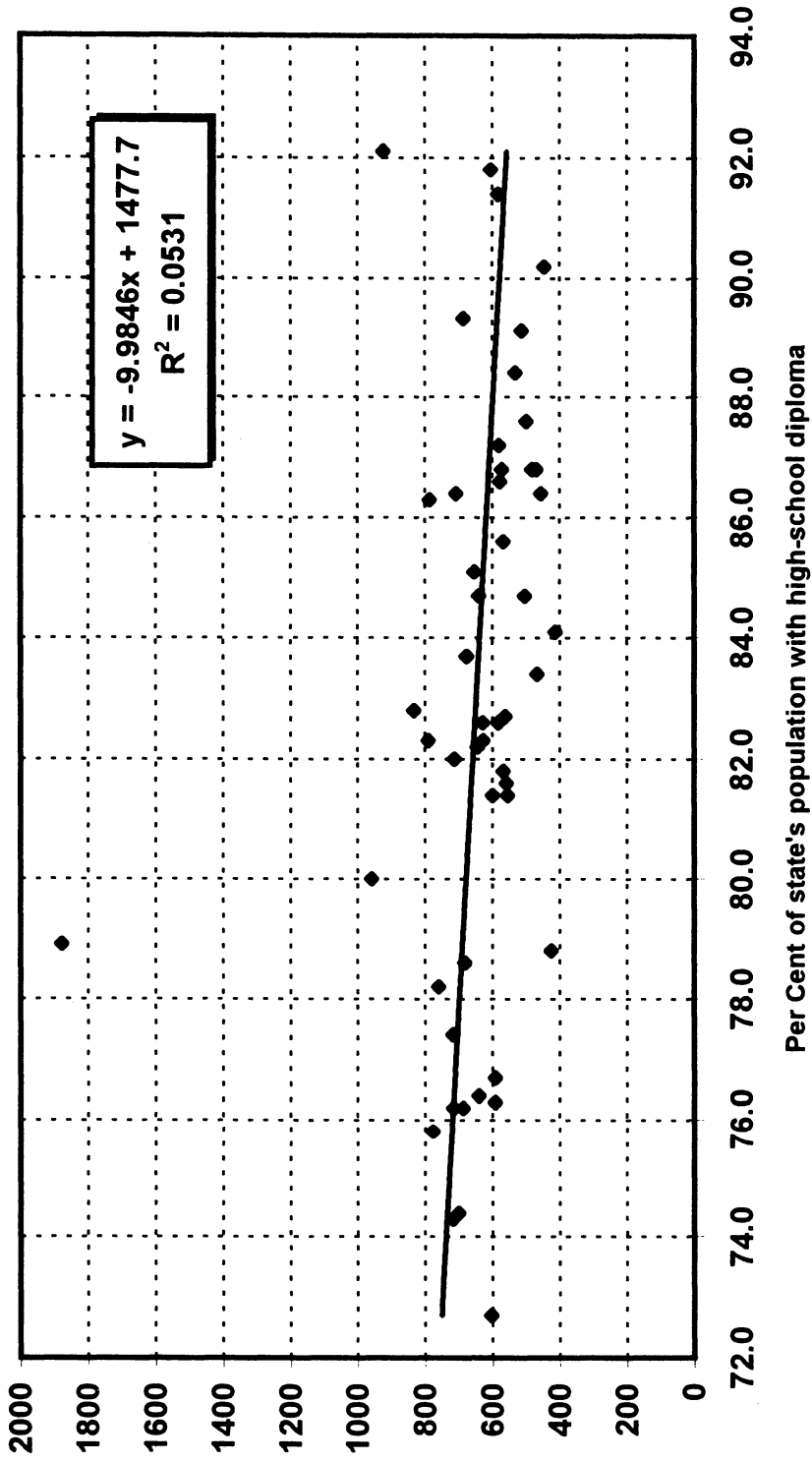


Chart 1 - GSPV4.XLS



Young Adult Deaths by Homicide per 100K Vs fraction of state's population with a HS diploma

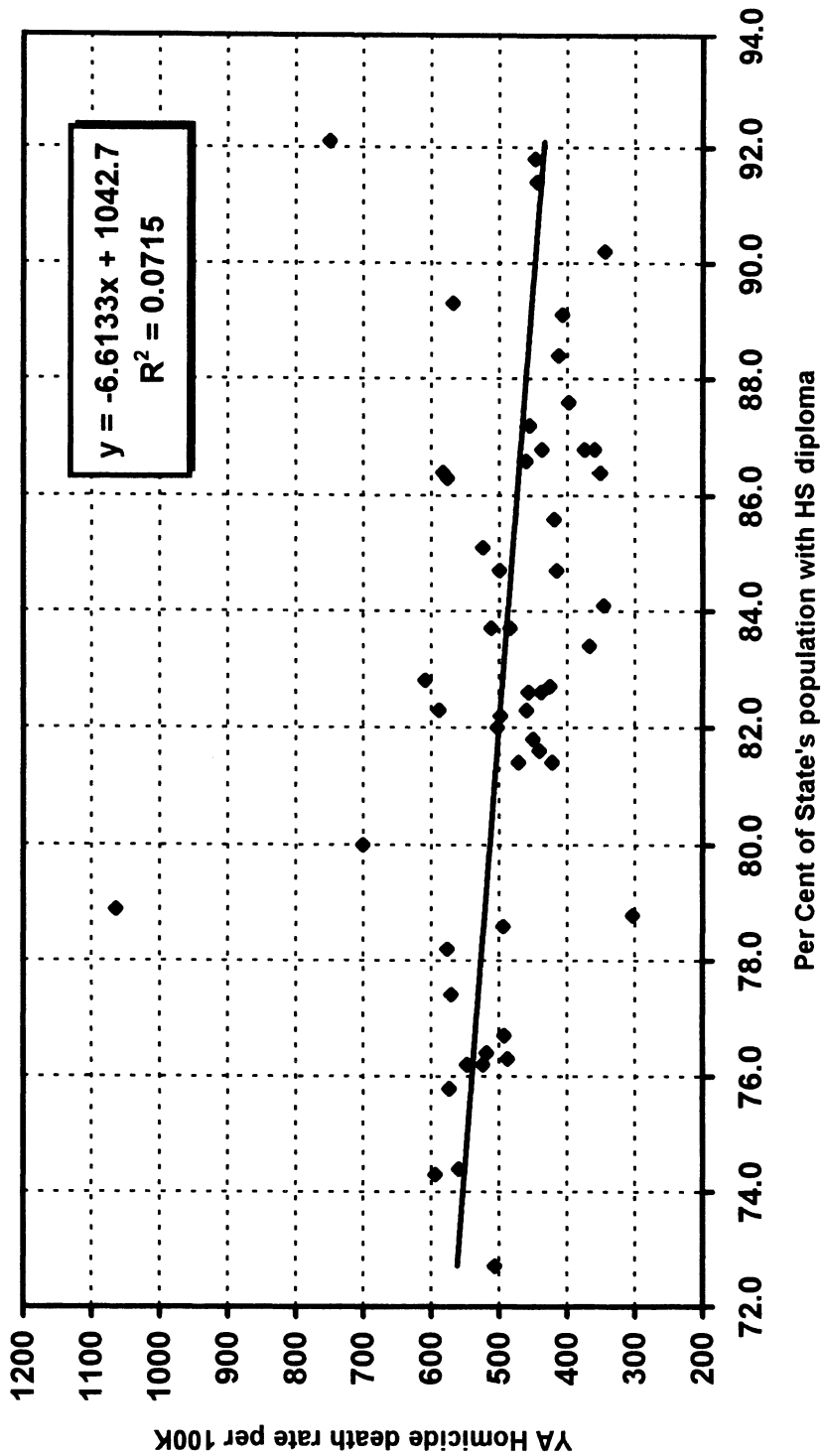


Chart 2 - GSPV4.XLS

Young Adult Accidental Death Rate per 100K vs fraction of state's population with HS diploma

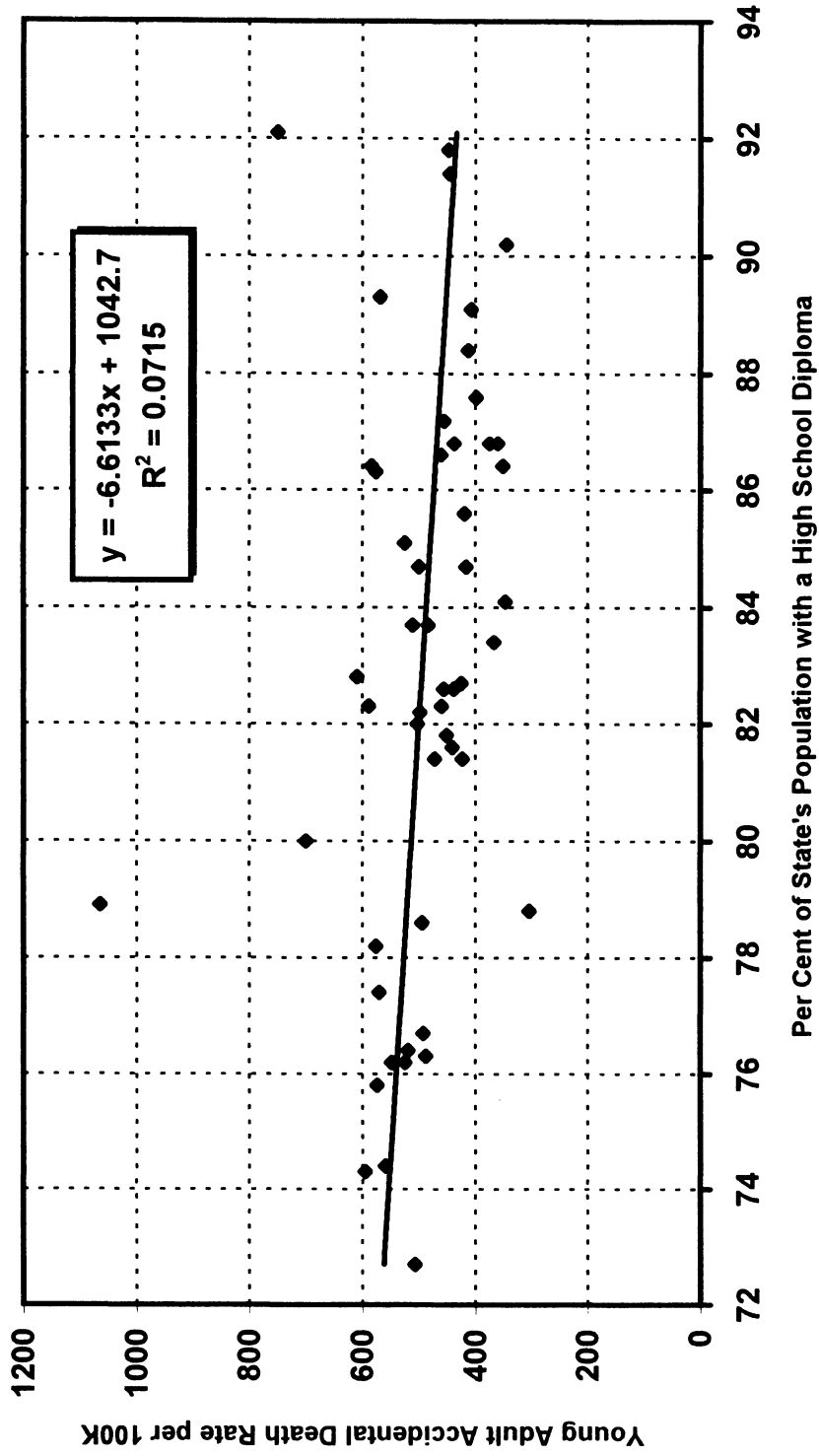


Chart 3 - GSPV4.XLS

Young Adult Suicide Rate per 100K Vs Fraction of state's population with high school diploma

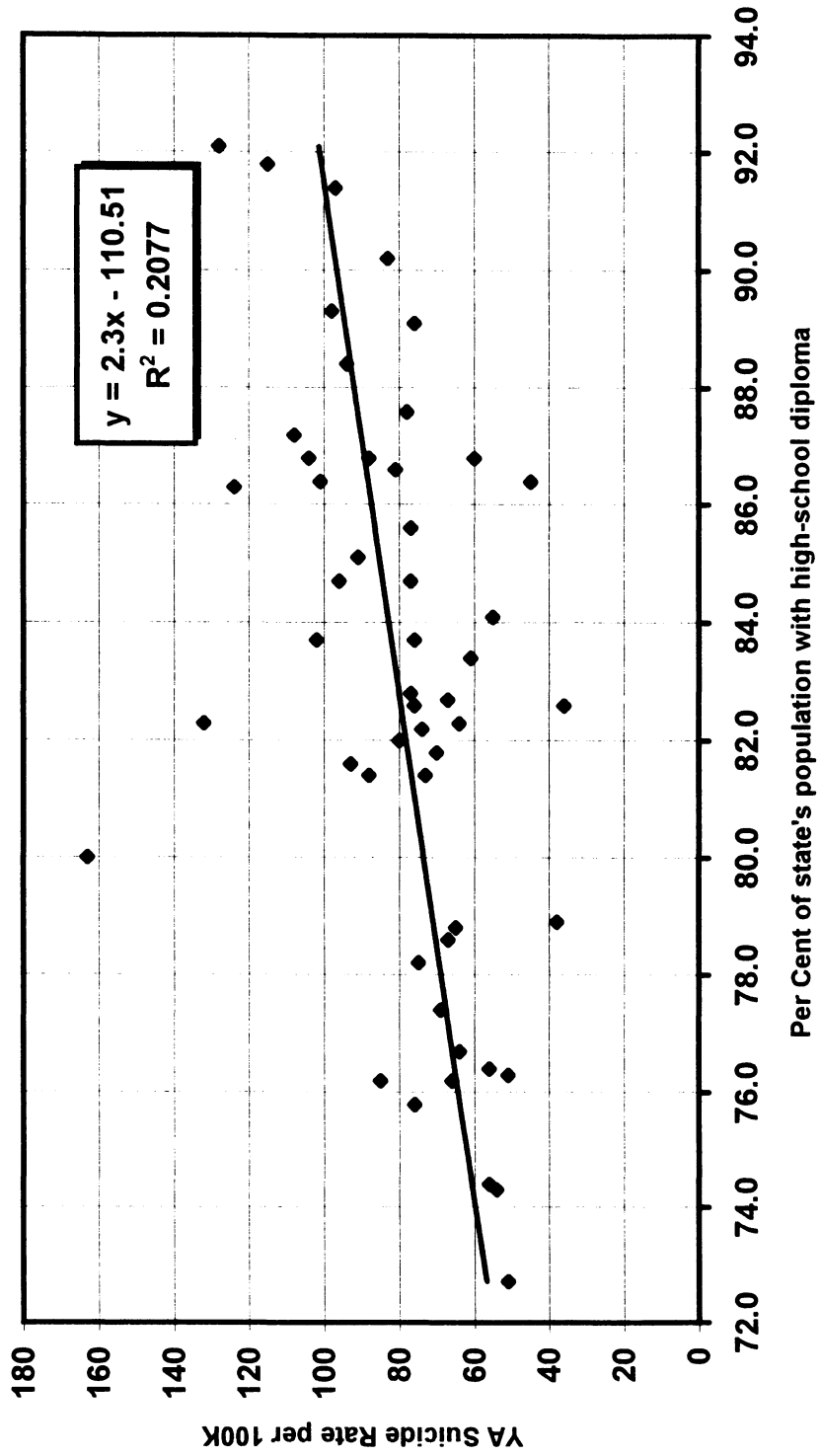


Chart 4 - GSPV4.XLS

The District of Columbia was included in this data even though it is not a state.

On all of the charts this was the “outlier” data point. The District was included for several reasons:

1. The District of Columbia contains about 600 thousand people, and thus has about the same number of people as North or South Dakota, and about twice the people of Wyoming.
2. The inclusion or exclusion of the District changed the  $R^2$  and F-ratio test results by only minuscule amounts.
3. The large and growing disparity (of income) within the District provides an example of the affects that such growing disparity can be expected to have on the aggregate social, economic and political structure. This point is discussed in greater detail in the following section on the Gini coefficient.

As would be expected from the very small  $R^2$  values, the F ratios between the young adult death rates and the educational levels as indicated below show no correlation. These F-ratios were calculated from the data (in tabular form in the Appendix) using the MicroSoft Excel spread sheet program and are summarized in Table I.

#### YOUNG ADULT RATIOS

Percent of Population W/	YA Accidental Death Rate	YA Homicide Death Rate	YA Suicide Death Rate	YA Total Death Rate
HS Diploma	5.94E-55	3.4 E-52	2.65E-21	4.21E-67
College Degree	2.5 E-56	1.43E-53	1.41E-22	1.76E-68

Note: As all ratios are less than 1 there is no correlation.

One of the most basic “Quality-of-Life” measurers would appear to be the death rate, particularly for young adults. As indicated above *there is no statistically significant positive [favorable] correlation between a state’s educational attainment measured as the fraction of its population with either a high-school diploma or college degree and its death rate for young adults* from accidents, homicides, suicides, and total from all causes. While there may be some “Quality-of-Life” measure positively correlated with the fraction of the population with either high school or college degrees, it appears that this would be an example of “data-mining” to locate or discover a rationale or justification for a cause-and-effect correlation that has been assumed *apriori* because of ideological or political considerations (see Charts 5, 6, 7 and 8 GSPV4.XLS). Some plausible rationales can be offered for the observed trend lines, *although as indicted by the  $R^2$  and F-ratio values, these are not statistically significant.*

- The total young adult death rate may decrease with increasing educational attainment because the educational attainment tends to be higher in urban areas. It is known that one of the most hazardous occupations is farming, and rural young adults, from an area with lower educational attainment, are logically more likely to engage in this activity (Chart 5 GSPV4.XLS).
- The apparent young adult suicide rate may increase with increasing educational attainment for several reasons. Authorities in rural areas may be more reluctant to report a death as a suicide or disturbed young adults may be prone to migrate to urban areas with higher educational attainment (Chart 6 GSPV4.XLS).

State YA death rate vs % college grads

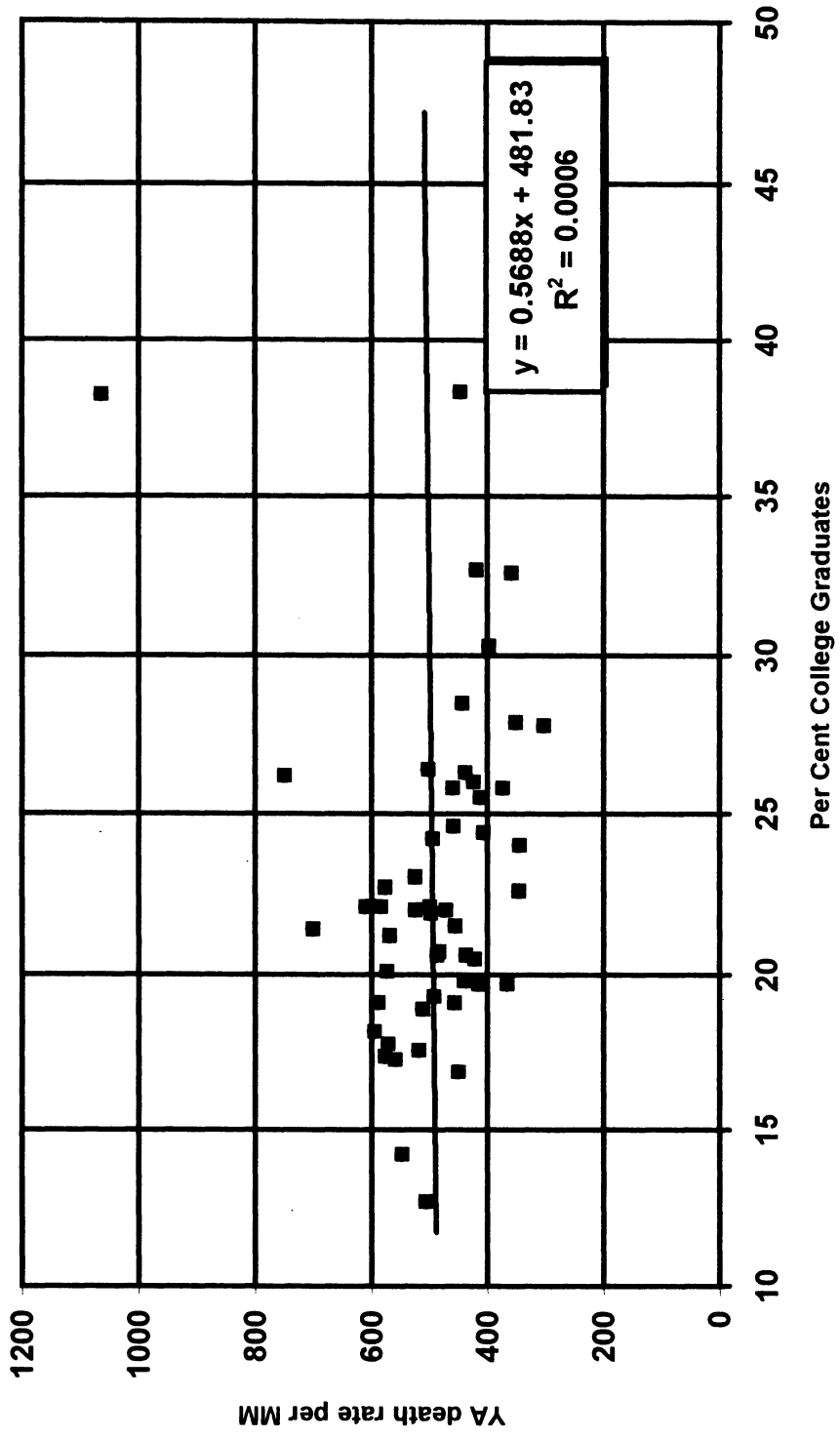


Chart 5 - GSPV4.XLS

Young Adult Suicide Rate per 100K vs fraction of state's population with college degrees

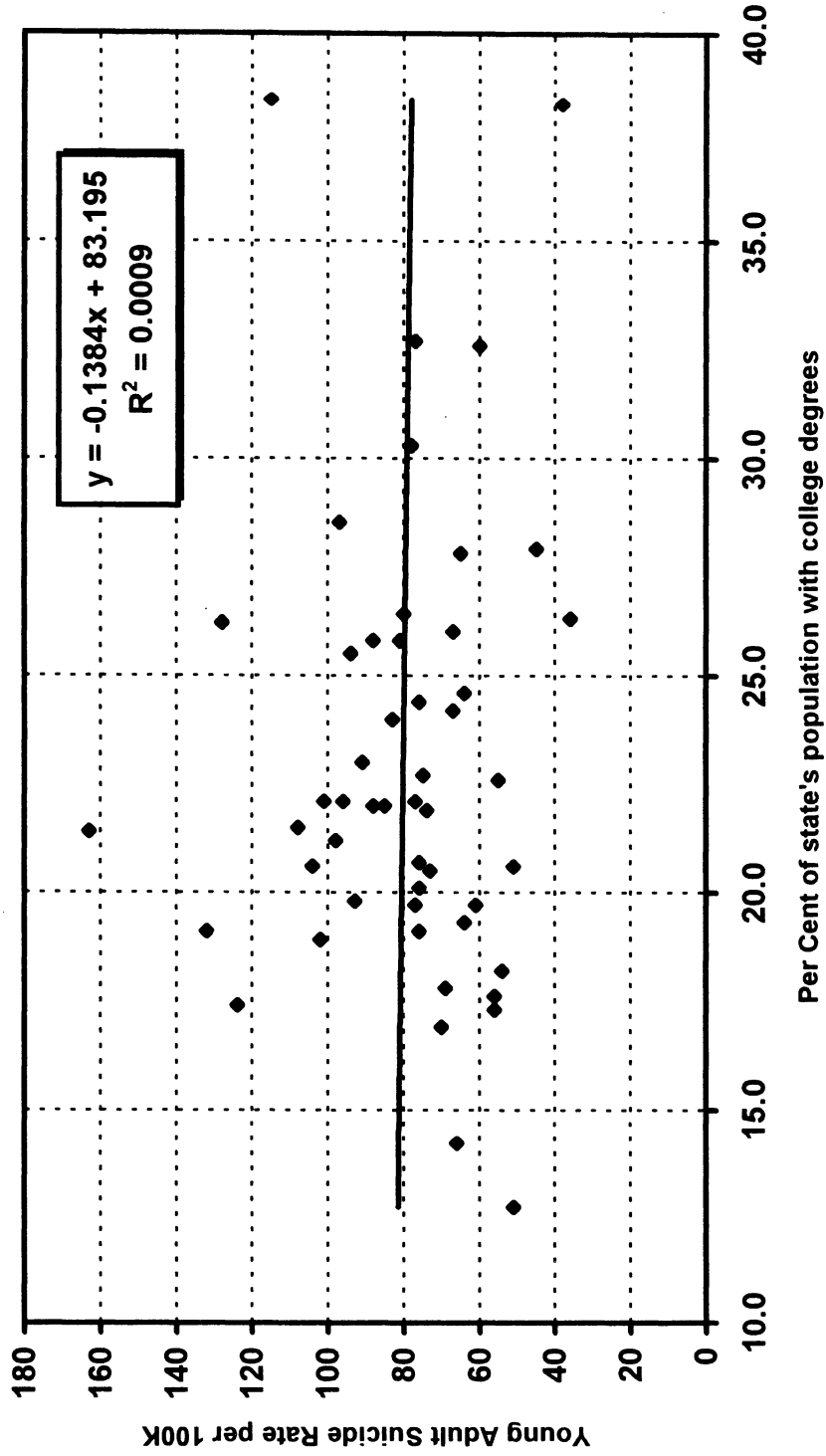


Chart 6 - GSPV4.XLS

YA Homicide rate per 100K vs fraction of state's population with college degrees

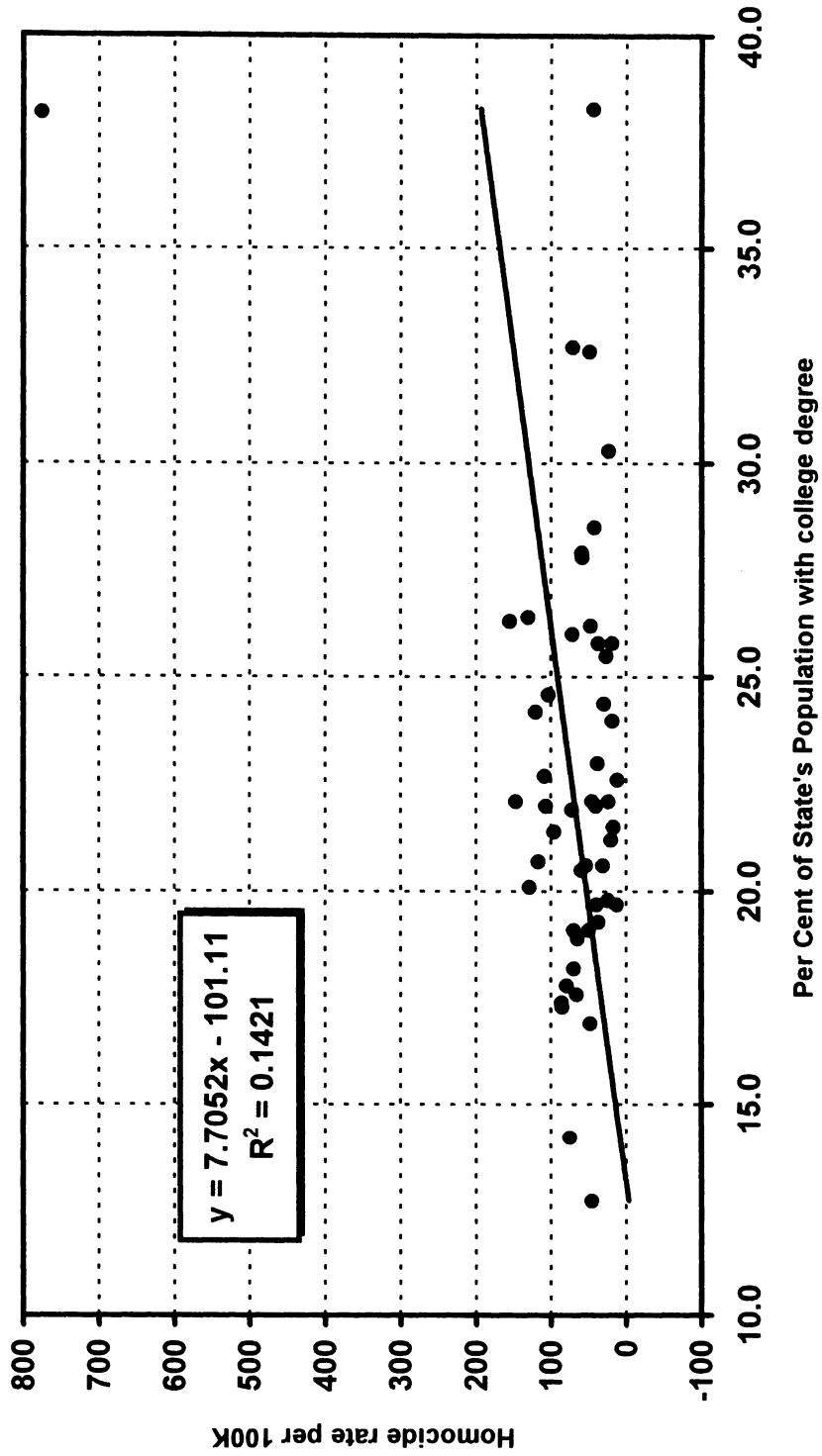


Chart 7 - GSPV4.XLS



Young Adult Accidental Death rate per 100K vs fraction of population with College degrees

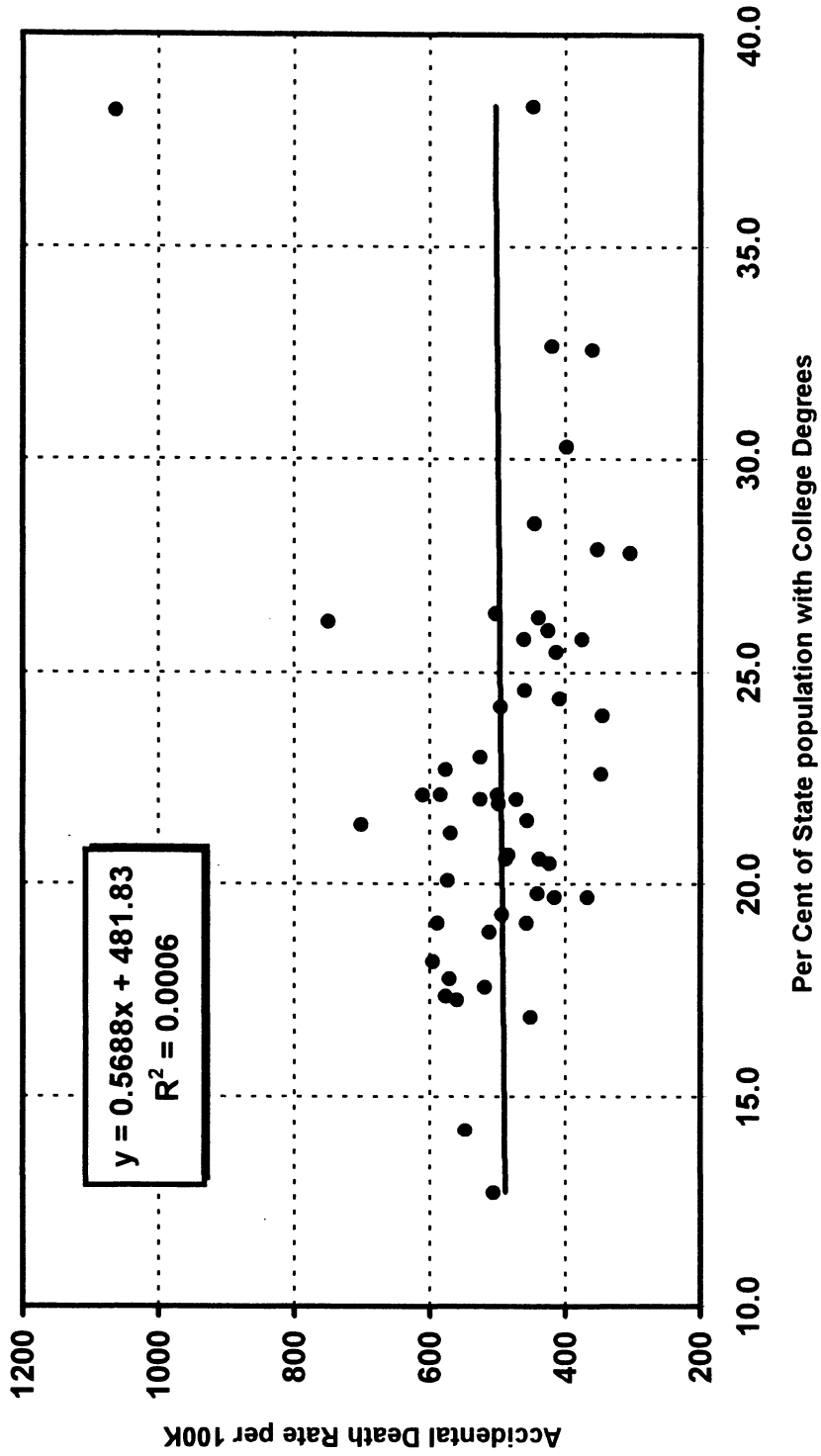


Chart 8- GSPV4.XLS

- The young adult homicide rate may decrease with increasing educational attainment, again because higher educational attainment is concentrated in the more urban areas with stricter control of and more limited access to fire arms. The apparent increase with higher college attainment is an anomaly caused by the combination of an exceptionally high young adult homicide rate and an exceptionally high proportion of college graduates in the District of Columbia. This should emphasize the need for exceedingly careful analysis.

If the only operational factor in improved “Quality-of-Life” was the “average” level of educational attainment, the District of Columbia, with 38.2% of the adult population holding baccalaureate or higher degrees, would be the most livable city in America. The problem is, of course, the aberrant disparity of almost every measure of social and economic attainment. This point is elaborated in the following sections.

### I’m Busted

Because the indications of the immediately preceding section are so directly contrary to common sense and conventional wisdom, a second quantitative evaluation was made using a different independent data set. The Federal Reserve Board, an independent but quasi-governmental agency, maintains records of the number of bankruptcy cases filed in the United States. These data are available by year, by state, and by chapter or type of bankruptcy. When combined with other governmental data such as the state and total populations of the United States (Bureau of Census data) and individual states and

educational attainment levels (US Department of Education data) a new data set identified as BKR3.XLS) was created which allowed the following plausible statements to be verified or disproved (see Chart 1 BKR3.XLS, Chart 1 and 2 BKRPT1.XLS):

- (1) Improving educational levels have resulted in increased incomes, therefore more people are able to pay their bills and thus the bankruptcy rate<sup>13</sup> has fallen.
- (2) Increased educational attainment improves an individual's ability to function in society, and the level and growth of their area economy, independent of income<sup>14</sup>, therefore the higher the educational attainment level, the lower the bankruptcy *rate*.

### And the Facts Are

Examination of Chart 1 of BKR3.XLS indicates overall or nationally that *rather than falling, the bankruptcy rate has increase at an annualized rate of about 175 filings per million (c. 11.6% of base) between 1980 and 1996*. Between 1980 and 1985 the filing rate was stable at about 1,500 per million. By 1996 this had almost tripled to about 4,000 filings per million. This rate is projected to quadruple to about 6,000 per million in about 2007.

Chart 1 of BKRPT1.XLS plots the bankruptcy rates vs. percent of population with a college degree by state for 1995 (latest available data) This chart indicates the expected

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<sup>13</sup> Because of the change in US And state populations from 1980 to 1996, the raw numbers need to be converted to a rate for meaningful comparison.

<sup>14</sup> In the sense of being able to do more with less.

### Non-Business Bankruptcies per 1 million population 1981 - 1996 with 1st degree LSBF extrapolation to 2006

Source: United States Bureau of the Census and Federal Reserve Board

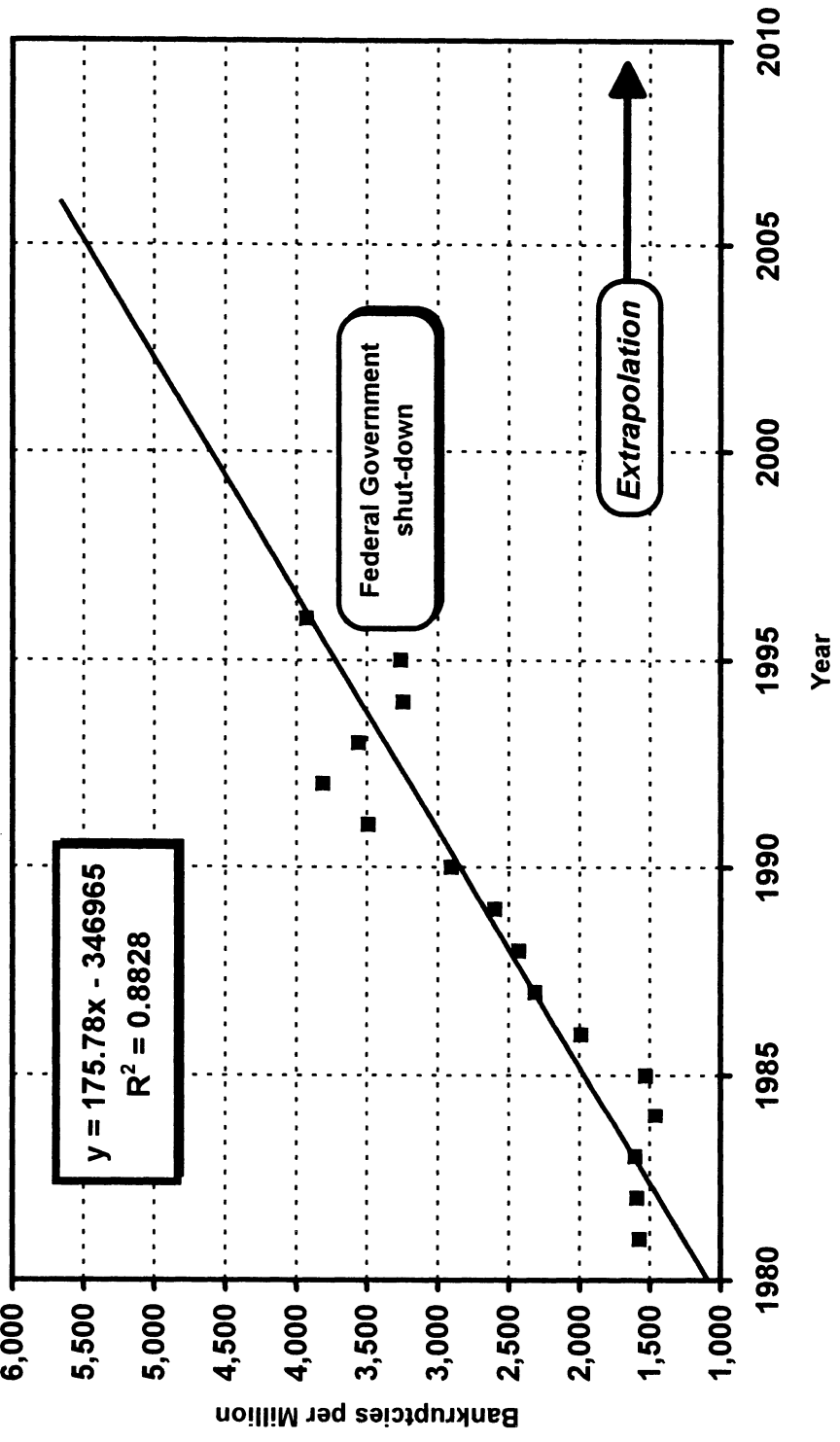


Chart 1 - BKRP3.XLS

Non-business bankruptcies filed in 1995 Vs fraction of state population with college degree

source: Bureau of the Census and Federal Reserve Board

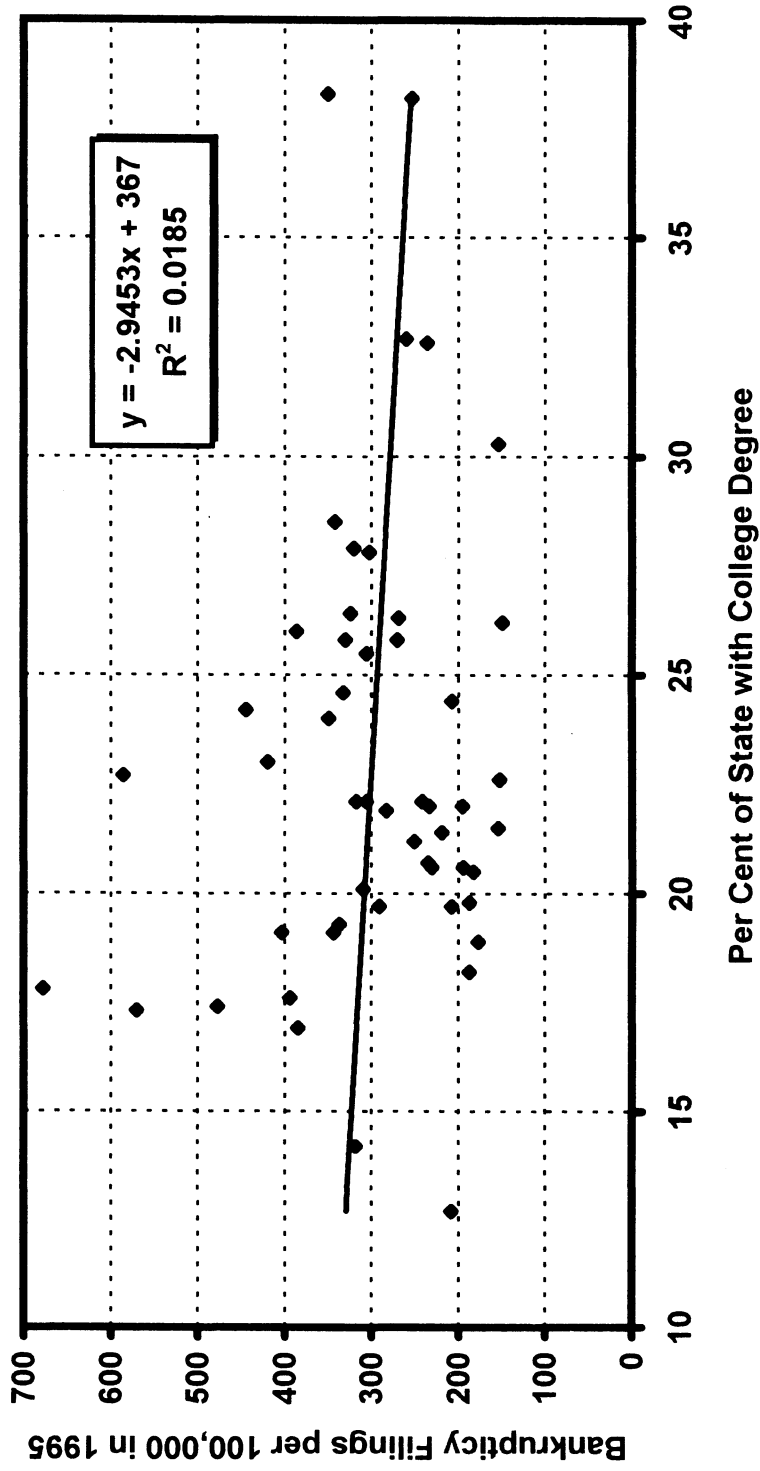


chart 1 - BKRPRT1.XLS

Non-business bankruptcies filed in 1995 Vs fraction of state population with HS diploma

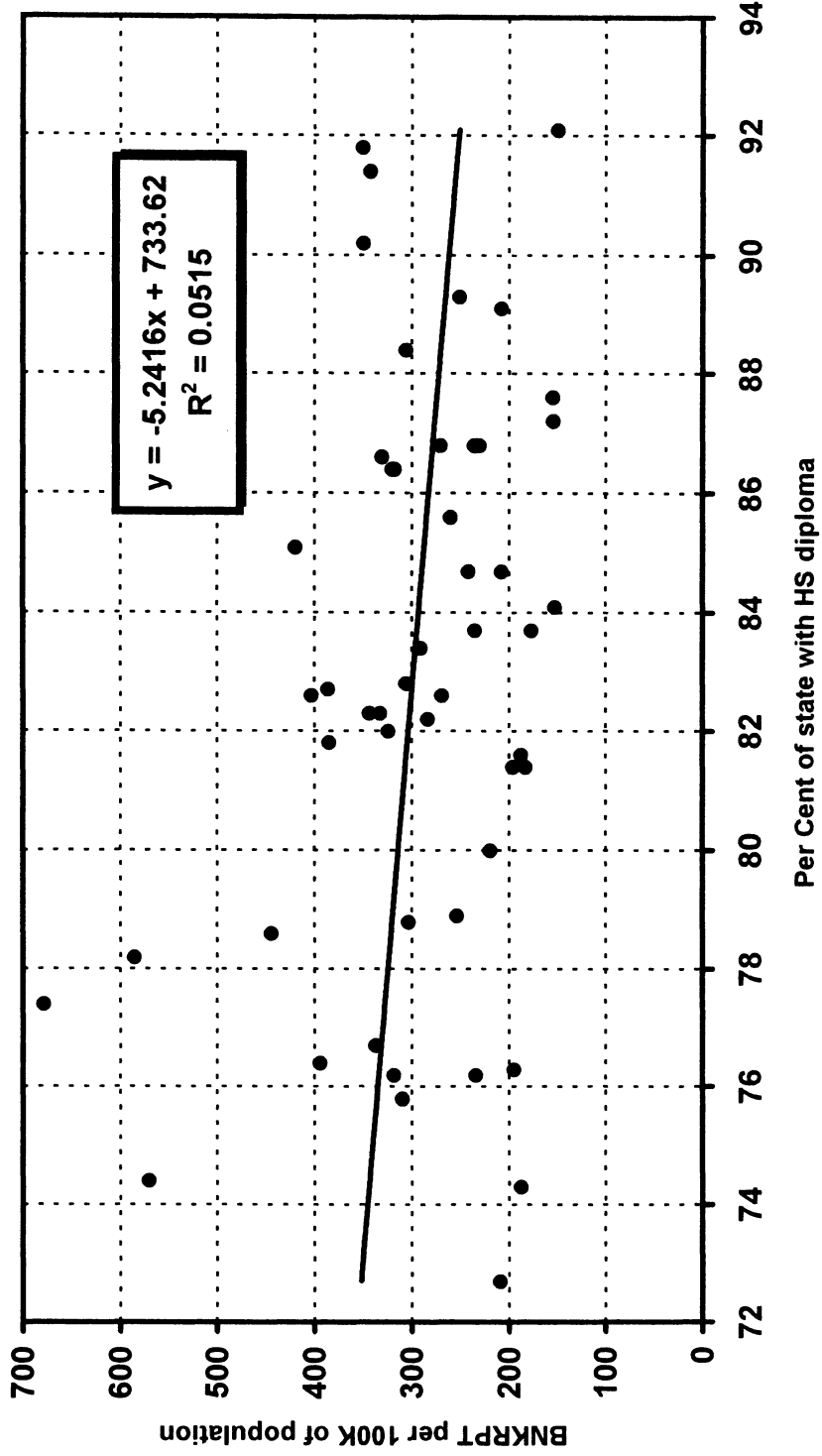


Chart 2 - BKRP1.XLS

decrease in bankruptcy rate with increased education, but the correlation coefficient  $R^2$  is 0.0185, thus while these results may be indicative and highly desirable, *no statistically significant correlation exists.*

Chart 2 of BKRPT1.XLS which plots the rate of non-business bankruptcies vs. per cent of state population with at least a high school diploma by state for 1995 (latest available data) does indeed indicate the expected trend of decrease in rates of bankruptcy with increasing education attainment, however *the  $R^2$  correlation coefficient is 0.0515 which does not indicate a statistically significant correlation.*

“Everybody Knows,” and “They Say” – Education is *the* key to economic growth and development. Construction of a logical syllogism to produce a testable hypothesis from this belief or perception is certainly possible, however the selection of and mutual agreement on evaluation criteria and input data to test the validity is more difficult, because it is subjective. One of many possible constructs is:

1. Education is the key to economic growth/development.
2. Some states have higher proportions of high school and college graduates than do other states.
3. *Therefore states with higher proportions of high school and college graduates will have higher economic growth rates.*

Three data sets were located that could be used to test the validity of this syllogism. “Educational attainment by state as percent of high-school and college graduates” was downloaded from the US Department of Education, and the Gross Domestic Product by state for the period 1977-1994 was download from the Bureau of

the Census. These were combined in the data set GSPV4 and the annual change in GSP was calculated. A third data set was download from the Fortune magazine website and saved as EDSTAT01.XLS. This data set contains the average state manufacturing wage and the current rate of high-school completion for 1991. This data allows two inter-related statements directly relate to the above “conclusion” to be tested:

- (1) Increasing state high school completion rates<sup>15</sup> will help increase state (manufacturing) wages; and
- (2) Increasing the proportion of the population which have completed high-school and/or college will improve a state’s growth rates.

### And the Facts Are

The combined data set of educational attainment and annualized change in state GDP is included in the appendix as GSPV4. Examination of this data indicates:

- As indicated by the information in Table II containing the ANOVA summary data, there is a significant correlation between the fraction of a state’s population with a HS diploma and the average hourly manufacturing wage. Unfortunately the effect is weak, with an increase of one percent in the fraction of adults with a HS or greater diploma expected to result in an increase of only 2.38 cents per hour. It is not at all clear if a causal

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<sup>15</sup> Reviewer Note: The numbers between these charts are not directly comparable. “The Nations Report Card” data understates the number of functional graduates in that it excludes GED and students that returned. Also the relationship may be the reverse of what is commonly assumed, that is higher industrial wage rates may “cause” higher high-school completion because the student income available by dropping out is not required by their family and/or the student does not have to work two jobs and so has time to complete their GED.



relationship exists, and if so which is the independent and which is the dependent variable. It seems just as likely that the levels of education in a state are higher because of the higher wage rates as it does that the wage rates are higher because of a greater fraction with a high school diploma.

(Chart 1 EDSTAT01.XLS)

- While Table II does indicate a statistically significant relationship between the fraction of a states adult population and its annualized rate of growth, as indicated by a  $R^2$  value of 0.0004, there is only a minimal affect in that a one percent increase in the fraction of the population with at least a High-School diploma will not result in any detectable change in the states growth rate. (Chart 9 GSPV.XLS)
- Both Table II and a  $R^2$  value of 0.1052, indicates there is significant relationship between the annualized change in GSP and the fraction of the population with a baccalaureate or higher degree. Unfortunately the indicated relation is *negative*. That is for every one percent increase in the fraction of a state's adult population with a baccalaureate degree the growth rate is expected to decrease by 0.8% (Chart 10 GSPV4.XLS)
- While not isolated and identified in this data, because VOTE in one sense is "between" a high-school diploma and a 4 year baccalaureate degree, this data appears to strongly indicated that *there is currently a minimal relationship between the fraction of the population with VOTE education/training and changes in the state GDP.*

TABLE II  
ANOVA SUMMARY

Avg. State Mfg. Wage vs Percent of Adult Population with High School Diploma						
SUMMARY						
Groups	Count	Sum	Average	Variance		
% HS grad	51	37.743	0.740059	0.006314		
Mfg Wage	51	619.84	12.15373	1.822528		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between	3321.931	1	3321.931	3632.824	2.02E-80	3.936151
Within	91.44209	100	0.914421			
Total	3413.373	101				
State Growth Rate and Fraction of Adults with Baccalaureate						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Growth Rate	51	134.	2.627451	1.733631		
% Col grad	51	1170.3	22.94706	27.09174		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between	10528.6	1	10528.6	730.5095	9.14E-48	3.936151
Within	1441.269	100	14.41269			
Total	11969.87	101				
State Growth Rage and Fraction of Adults with High School Diploma						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Growth Rate	51	134.	2.627451	1.733631		
% HS grad	51	4224.8	82.83922	23.85563		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between	164065.1	1	164065.1	12822.97	2.2E-107	3.936151
Within	1279.463	100	12.79463			
Total	165344.6	101				

Average State Manufacturing Wage vs % of Adult Population with HS diploma

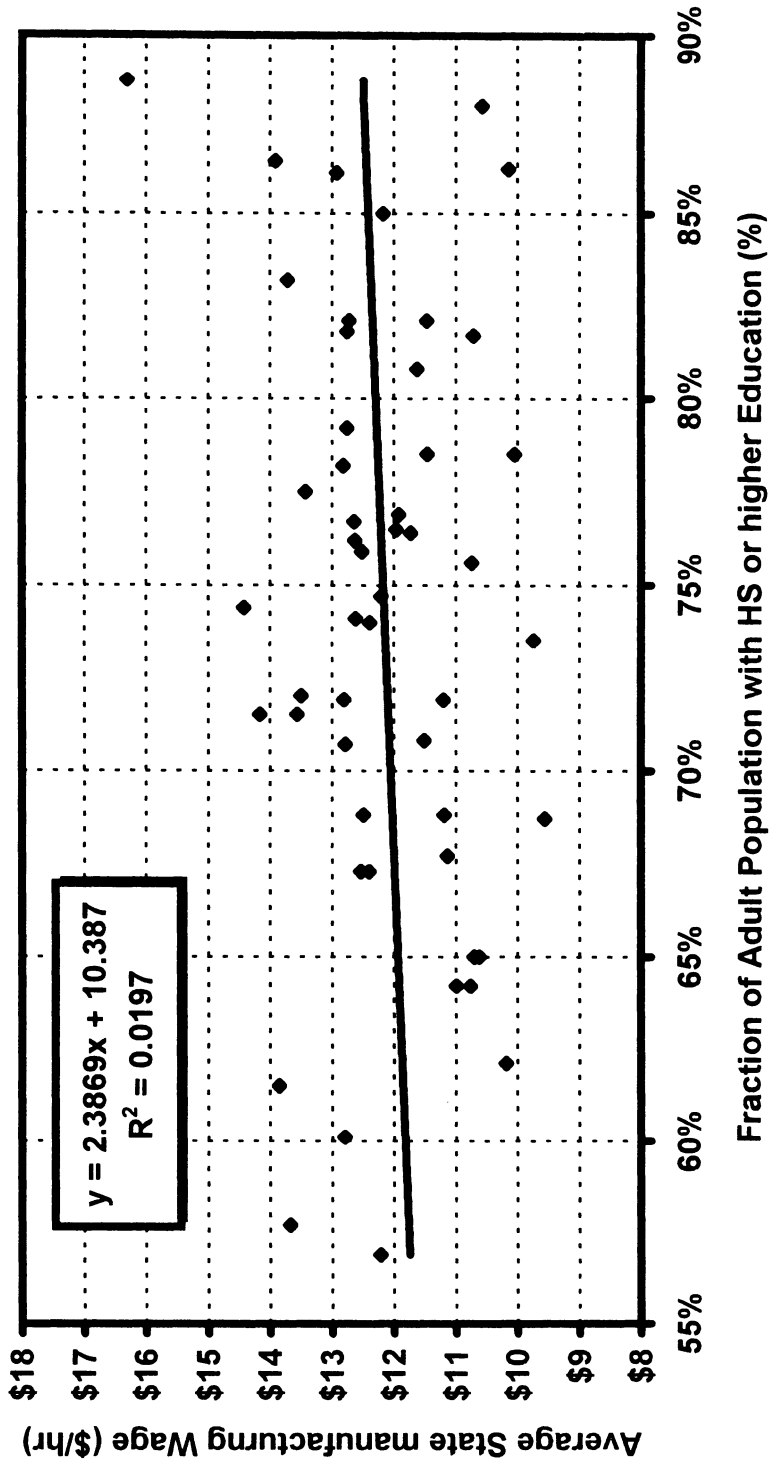


Chart 1 - EDSTAT01.XLS

State APR of Growth (1977-94 Vs. per cent of population with H. S. Diploma

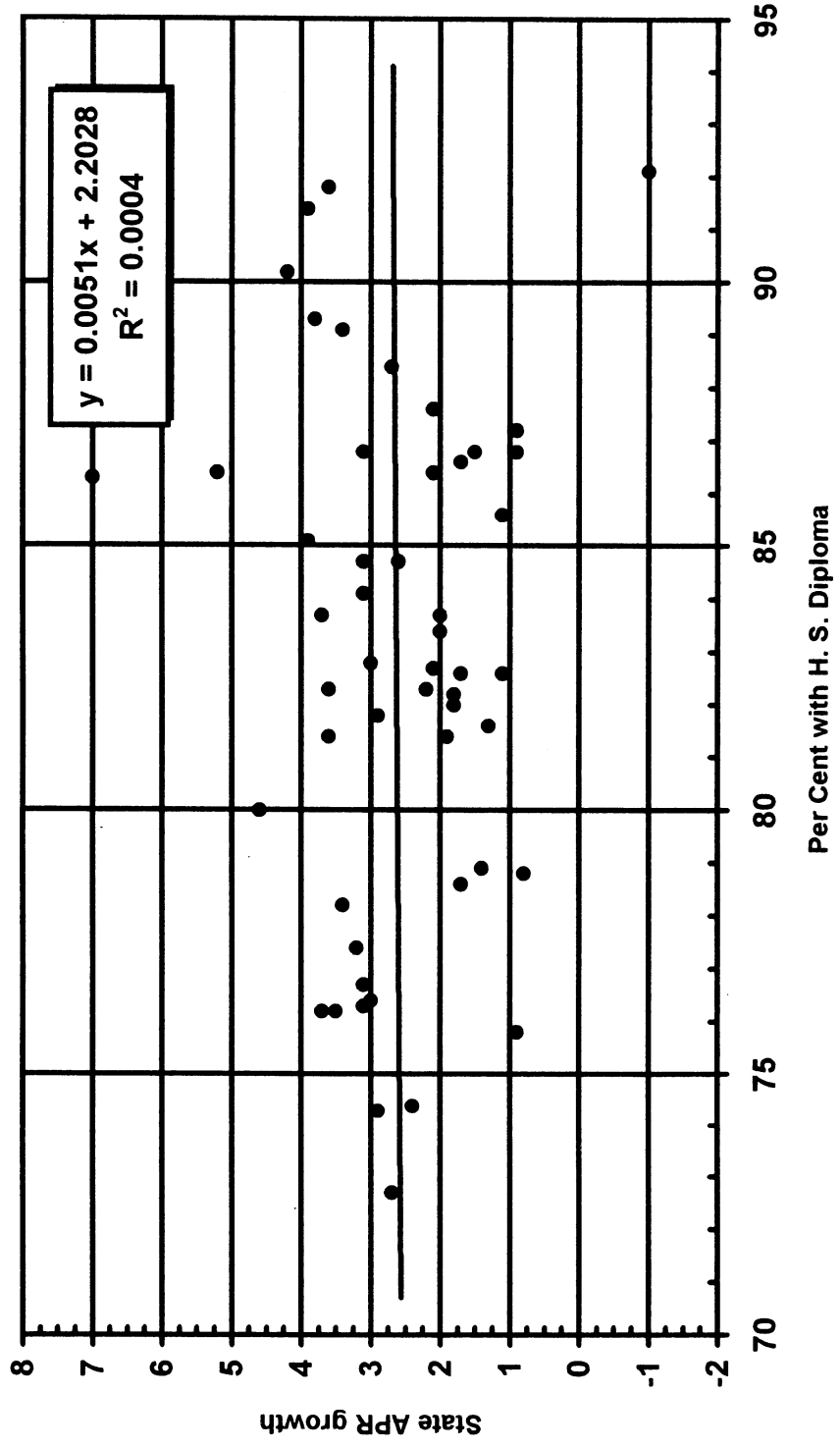


Chart 9 - GSPV4.XLS

State Growth Rates Vs. Fraction of Population with 4 year College degrees

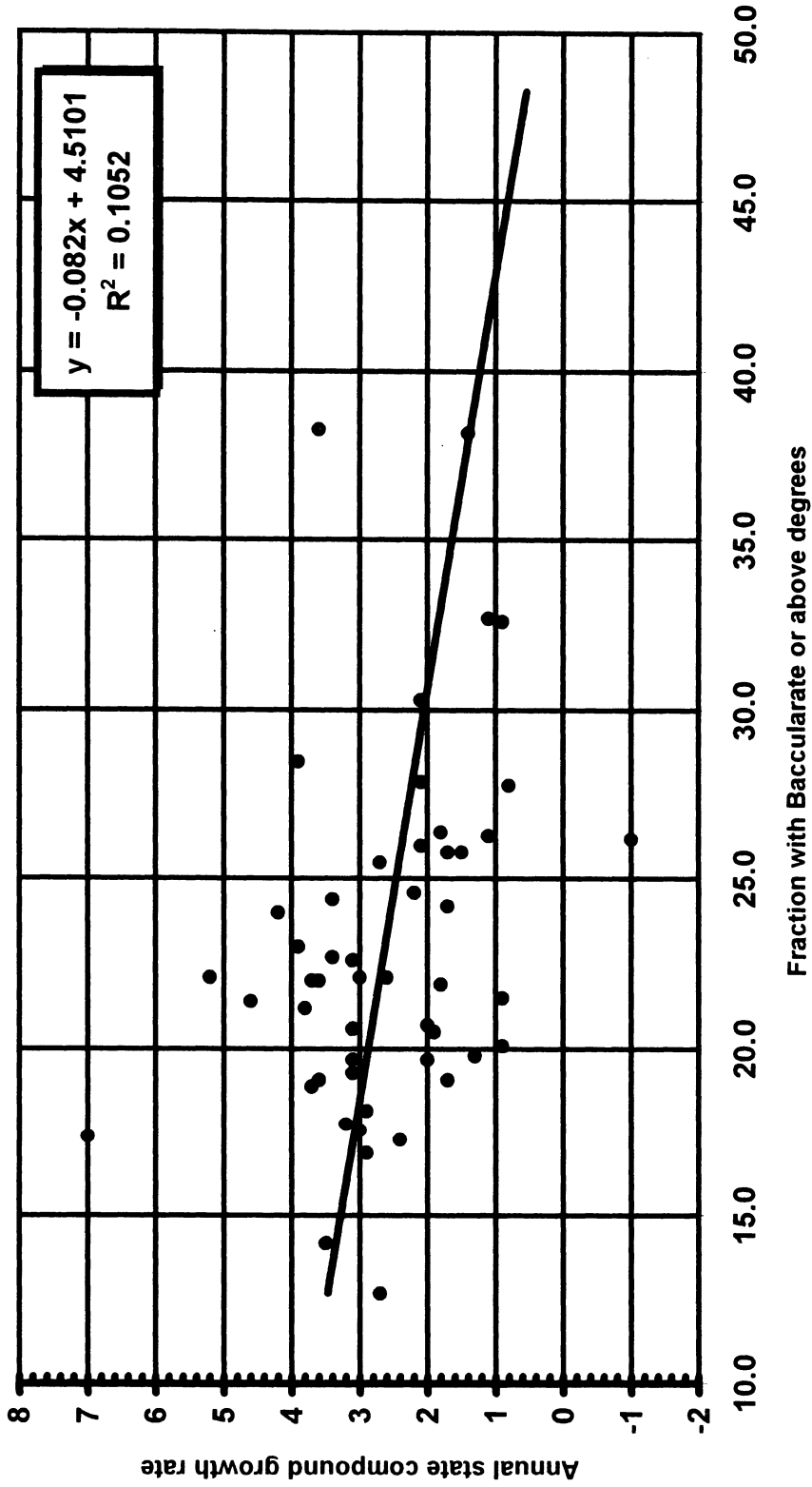


Chart 10 - GSPV4.XLS

Only 2% of Americans May Currently Farm, but 100% of Americans Currently

Eat. – As the other surviving entity of the triad on which VOTE under Smith-Hughes was founded, Farming/Agricultural Education [AgEd] warrants at least a short discussion in a study of this type. A significant segment of AgEd at the university level has transformed itself into a type of “industry<sup>16</sup>” which differs only in that its primary inputs are biologically produced grains, fruits, meats, fibers, et cetera, rather than the commonly perceived commodity industrial inputs of metals, plastics and chemicals. Employees in this sector are almost totally wage labor with no or minimal entrepreneurial or ownership stake in their employing organization. Because this segment of AgEd is operationally identical to that of the more traditional (industrial) VOTE it will not be considered separately.

Excluding the “industrial” category of AgEd, a major difference between AgEd and most other segments of VOTE is that AgEd appears to assume that its graduates, especially at the secondary and community/junior college level, will in the long term largely be self-employed entrepreneurs in that they will own or lease the means of production, that is land and equipment and will largely be self directed. Currently this is not totally correct. For example, most farmers rely on banks for operating capital, and bankers will not lend money for totally speculative or impractical activities, for example establishing a banana plantation or raising guáraná as a field crop in Oklahoma. Additionally, the practice of “contract production” whereby the farmer or rancher contracts in advance with the buyer for delivery of their products, for example chickens<sup>17</sup>,

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<sup>16</sup> See <http://www.wheatworld.org/forum11.htm>, <http://www.econ.ag.gov/AboutERS/aaea.htm>, [http://ekolserv.vo.slu.se/\(sv\)/Docs/www/Periodicals/Leopold/leo9404\\_1](http://ekolserv.vo.slu.se/(sv)/Docs/www/Periodicals/Leopold/leo9404_1)

<sup>17</sup> A good example of this is the Tyson Corporation.

in exchange for price stability, advice, and access to technology and credit, is increasing<sup>18</sup> which further limits their freedom of action. Never-the-less the presumption by both the teacher and the learner that the typical AgEd graduate anticipates in the long-term being an independent self-directed contractor, a small scale capitalist / businessperson and a self-employed entrepreneur appears to be substantially correct.

The three major legal<sup>19</sup> American field crops are: Wheat, Corn and Soya Beans. The following crop information was obtained from the National Agricultural Statistical Service and Economic Research Service of the United States Department of Agriculture and the CPI / inflation data was obtained from the United States Bureau of Labor Statistics. The following points are common to all three of the following discussions:

1. There are three types of costs commonly used in the Department of Agriculture and NASS management studies: (1) Total cash cost, (2) Total cash cost with replacement, and (3) Economic costs. It was determined that across time small but continual alterations have been made in the definitions of and the line-items included in each of these categories. The overall effect of this has been to subtly distort the data over time by reducing these costs similarly to the way the United States unemployment rate has been reduced by including the members of the armed forces and employed

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<sup>18</sup> As this practice becomes more common so do reports of abuse and exploitation of the farmer by the contracting company. For examples see <http://www.rafiusa.org/poultry/june97.html>, <http://migration.ucdavis.edu/rmn/Horwitz2.html>, <http://migration.ucdavis.edu/Rural-Migration-News/JanRMN98.html>, <http://www.animalpepl.org/97/5/farm.html>, <http://members.aol.com/IowaLegal/corpfarm.htm>,

<sup>19</sup> Cannabis Sativa or Marijuana is now widely reported to be the major cash crop in a number of states including Arkansas and Missouri and a major income source in depressed agricultural areas such as Appalachia in many other states. This appears to be primarily due to a highly effective, albeit highly expensive, "price support program" operated primarily by the United States Drug Enforcement Agency and effective governmental actions to limit cheap imports from third world countries.

prisoners<sup>20</sup> in the working population contrary to the accepted practice of almost all other countries. Very simplified and condensed definitions of these three “costs” are:

- 1.1. Total Cash Cost -- what the farmer spent out of pocket for seed, fuel, fertilizer, pesticides, taxes, insurance, and so forth. Note that the value of the farmer’s labor is considered to be zero.
  - 1.2. Total Cash Cost with Replacement -- As above, but includes the estimated pro-rated costs to replace worn machinery and equipment necessary to remain in business.
  - 1.3. Economic Cost -- As above, but also includes opportunity cost of computed value of the investment in land, buildings, equipment, and so forth. Roughly this adds the amount of money the farmer could have earned if he had invested in T bills or money market funds rather than owning farm land and equipment to the total cash cost plus replacement.
  - 1.4. Any “profit” that the farmer earns is the difference between these costs and what he can sell the crop for. His per hour earnings is this amount divided by the total numbers of hours worked to produce and harvest the crop.
2. In all cases, a continual overall decline in prices has occurred from 1946.

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<sup>20</sup> Typically paid \$0.10 to \$0.25 per hour with deductions for previously “free” items such as medical care and soap.



3. Examination of charts and tables located in the following pages indicates substantial problems in the very near future for wheat (WHEAT1.XLS) and corn (CORN01.XLS) in that their price is projected to reach zero in about 2010, while soy beans (SOYB1.XLS) will require another 10 years to reach zero price. Of course, a zero value will never be reached, but the data indicates prices for all three crops have been at or below the economic cost for some time, wheat and corn are at or below the total cost plus replacement value, and corn is currently very close to the total cash cost.
4. Neglecting the skewing effect of the very large number of small (low income) farmers, the use of averages indicates that one-half of the farmers are above and one-half are below these numbers. The use of a measure of central tendency less susceptible to skewing such as the median would simply indicate that the numbers “below average” would even be higher. This indicated that very large numbers of farmers would be much better off economically<sup>21</sup> selling the farm and equipment, investing this money in T bills and getting a job with benefits<sup>22</sup>, even at minimum wage.
5. The current low<sup>23</sup> interest rates have a very significant impact on the three cost values. Even if a farmer is one of the small minority that has sufficient

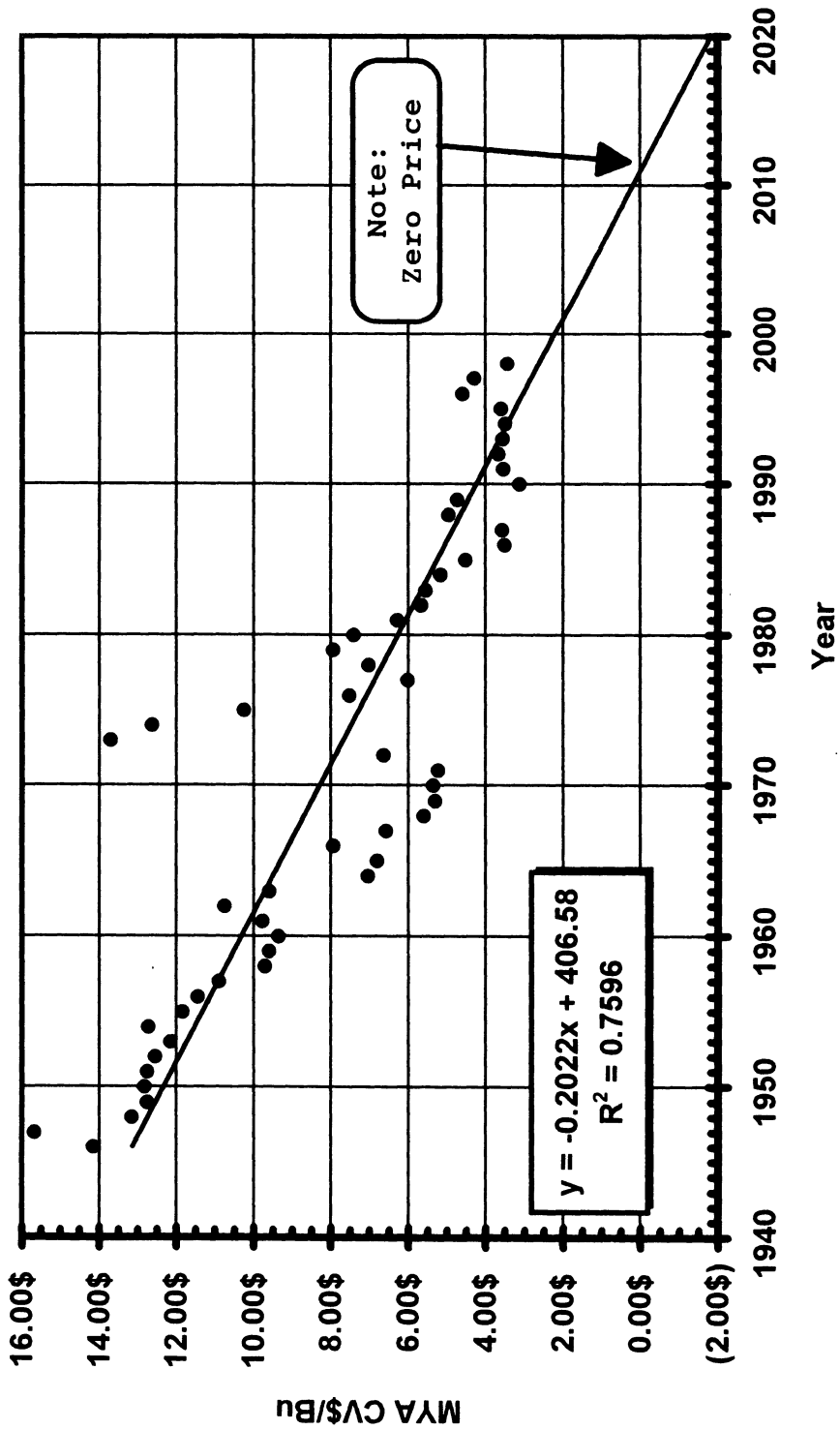
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<sup>21</sup> If prices for which the crops can be sold are at the three costs as defined this indicates that the farmer is working for nothing as no profit was generated. Indeed, if the prices is below the economic cost, the farmer is subsidizing food costs for the consumer even if there is a positive cash flow under the other two definitions.

<sup>22</sup> Of course, if large numbers of farmers do this, the resulting gross oversupply of labor will further reduce the already low and falling real wages and the resulting influx of capital will drive down the interest rates. This is another example of the Case/Generic dichotomy.

<sup>23</sup> See historical interest rate data under T-Bills in the following pages. The current interest rates (1999) are actually at about the historical average and are low only in comparison to the usurious prime / treasury rates (c. 15%) of the late Carter and early Reagan administrations.

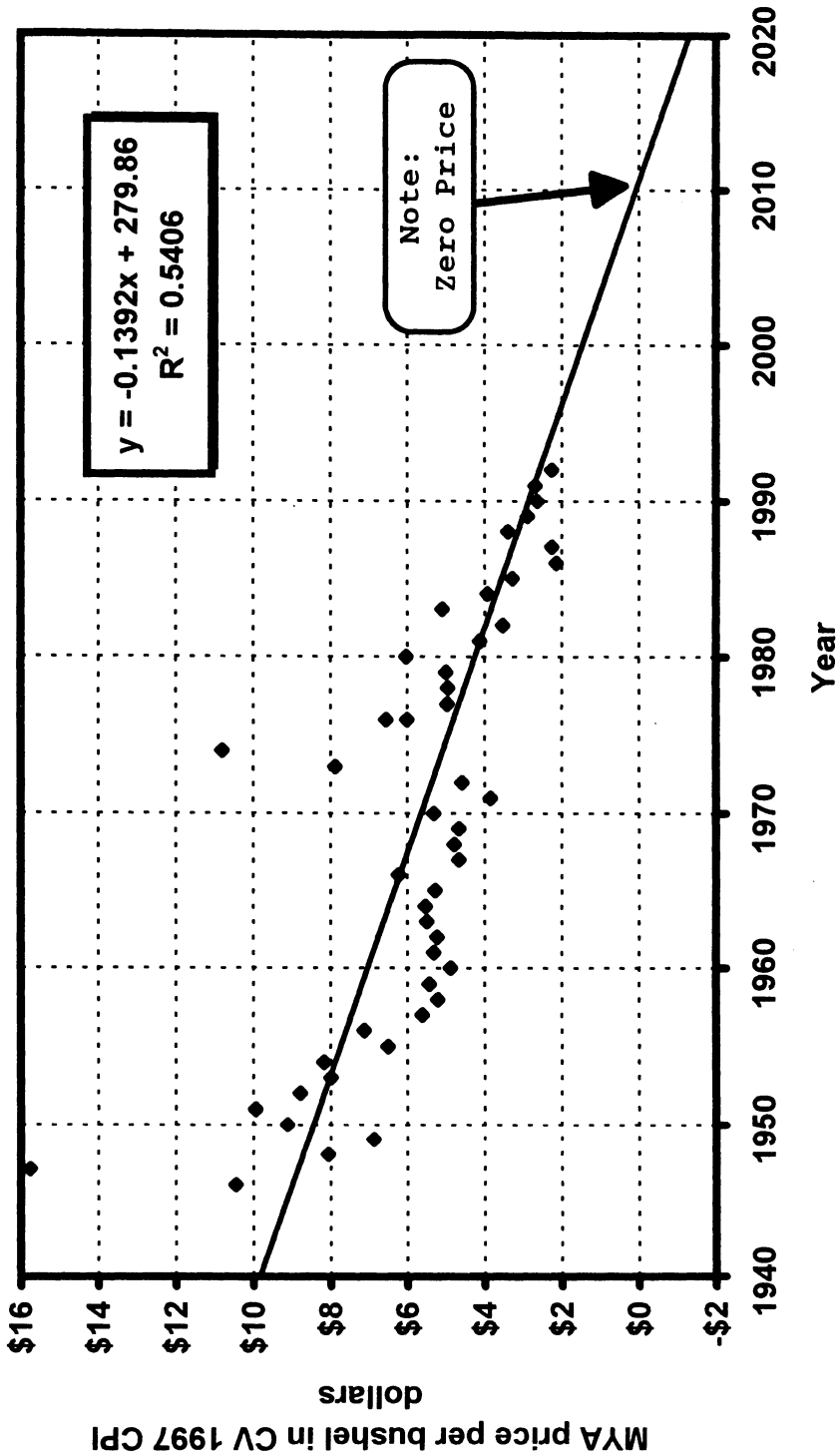
MYA Wheat Price in CV (1997CPI) \$  
source: NASS and BLS



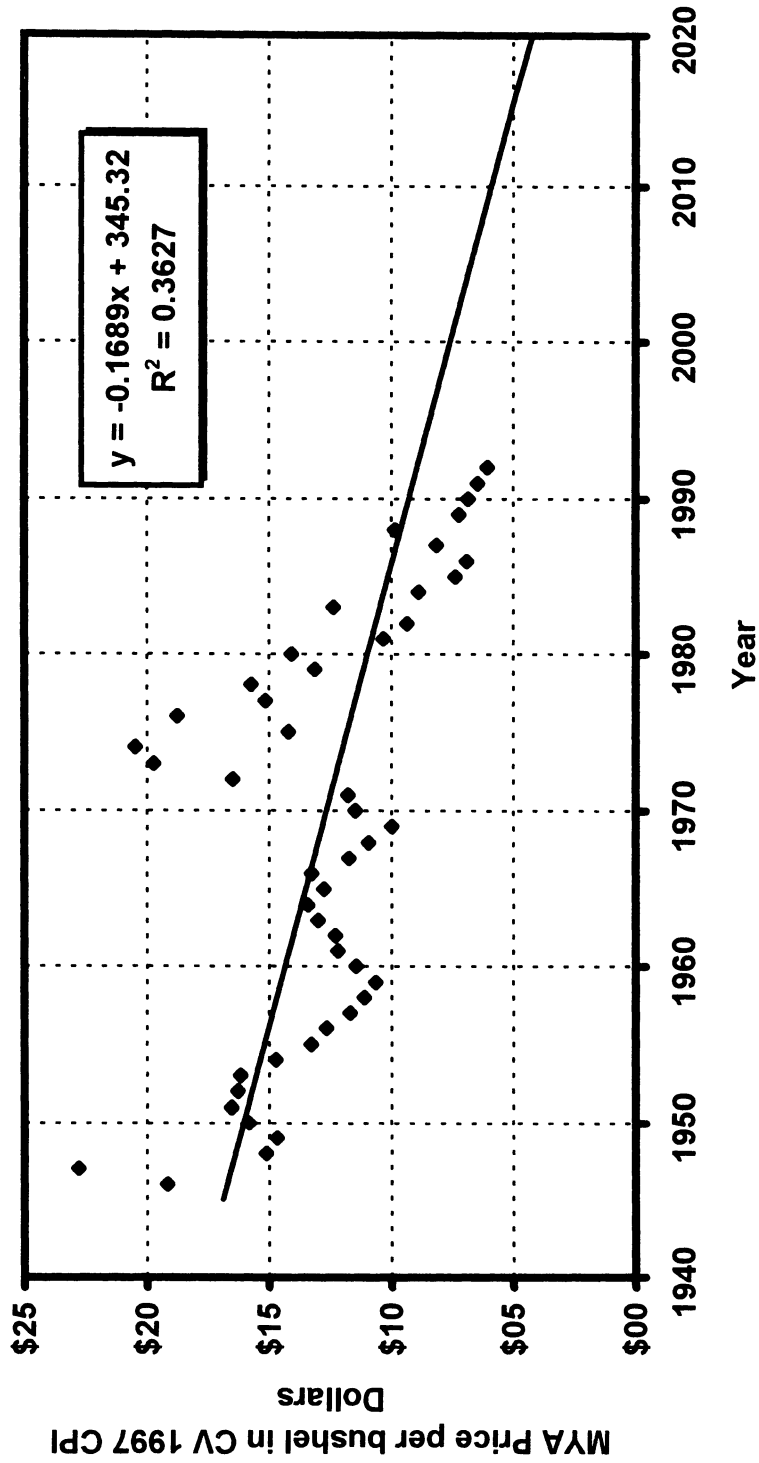
WHEAT1.XLS

# MYA Corn in CV PPI 1997 Dollars per Bushel 1946-1992

source: NASS and BLS



**MYA Soya Bean price in CV (1997 CPI) Dollars per Bushel**  
**source: NASS and BLS**

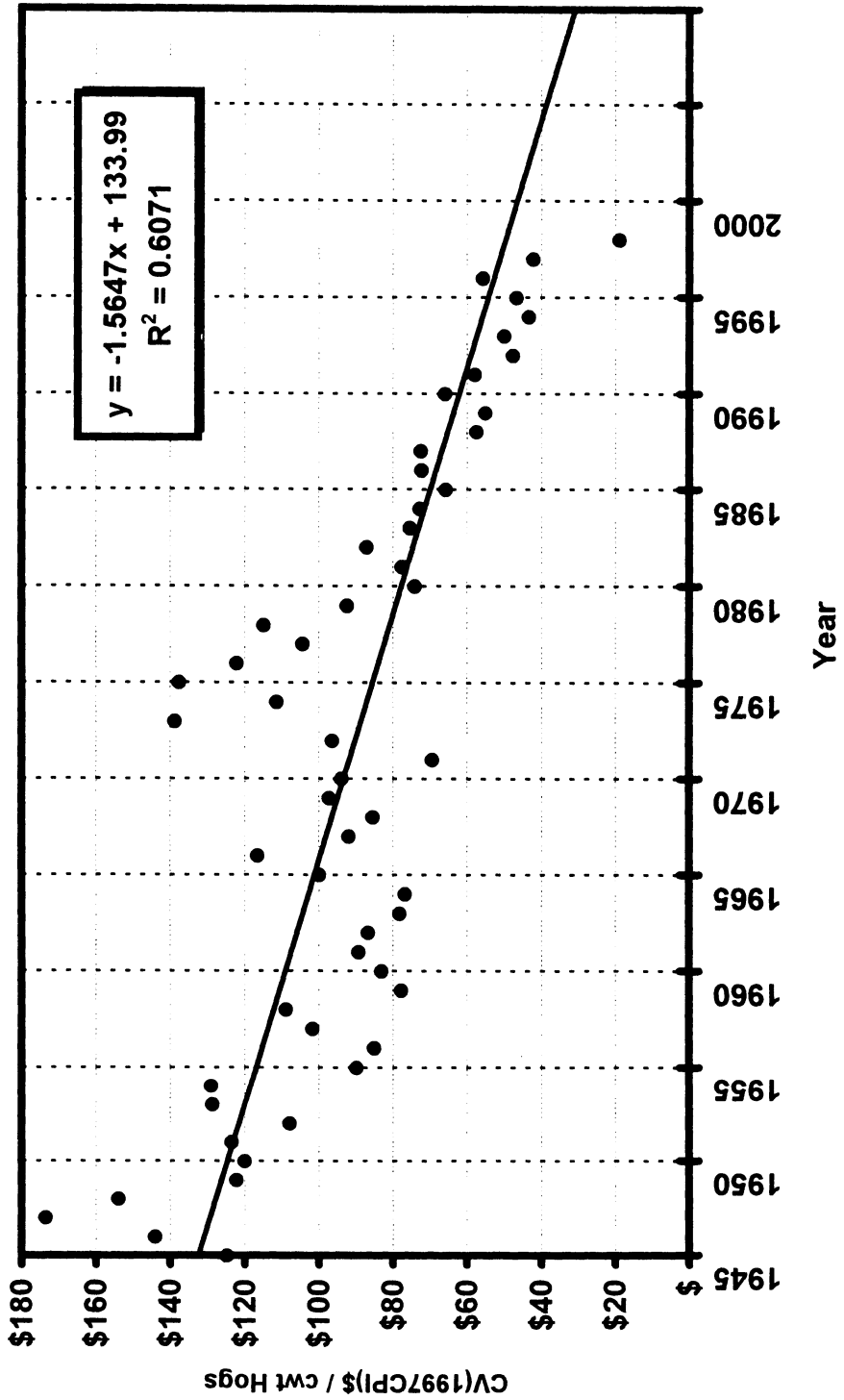


SOYB1.XLS

capital and no need to borrow money, any significant increase in interest rates will cause a corresponding increase in the total economic cost because of the increased income possible by alternative investment, and will result in a decreased demand and lower prices because of the resulting economic contraction.

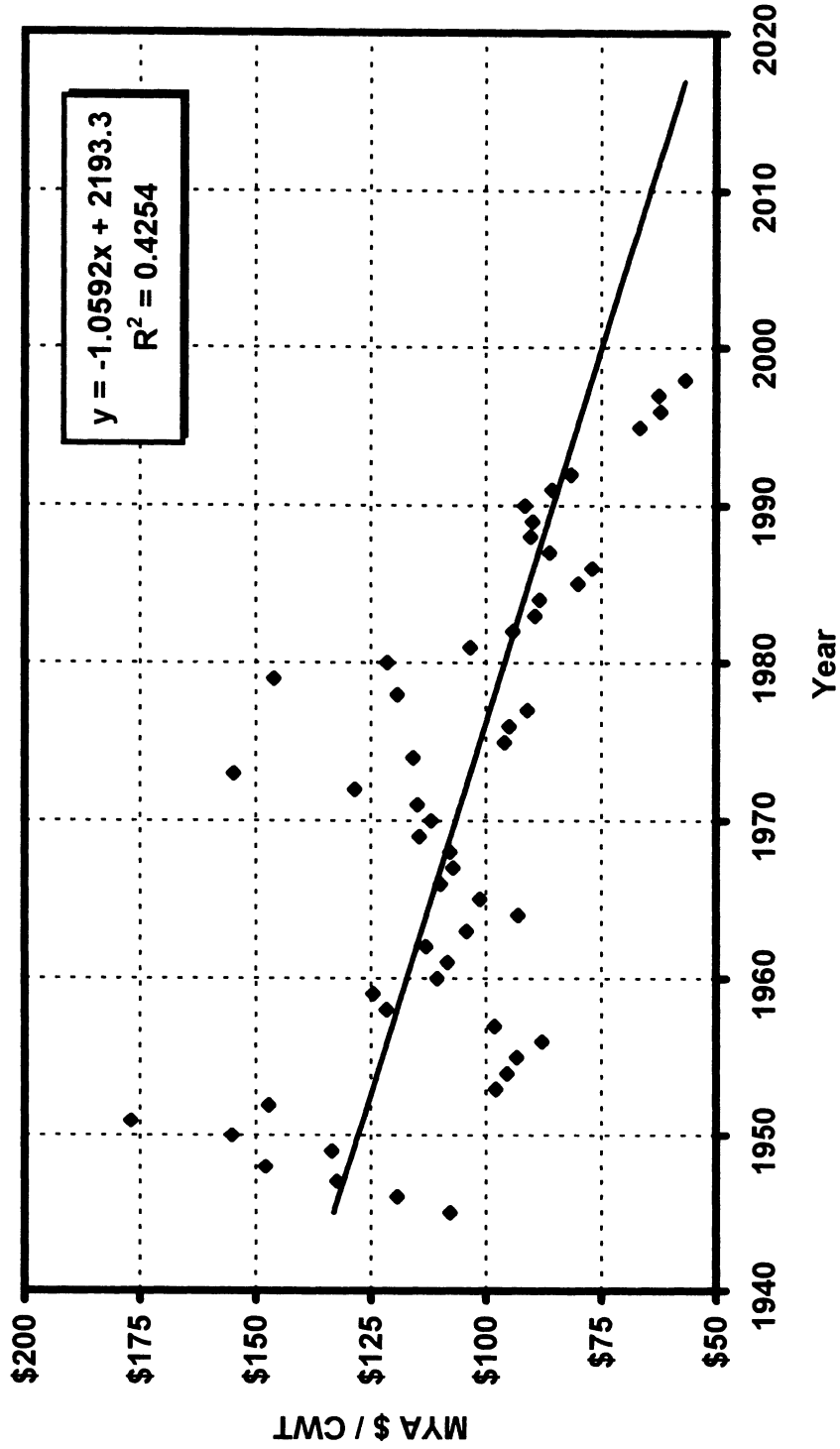
6. Exactly the same conditions exist in animal husbandry. Currently the sector most at risk is swine production. The following anecdote indicates the dangers inherent in this sector. Roughly a decade ago, a corn farmer carefully analyzed his operation and the status of agriculture with the help of his banker and county extension agent. It was determined that basic commodity crop production was not expected to be profitable and that he should convert to a “value-added” agricultural operation. After considerable additional study, it was determined that large scale swine production using the cheap corn produced by the other farmers would be the best option. Therefore the farmer borrowed large sums of money and converted his corn farm. The actual results are indicated in the Chart HOGS1.XLS which shows the consistent decline in hog prices from 1980 (for completeness, Chart CATTLE1.XLS for cattle price is included). Indeed, even when *not* adjusted for inflation, current prices (February 1999) of less than \$7.00 per cwt. are *lower than those paid during the Great Depression*. While these prices have not yet reached the crisis levels that the swine prices have, it is clear that a consistent decline is also taking place in this sector. Indeed, as more of the swine producers switch to

Hog Prices in CV(1997CPI)\$ / cwt 1945-1993 w extrapolation to 2010  
source: USDA-NASS



HOGS1.XLS

**U. S. Cattle prices 1945 - 1998 CV\$ (1997 CPI) / CWT**  
**source: USDA/NASS**



CATTLE1.XLS

cattle production because of abysmal swine prices, cattle prices will drop even faster than projected because of the increased production relative to demand.

In summary, while a few individuals, possessing exceptional talents, an abundance of luck, large amounts of capital and who specialize in niche markets such as tulip bulbs or Belgian endive may make a great success in agriculture in the coming years, *the typical individual attempting to operate in general or commodity agriculture as self-directed independent entrepreneur, owning or controlling their means of production, is highly unlikely to survive and prosper.*

### Equity and Decency

The foregoing material should cause the knowledgeable and attentive reviewer to question not only how this applies to the goals and expectations of VOTE participants, but also how and what this implies for the culture and society which has these trends and existing conditions. This question could easily be not only a dissertation in itself, but could be an entire doctoral program, nevertheless certain correlations and trends in general cultural/social behavior with the above economic material can be summarized in a few pages. These correlations, given the existing trends, are ominous and are developed specifically to alert the reviewer to some of the more fundamental and innate social problems that should be expected to intensify if existing economic trends continue.

The economic trend of greatest concern to this researcher is the rapidly increasing mal-distribution of income. Particularly as this is not primarily due to increases in individual income of the highest income groups, although this is a significant factor, but



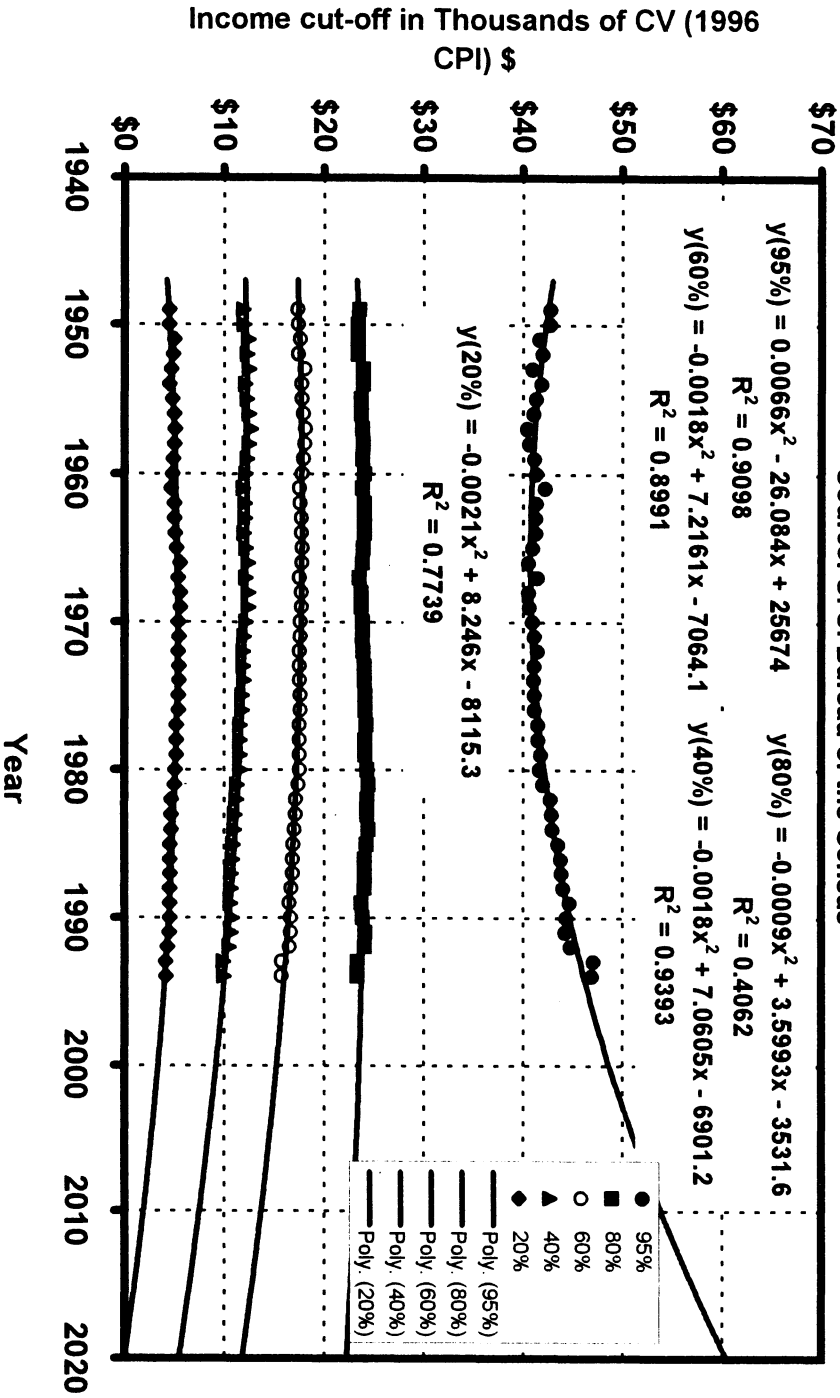
rather because this is largely the result of *significant reductions in individual income for the lower 80% of the population*. This has many economic consequences, such as the concentration of ownership and control of productive assets into fewer and fewer hands, which in turn appear to produce highly undesirable social, political and cultural changes. Data on the distribution of income in the form of quintile income distribution for the years 1947 through 1994 were obtained from the US Census Bureau as part of their p60 series of current population reports. This data was in current year dollars and when combined with CPI data from the US Bureau of Labor Statistics allowed easy comparison across this period and extrapolation to 2020. This data is presented in INCOME.XLS. Please note the following points: (1) this is gross, before tax income and does not factor in the greatly increased income, sales, and other taxes/fees, and loss of employer paid benefits such as health insurance and (2) because this is *family* income, the increase in the number of working family members is not apparent. The quintile income data is how much income did 20%, 40%, 60%, 80% and 95% of American *families* earn in each of the years. For example, using the data from INCOME.XLS, in 1970, 20% of American *families* had a combined before-tax income of \$5,400 or less in constant value 1994CPI dollars, 40% had an income of \$12,000 or less, 60% had a aggregate income of \$17,600 or less, 80% had an income of \$23,800 or less, and 95% of all American families had a family income of \$40,900 or less. This data is presented in a graphical format in Chart INCOME.XLS.

The following points are important:

1. In spite of the immense amounts of money, time and effort expended at all levels on education, training and VOTE from 1947 to 1977, the income levels and distribution for the bottom 80% of the American families

### Quintile Family Income Distribution 1947-1996 with extrapolation to 2020 in CV 1996 CPI Dollars

Source: U. S. Bureau of the Census

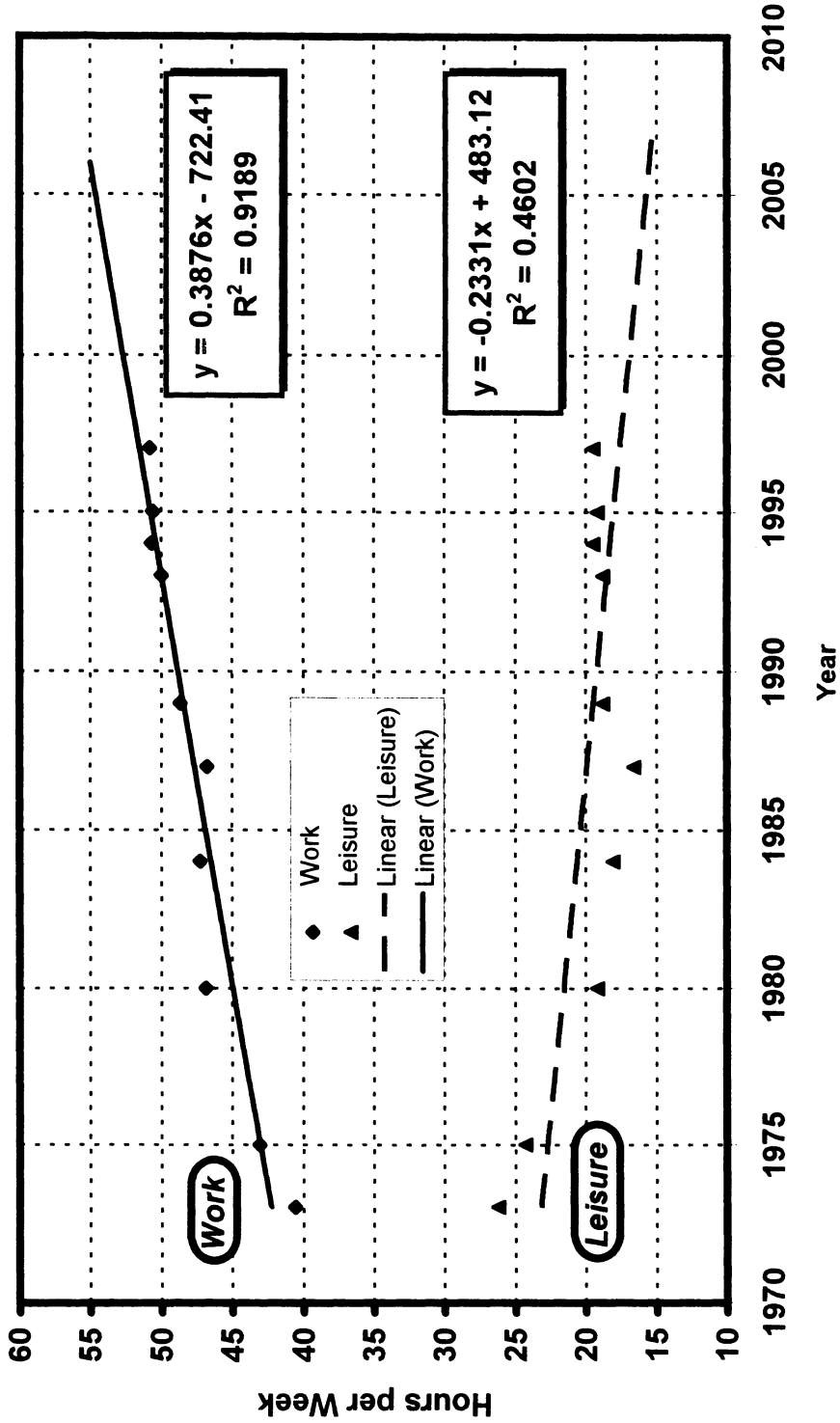


INCOME.XLS

remained essentially static. This is consistent with Tussing's dichotomy of the individual/case vs. aggregate/generic models of economic improvement. In other words, *in the aggregate* improvements made in the income level of one family were offset by income reductions in another family, and family *income was being redistributed, not increased*. A contributing factor could have been the rise in single parent families and displaced home-makers as a result of social/cultural changes such as implementation of "no fault" divorce laws in this period. Of course, the argument can be made that without the massive investments of time, money and effort in traditional academic education and VOTE, conditions would have been much worse.

2. Beginning in 1977, the 60th and lower percentiles began an increasingly rapid *loss* in aggregate family income.
3. It appears that up to about 1985 the decreasing individual median wage indicated in other sections of this chapter was being offset by the employment of additional family members and/or increases in the number of hours/jobs that the family members were working. (See HOURS.XLS) From about 1985, compensations or adjustments of this type were no longer practicable and total family incomes began to fall. This is consistent with the increase in non-business bankruptcy rates which began in 1985 (See Chart 1 BNKRPT3.XLS) although this is complicated by a concurrent revision of the federal bankruptcy laws in 1985.

Hours per Week of Work and Leisure for average US worker  
source: Louis Harris and Associates WSJA 1998 p305



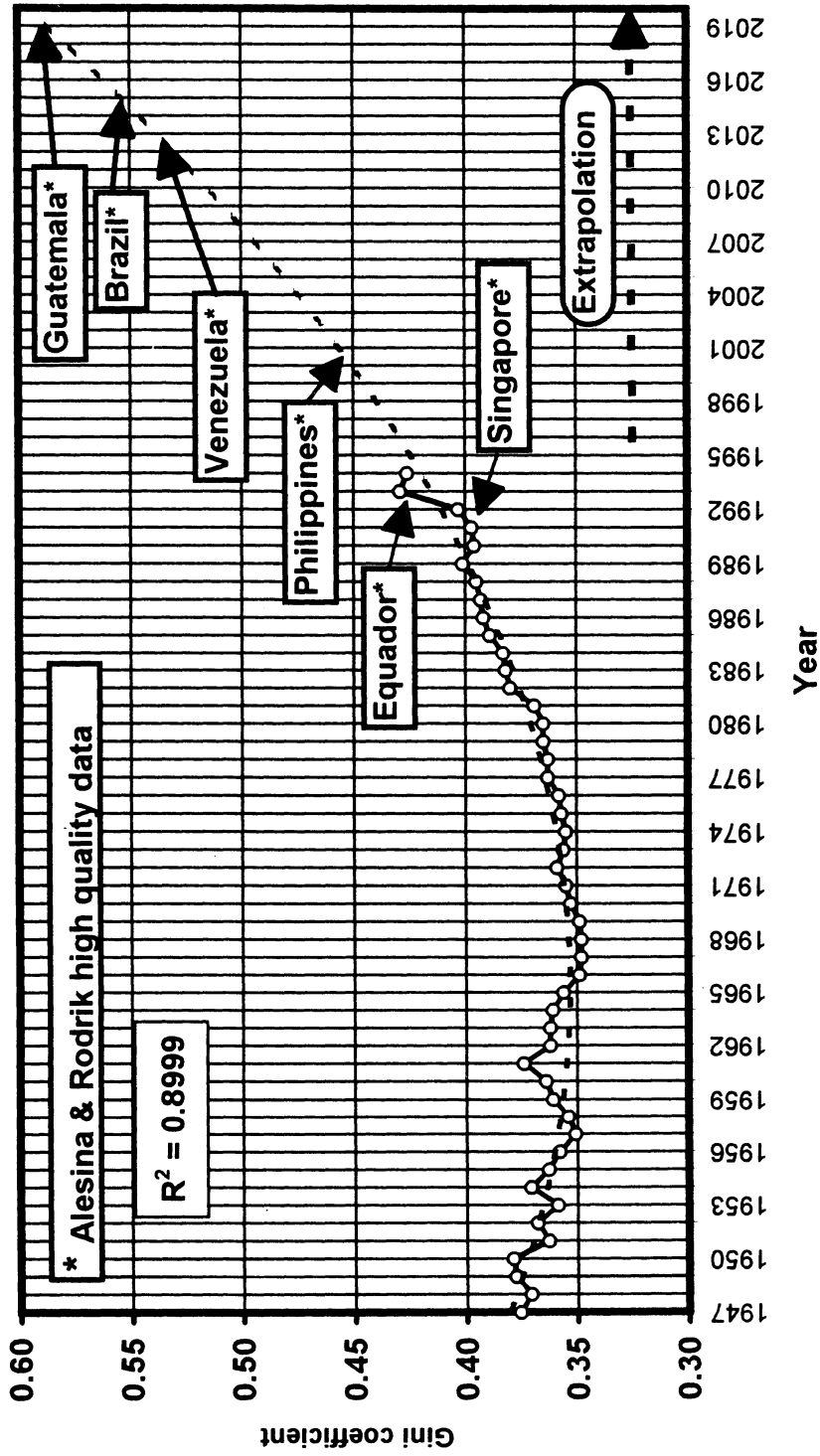
4. From 1947 to 1957, the 95th percentile family income fell from \$43,000 to \$40,400 per year, from 1957 to 1977 the 95th percentile family income was static at about \$41,000 per year, beginning in 1977 the 95th percentile limit began an accelerating increase to about \$47,000 in 1994, and is projected to increase to \$50,000 in 2003.

While informative, data in this format is somewhat cumbersome. In 1905 Conrad Lorenz, an American statistician, developed a method to consolidate this type of distribution data into a single index or coefficient. [Todaro 184] This curve or function is now called a Lorenz curve and the value is the Gini coefficient. Using a slightly different data set, the distribution of individual adult income, the United States Census Bureau has calculated the Gini coefficient and makes this data available in their p. 60 Current Population Reports series. This is presented in both tabular and graphical format in GINI.XLS.

The reviewer's attention is directed to the following points:

1. A Gini coefficient of zero indicates perfect equality of income, a coefficient of 1.00 indicates one individual has 100% of all income or perfect inequality.
2. While there are a few variations about the trend line, the US Gini coefficient decreased from a 1947 value of about .37 to a low .35 in 1966 (19 years) where it remained for 3 more years. In 1970 it began to rise at an increasing rate. By 1981 (11 years) it was back to where it had been in 1947 and in 1994 the Gini coefficient was .43 (latest available data).

U. S. Gini coefficient 1947-1994 and 2nd degree LSBF trend-line 1947-2020  
 source: 1947-1994 data U. S. Bureau of the Census, Current Population Reports, series P60



GINI.XLS

Country	Code	Year	Gini	Quntile 1	Quntile 2	Quntile 3	Quntile 4
Swaziland	SWZ	1974	63.70				
Gabon	GAB	1977	63.18	0.0290	0.0750	0.1710	0.3370
South Africa	ZAF	1993	62.30	0.0202	0.0687	0.1635	0.3513
Malawi	MWI	1993	62.00				
Sierra Leone	SLE	1968	60.79	0.0276	0.0531	0.1643	0.3803
Brazil	BRA	1989	59.60	0.0248	0.0740	0.1655	0.3482
Guatemala	GTM	1989	59.06	0.0210	0.0790	0.1840	0.3700
Guatemala	GTM	1987	58.26	0.0270	0.0900	0.1970	0.3790
Zimbabwe	ZWE	1990	56.83	0.0398	0.1027	0.2028	0.3766
Chile	CHL	1994	56.49	0.0352	0.1014	0.2099	0.3905
Panama	PAN	1989	56.47	0.0200	0.0830	0.1990	0.4020
Guinea Bissau	GNB	1991	56.12	0.0206	0.0853	0.2055	0.4114
Lesotho	LSO	1987	56.02	0.0287	0.0927	0.2052	0.4001
C. Afr. Rep.	CAF	1992	55.00				
Lebanon	LBN	1960	55.00	0.0300	0.0720	0.2300	0.3900
Kenya	KEN	1992	54.39	0.0339	0.1011	0.2084	0.3816
Botswana	BWA	1986	54.21	0.0360	0.1048	0.2190	0.4111
Senegal	SEN	1991	54.12	0.0350	0.1048	0.2207	0.4138
Honduras	HND	1993	54.00				
Mali	MLI	1994	54.00				
Venezuela	VEN	1990	53.84	0.0361	0.1067	0.2232	0.4159
Zambia	ZMB	1996	52.40				
Thailand	THA	1992	51.50	0.0370	0.1130	0.2290	0.4150
Colombia	COL	1991	51.32	0.0360	0.1239	0.2528	0.4565
Philippines	PHL	1965	51.32	0.0350	0.1600	0.2400	0.4400
Reunion	REU	1977	51.00				
Puerto Rico	PRI	1989	50.86	0.0290	0.1000	0.2340	0.4680
Nicaragua	NIC	1993	50.32	0.0420	0.1220	0.2480	0.4490
Mexico	MEX	1992	50.31	0.0413	0.1192	0.2445	0.4466
Philippines	PHL	1961	49.71	0.0420	0.1210	0.2420	0.4350
Philippines	PHL	1971	49.39	0.0360	0.1170	0.2500	0.4600
Cameroon	CMR	1983	49.00				
Dom. Rep.	DOM	1992	49.00				
Barbados	BRB	1979	48.86	0.0225	0.1025	0.2500	0.4900
El Salvador	SLV	1977	48.40	0.0500	0.1240	0.2460	0.4680
Malaysia	MYS	1989	48.35	0.0458	0.1291	0.2590	0.4627
Argentina	ARG	1989	47.59				
Seychelles	SYC	1984	47.00				
Philippines	PHL	1957	46.14	0.0654	0.1427	0.2787	0.5148
Philippines	PHL	1985	46.08	0.0520	0.1430	0.2760	0.4790

Costa Rica	CRI	1989	46.07	0.0400	0.1310	0.2740	0.4930
Philippines	PHL	1988	45.73	0.0520	0.1430	0.2760	0.4750
Bahamas	BHS	1993	45.29	0.0354	0.1166	0.2963	0.5320
Hong Kong	HKG	1991	45.00	0.0489	0.1507	0.2944	0.5063
Philippines	PHL	1991	45.00				
Peru	PER	1994	44.87	0.0488	0.1408	0.2820	0.4962
El Salvador	SLV	1990	44.77				
Ethiopia	ETH	1996	44.20				
Turkey	TUR	1987	44.09	0.0524	0.1485	0.2891	0.5006
Madagascar	MDG	1993	43.44	0.0585	0.1565	0.2978	0.5016
Ecuador	ECU	1994	43.00	0.0536	0.1426	0.2748	0.4739
Liberia	LBR	1974	43.00				
Iran	IRN	1984	42.90				
Fiji	FJI	1977	42.50				
Uruguay	URY	1989	42.36				
Bolivia	BOL	1990	42.04	0.0562	0.1528	0.2981	0.5177
Australia	AUS	1990	41.72	0.0460	0.1430	0.2980	0.5360
Trinidad	TTO	1981	41.72	0.0343	0.1354	0.2963	0.5514
Uganda	UGA	1992	40.78	0.0678	0.1709	0.3145	0.5187
Jordan	JOR	1991	40.66	0.0647	0.1676	0.3137	0.5231
Guinea	GIN	1995	40.40				
Tunisia	TUN	1990	40.24	0.0586	0.1627	0.3154	0.5367
Guyana	GUY	1993	40.22	0.0627	0.1695	0.3193	0.5309
New Zealand	NZL	1990	40.21	0.0458	0.1510	0.3141	0.5527
Paraguay	PRY	1990	39.80				
Armenia	ARM	1989	39.39	0.0170	0.1350	0.3250	0.5940
Morocco	MAR	1991	39.20	0.0657	0.1702	0.3199	0.5370
Burkina Faso	BFA	1995	39.00				
Gambia	GMB	1992	39.00				
Singapore	SGP	1989	39.00				
Algeria	DZA	1988	38.73	0.0680	0.1777	0.3271	0.5345
Sudan	SDN	1968	38.72	0.0824	0.1649	0.3734	0.5405
Djibuti	DJI	1996	38.10				
Tanzania	TZA	1993	38.10	0.0685	0.1775	0.3303	0.5456
Cote d'Ivoire	CIV	1995	38.00				
<b>USA</b>	<b>USA</b>	<b>1991</b>	<b>37.94</b>	<b>0.0450</b>	<b>0.1520</b>	<b>0.3180</b>	<b>0.5590</b>
Jamaica	JAM	1993	37.92	0.0682	0.1787	0.3329	0.5480
China	CHN	1992	37.80	0.0602	0.1672	0.3253	0.5835
Mauritania	MRT	1995	37.80				
Nigeria	NGA	1993	37.47	0.0399	0.1292	0.2729	0.5070
Mauritius	MUS	1991	36.69	0.0670	0.1830	0.3400	0.5660



Estonia	EST	1995	36.63	0.0691	0.1835	0.3423	0.5623
Niger	NER	1992	36.10	0.0748	0.1930	0.3477	0.5588
Vietnam	VNM	1992	35.71	0.0780	0.1920	0.3460	0.5700
Portugal	PRT	1991	35.63	0.0614	0.1811	0.3529	0.5958
Kyrgyz Rep.	KYR	1993	35.32	0.0670	0.1820	0.3462	0.5774
Greece	GRC	1988	35.19	0.0619	0.1778	0.3482	0.5882
Japan	JPN	1990	35.00				
France	FRA	1984	34.91	0.0658	0.1901	0.3575	0.5803
Ireland	IRL	1987	34.60	0.0493	0.1464	0.3048	0.5540
Bulgaria	BGR	1993	34.42	0.0711	0.1931	0.3590	0.5826
Ghana	GHA	1992	33.91	0.0791	0.1987	0.3597	0.5779
Togo	TGO	1957	33.80				
Korea, R.	KOR	1988	33.64	0.0739	0.1968	0.3595	0.5776
Lithuania	LIT	1993	33.64	0.0809	0.2043	0.3665	0.5792
Norway	NOR	1991	33.31	0.0540	0.1657	0.3358	0.5845
Denmark	DNK	1992	33.20	0.0548	0.1754	0.3670	0.6217
Poland	POL	1993	33.06	0.0628	0.1918	0.3701	0.6053
Kazakhstan	KAZ	1993	32.67	0.0749	0.1981	0.3672	0.5961
Sweden	SWE	1992	32.44	0.0668	0.1891	0.3653	0.6102
UK	GBR	1991	32.40	0.0764	0.2025	0.3621	0.5916
Germany	DEU	1984	32.20	0.0659	0.1938	0.3735	0.6112
Italy	ITA	1991	32.19	0.0841	0.2158	0.3929	0.6257
India	IND	1992	32.02	0.0880	0.2130	0.3750	0.5890
Egypt	EGY	1991	32.00	0.0871	0.2120	0.3747	0.5891
Yugoslavia	YUG	1990	31.88	0.0733	0.1980	0.3725	0.6097
Indonesia	IDN	1993	31.69	0.0868	0.2095	0.3724	0.5930
Pakistan	PAK	1991	31.15	0.0840	0.2127	0.3814	0.6030
Israel	ISR	1992	30.80	0.0749	0.2040	0.3802	0.6179
Taiwan	OAN	1993	30.78	0.0713	0.2025	0.3790	0.6134
Switzerland	CHE	1982	30.60				
Soviet Union	SUN	1993	30.53	0.0743	0.2007	0.3788	0.6223
Laos	LAO	1992	30.40	0.0955	0.2247	0.3873	0.5976
Sri Lanka	LKA	1990	30.10	0.0892	0.2205	0.3894	0.6066
Nepal	NPL	1984	30.06	0.0911	0.2200	0.3868	0.6050
Surinam	SNM	1962	30.00	0.1070	0.2230	0.3700	0.5760
Netherlands	NLD	1991	29.38	0.0692	0.2107	0.3997	0.6364
Austria	AUT	1987	28.94	0.0724	0.2117	0.3989	0.6361
Rwanda	RWA	1983	28.90	0.0970	0.2279	0.3944	0.6108
Belarus	BRS	1995	28.53	0.0868	0.2238	0.4006	0.6271
Banglades	BGD	1992	28.27	0.0935	0.2286	0.4010	0.6209
Czech Rep	CSR	1994	28.26	0.0966	0.2318	0.4018	0.6190

Slovenia	SVA	1993	28.20	0.0953	0.2306	0.4019	0.6213
Hungary	HUN	1993	27.94	0.0973	0.2364	0.4052	0.6187
Canada	CAN	1991	27.65	0.0768	0.2136	0.4032	0.6516
Luxembourg	LUX	1985	27.13	0.0875	0.2267	0.4072	0.6400
Latvia	LAT	1993	26.98	0.0960	0.2320	0.4068	0.6327
Belgium	BEL	1992	26.92	0.0813	0.2237	0.4117	0.6497
Finland	FIN	1991	26.11	0.0778	0.2241	0.4212	0.6620
Slovenia	SVA	1992	25.95	0.1012	0.2414	0.4169	0.6387
Spain	ESP	1989	25.91	0.0839	0.2271	0.4139	0.6472
Ukraine	UKR	1992	25.71	0.0954	0.2366	0.4170	0.6462
Czechoslovakia	CSK	1992	24.51	0.1094	0.2529	0.4277	0.6443
Romania	ROM	1989	23.38	0.0998	0.2488	0.4360	0.6677
Slovak	SLO	1993	21.50	0.1146	0.2647	0.4474	0.6711

Total death rate for 5 to 24 year olds vs gini coefficient for 27 countries

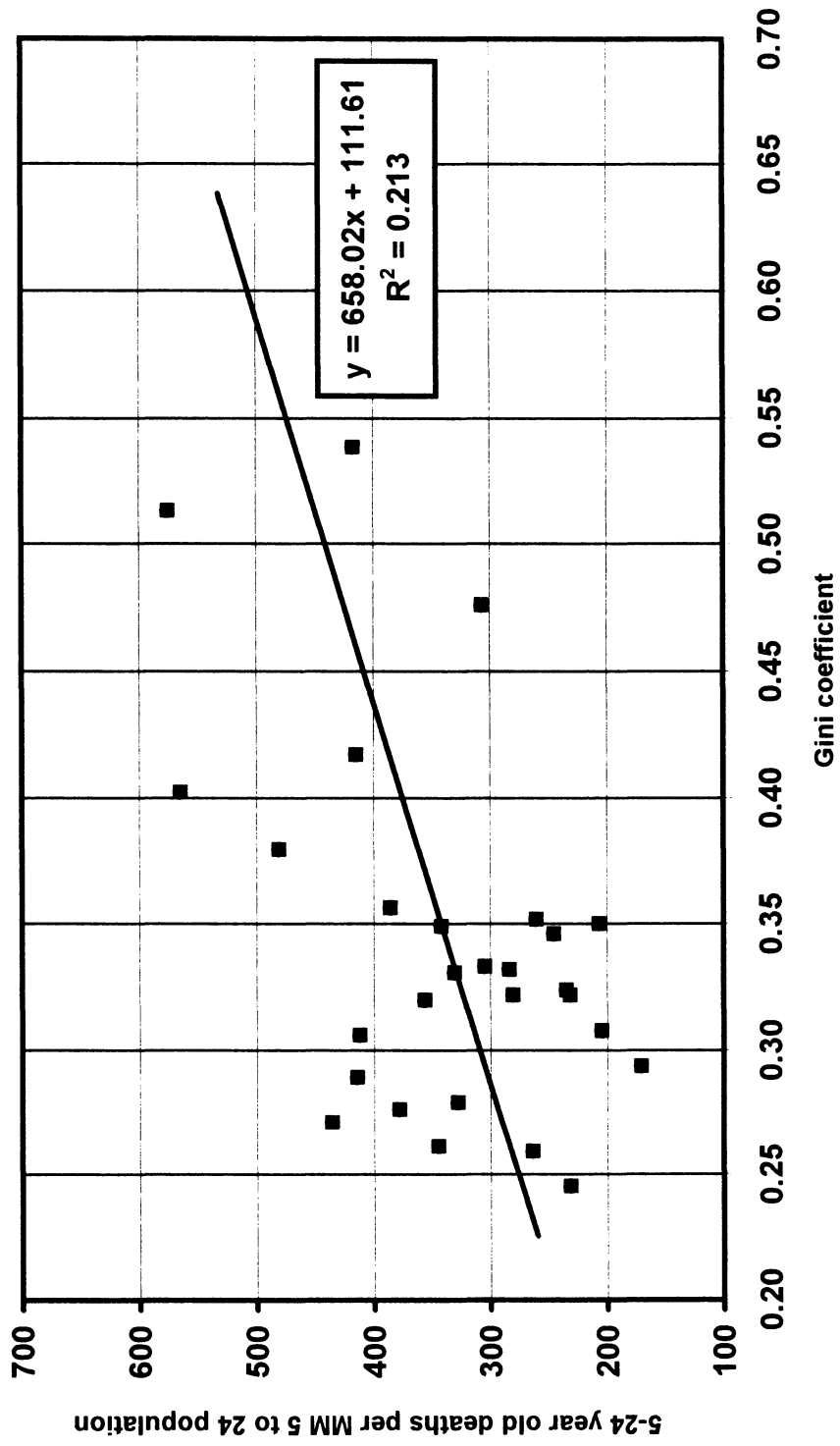


Chart 1 - DEADGINI.XLS

4-24 year old accidental death rate vs Gini coefficient for 27 countries

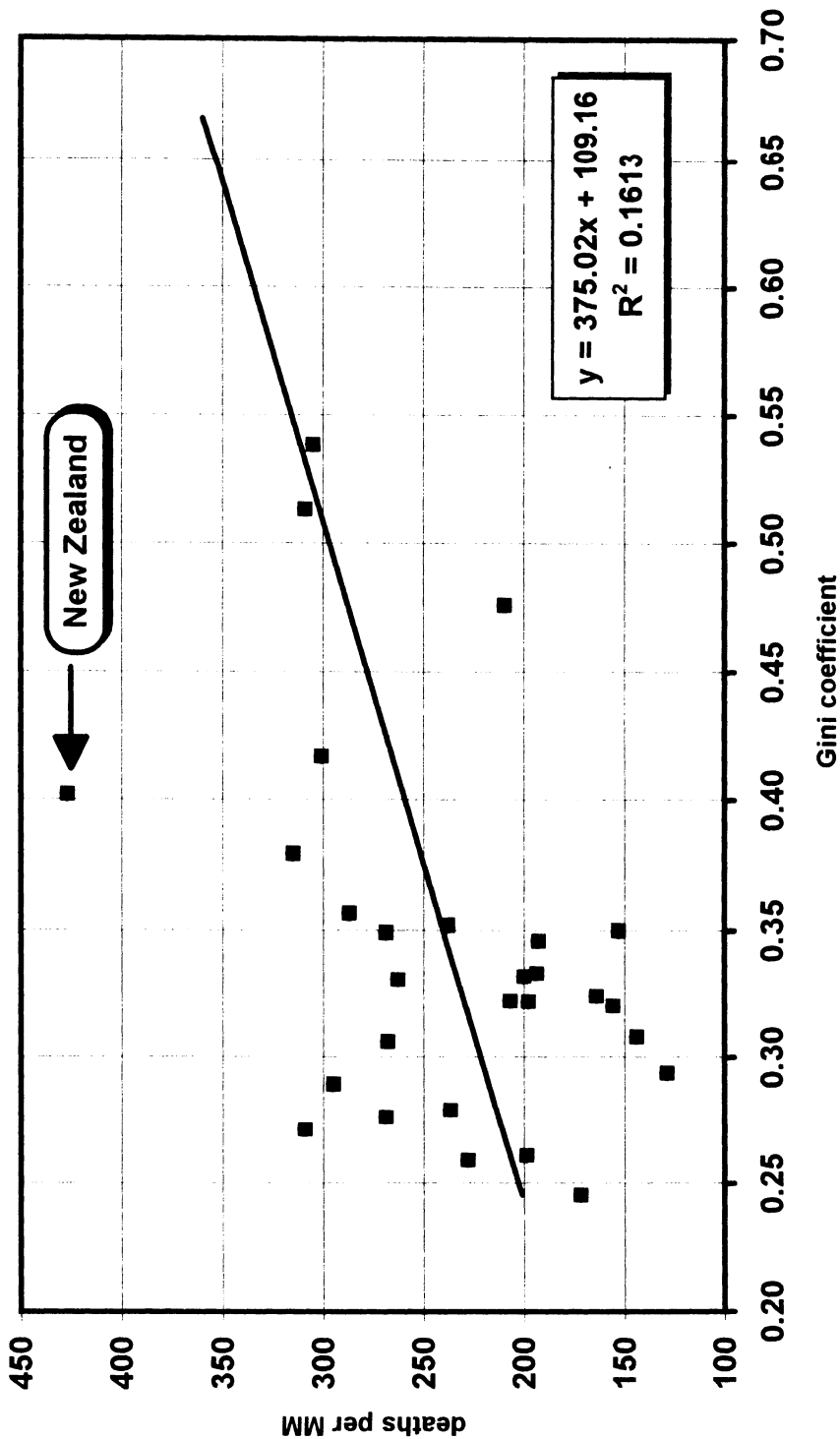


Chart 2 - DEADGINI.XLS

Homicide rate 4-24 year olds Vs Gini coefficient for 27 countries

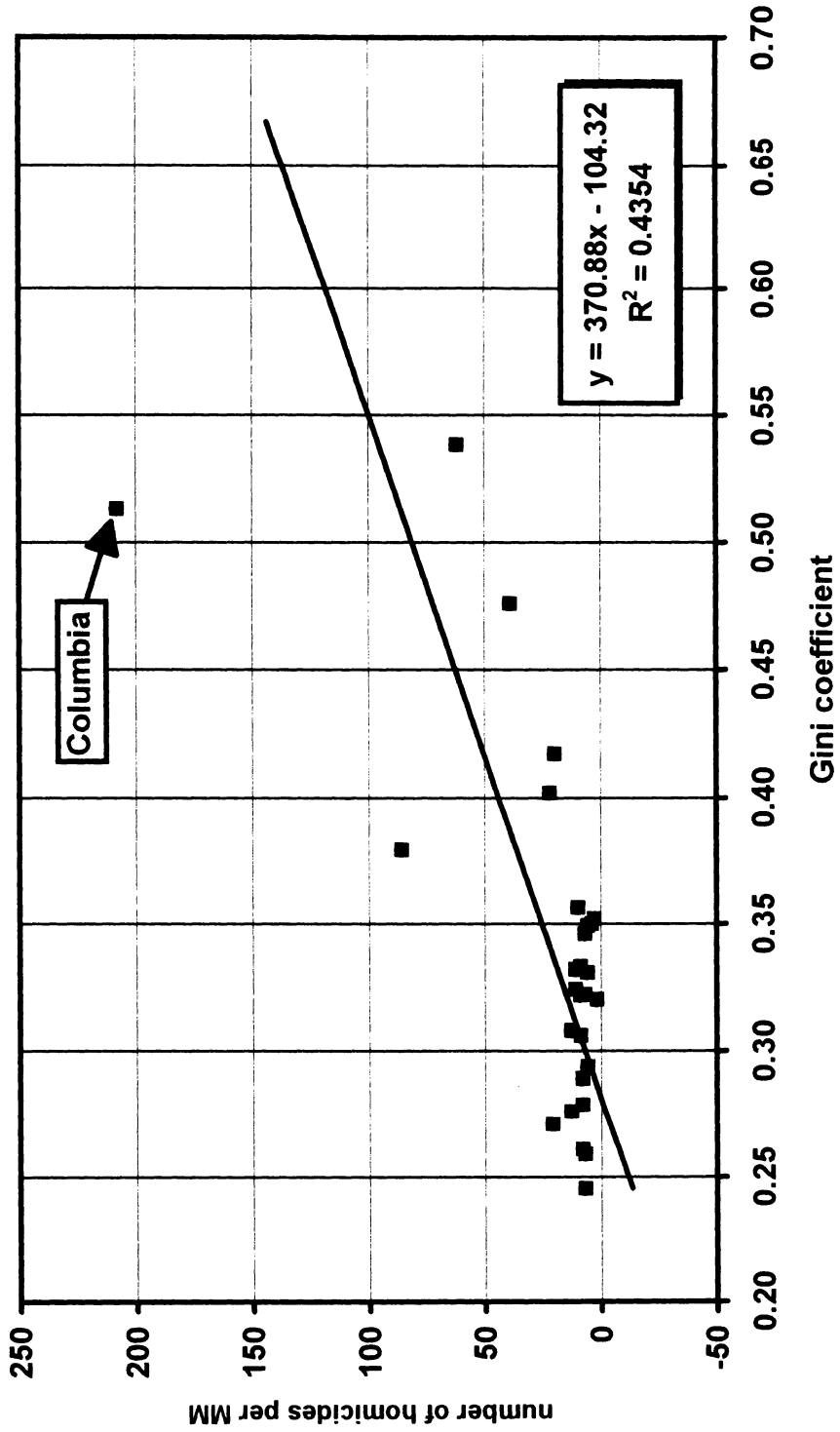


Chart 3 - DEADGINI.XLS

4-24 year old suicide rate vs Gini coefficient for 27 countries

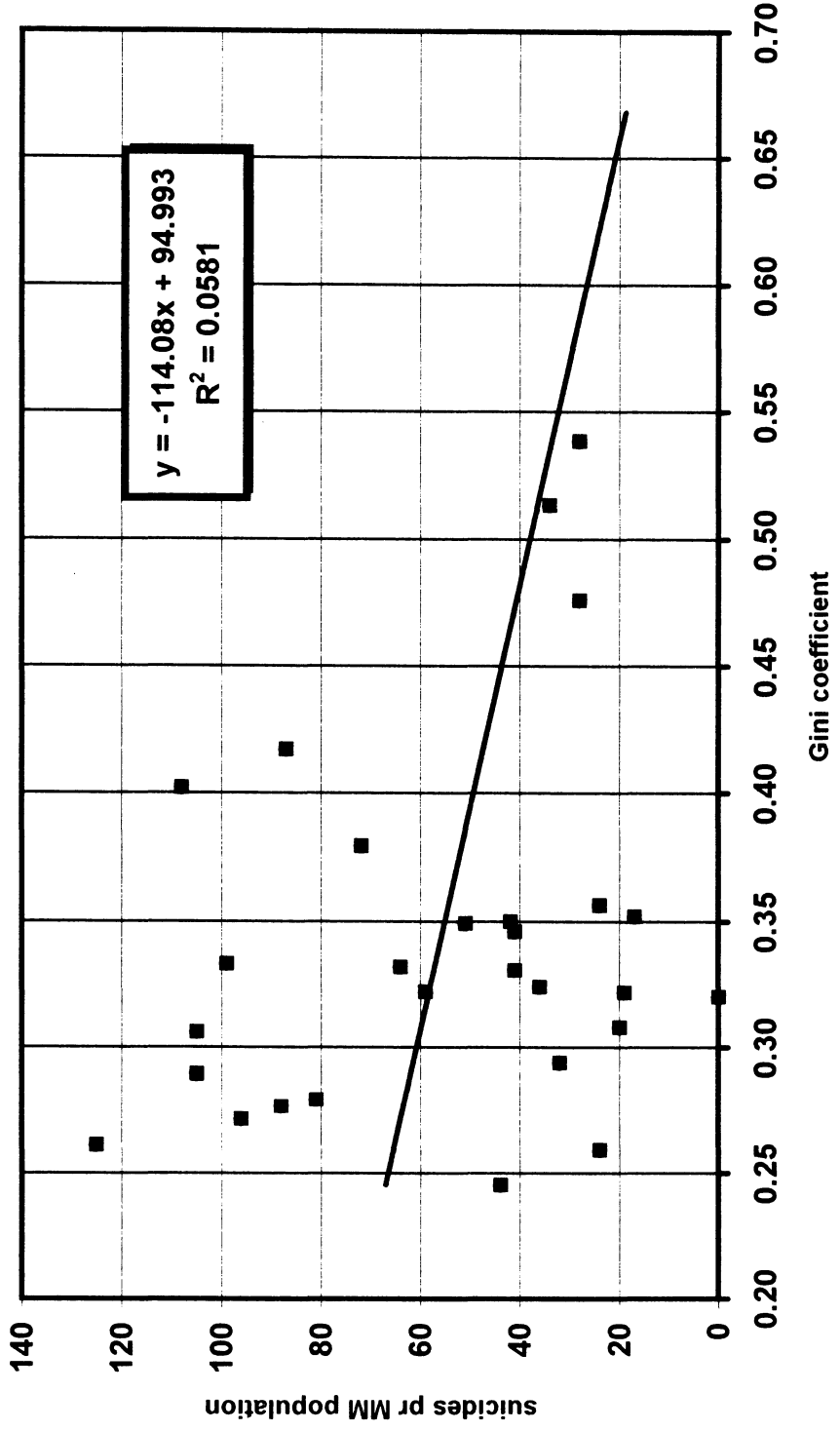


Chart 4 - DEADGINI.XLS

3. Because of the decrease followed by an increase in the Gini coefficient, a 2<sup>nd</sup> degree polynomial LSBF trend-line was indicated. The calculated trend line has a high  $R^2$  value of 0.8999 indicating a high degree of correlation between the predicted and actual values. This trend line was extrapolated to 2020.
4. Because the Gini coefficient is a recognized economic measure and is currently consistent across many studies, national Gini coefficients can be compared. It should be remembered that what is being compared is the equality of income distribution and neither the relative or absolute levels of income. The reviewer's attention is directed to the following points:
  - 4.1. Of all major industrialized [OECD] countries, the United States has the highest current Gini index, 0.426 in 1994. This indicates that the despite common American self-perceptions of equality and a classless society, American income is more unequally distributed than in countries we perceive to be highly élitist such as the United Kingdom, France or Italy and much more unequally distributed than the more socialist countries such as Norway and Sweden.
  - 4.2. Data indicates that except for the United States, the Gini coefficients for all other OECD countries are tending to fall, indicating more uniform distribution of income. The more socialist countries, with very low initial Ginis, have had small rises in their Gini coefficients, but this seems to have been the result of increased

income for the higher income groups, not falling income for the lower income groups.

- 4.3. The countries indicated on the GINI.XLS graph have Gini coefficients as indicated. For example, the Gini coefficient for Singapore in 1994 was .39 or what the US Gini coefficient was in 1990. In 1993, the United States had a Gini coefficient of 0.429 which is the same as Ecuador. In 2000 the US is projected to have the same Gini coefficient as the Philippines currently does, in 2012 the US Gini is projected to match that of Venezuela, and in 2019 the US Gini is projected to pass that of Brazil and match that of Guatemala.
- 4.4 The appears to be significant correlations between the Gini coefficient and many “Quality-of-Life” factors such as the crime rates when measured by country. The much higher crime rates in urban areas with high disparity of incomes (that is a high local Gini coefficient) such as New York City and the District of Columbia in comparison to the country as a whole reinforces this perception.
- 4.5. While it is simplistic to suggest that there is an exact correlation or “cause and effect” between the Gini coefficient and social conditions, that is when the US Gini coefficient reaches .513 which was that for Columbia in 1991, the social, economic and political conditions will be the same, it is clear that as the Gini coefficient increases, perceived “Quality-of-Life” by most measures decreases.



Crime can be contained or even reduced with an increasing Gini coefficient as shown over the last few years in the United States, but only at the cost of massive increases in the number of people incarcerated, additional law enforcement personnel, increasing governmental intrusion and monitoring, and personal security costs such as home and auto burglar alarms.

- 4.6. As indicated on Chart 4 TAXTIME1.XLS, the individual tax rate as per cent of income has a significant positive correlation ( $R^2 = 0.351$ ) to the Gini coefficient in the United States. That is as the Gini coefficient increases, so do the individual tax rates. To paraphrase Rousseau's observation in his essay "Political Economy" *The poor cannot pay [taxes], the rich will not pay [taxes], so the entire cost of the state must be borne by those who are neither rich nor poor.*

### The Distribution of Taxes and the Distribution of Income

As indicated in the previous section, increasing individual tax rates as a fraction of income appear to be significantly and positively correlated with the Gini coefficient. Because the US Gini coefficient has consistently increased from 1968 it should be possible to examine the apparent correctness of this assertion as well as Rousseau's aphorism. The Internal Revenue Service maintains data on the amount and sources of federal government income which is presented in 96CRO4PS.XLS in graphical and tabular format in the

following pages. A private group has calculated the individual total tax rate as a fraction of income which is presented in TAXTIME1.XLS

The following points are important:

1. Despite the falling real median wages, which by trend-line peaked in 1982, individual tax rates continue to climb from about 32% in 1982 to about 36% in 1997. The LSBF trend or regression line has an  $R^2$  of 0.882 and individual tax rates are projected to continue to rise into the next century, even as the base wage declines. (That is increasingly regressive tax rates)
2. On Chart 4 96CROP4.XLS, in current year dollars, the amount of individual taxes collected has increased, and is projected to increase much more rapidly than the amount of corporate taxes collected. The increase would be less steep in inflation adjusted CV dollars, but the relative rates of increase would be the same.
3. To avoid the use of the CPI index to calculate constant value dollars, to which some researchers object as being overstated, the ratio of corporate taxes to individual taxes was calculated and plotted on Chart 1 96CRO4PS.XLS. Note the following points:

- 3.1. At the highest point (1966) for every one dollar collected in individual federal income taxes, corporations paid \$0.50. The lowest ratio was in 1983 when corporations paid only about \$0.18 for every \$1.00 paid by the individual tax payer. While this increased to about \$0.25 per \$1.00 in 1996, the LSBF trend line, with an  $R^2$  of 0.567, is clearly down at a rate of about \$0.006 per

year. While it is unlikely that a ratio of zero will ever be reached, it is clear that corporations (employers) contribute less to the operation of government with every passing year, compared to the individual.

- 3.2. The Federal government collects a verity of taxes in addition to income taxes. When corporate income and profit taxes are examined as the fraction of total federal government revenues<sup>24</sup> (Chart 2 96CRO4PS.XLS) a similar pattern emerges. From the tabular data, the largest fraction was in 1966 when corporate income and profit taxes provided 23.5% of all federal revenue. The lowest point was in 1983 when only 9.8% of all federal revenue was provided from this source. This has rebounded to about 12.7% in 1996 (last available data) but the LSBF trend / regression line is clearly down at the rate of 0.3% per year with a  $R^2$  value of 0.687
- 3.3. Duties and Tariffs provided a substantial amount of revenue to the federal government, and this was largely paid by the importing corporations. Ratification of NAFTA and GATT are gradually eliminating this revenue, which must be provided by the other tax payers. There does not generally appear to be an offsetting reduction in price on the imported consumer goods such as clothing. A local anecdotal example of this is the maintenance of the same prices for Dickey brand shirts and pants even though

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<sup>24</sup> This eliminates the use of the CPI index to allow comparison across time.

Deaths due to "Other Causes" for 4-24 year olds vs Gini coefficient for 27 countries

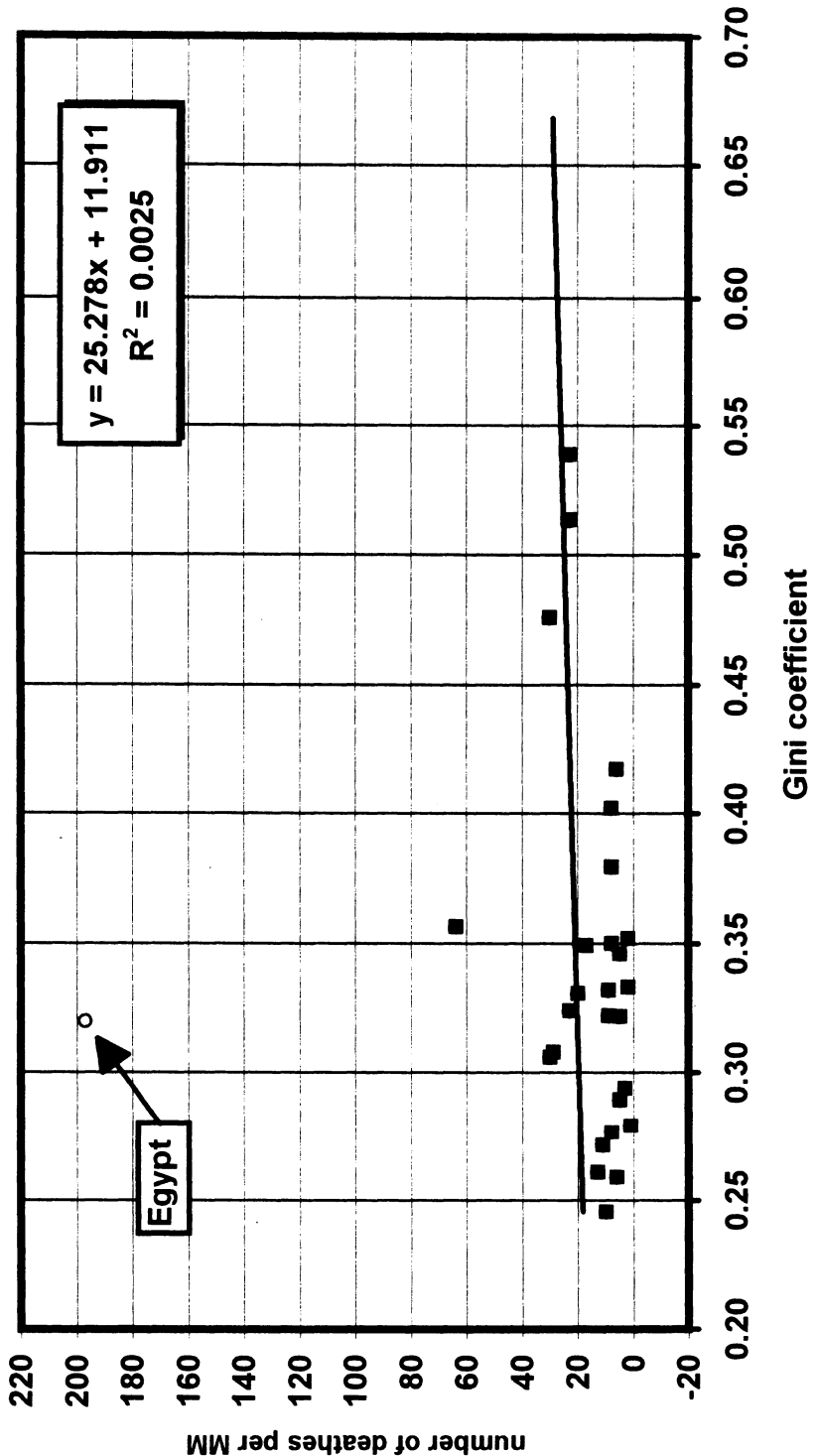


Chart 5 - DEADGINI.XLS

Total individual taxes as percent of individual income  
1945-1998 with LSBF Trendline

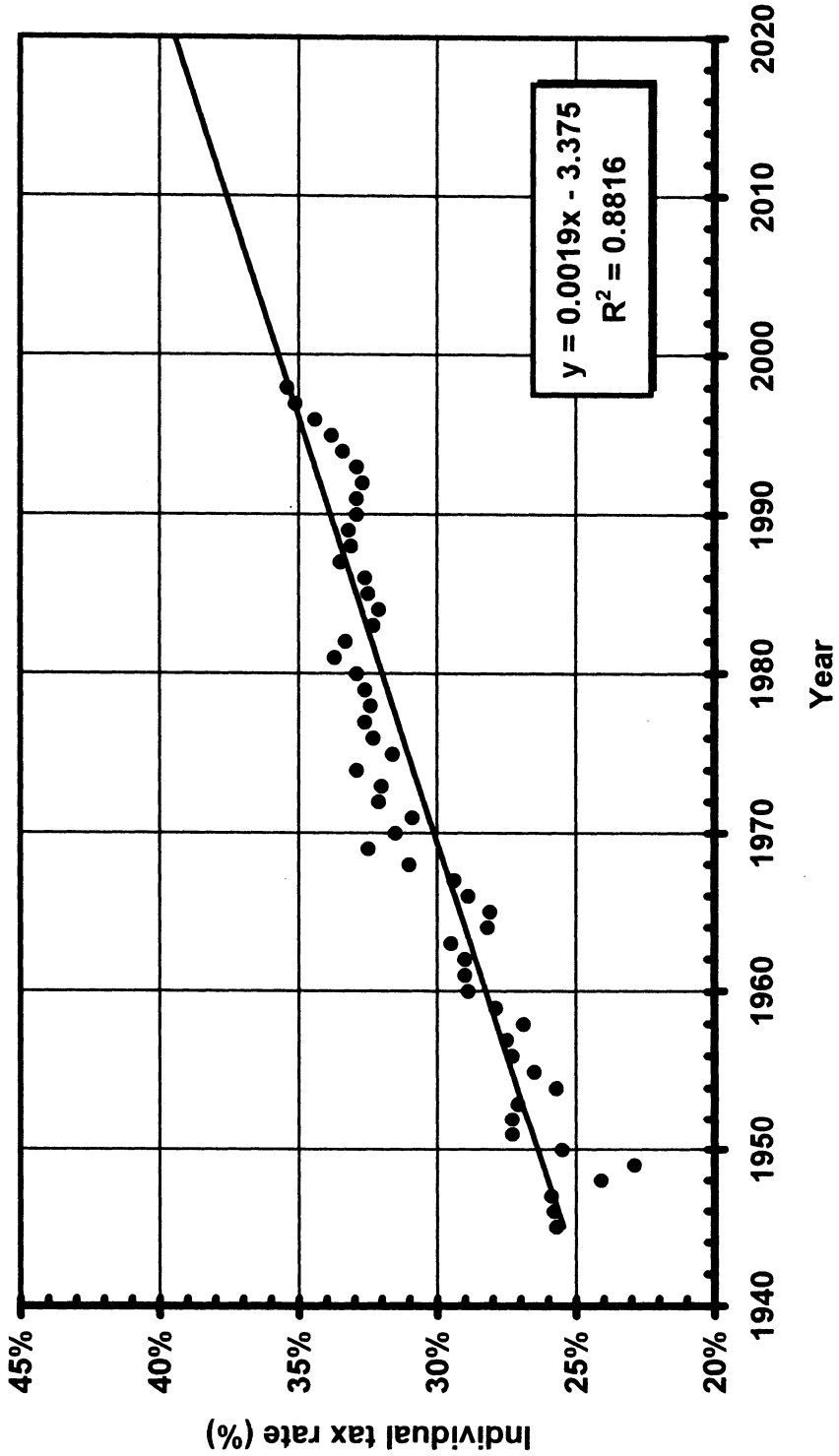


Chart 1 - TAXTIME1.XLS

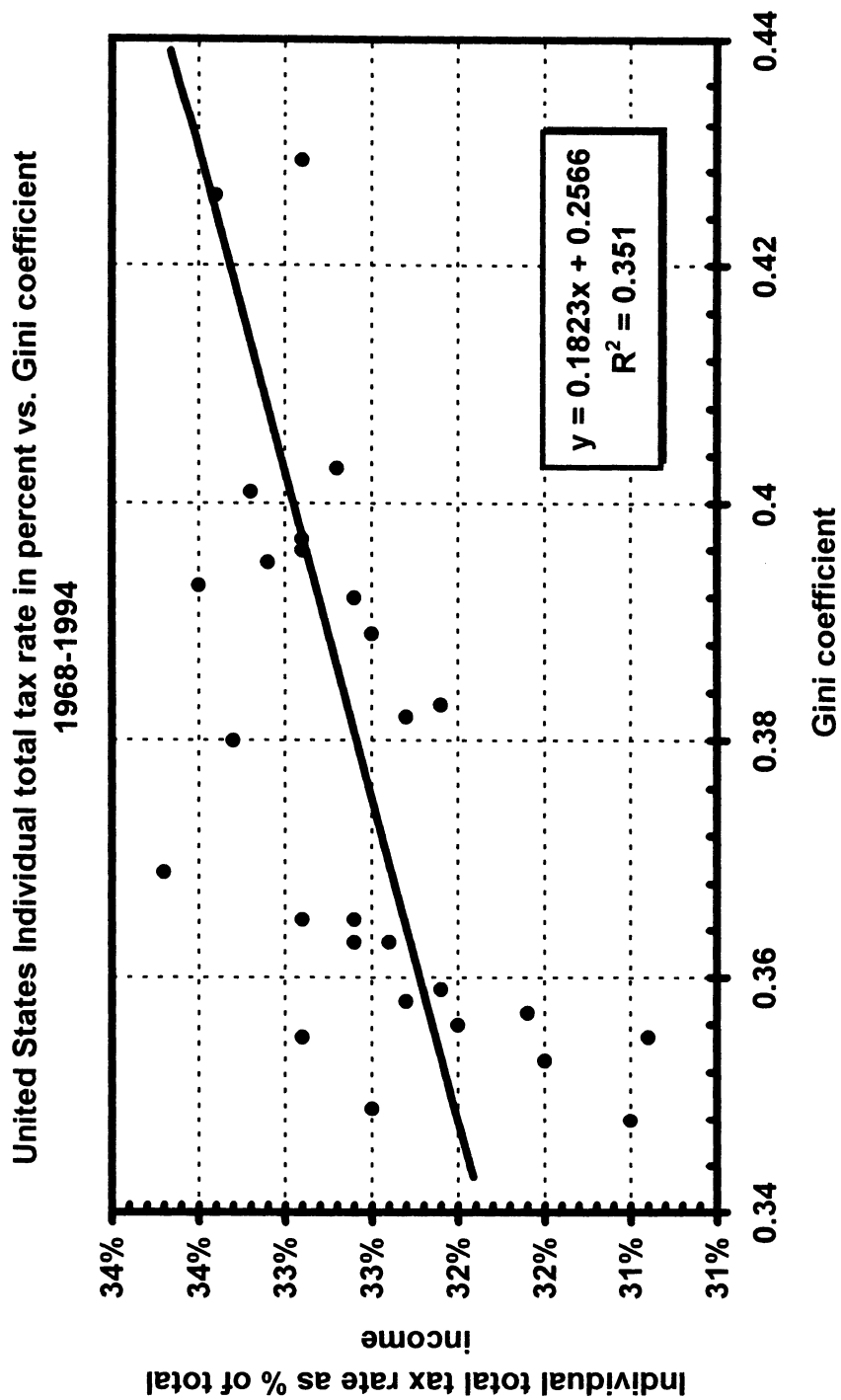


chart 2 - TAXTIME1.XLS

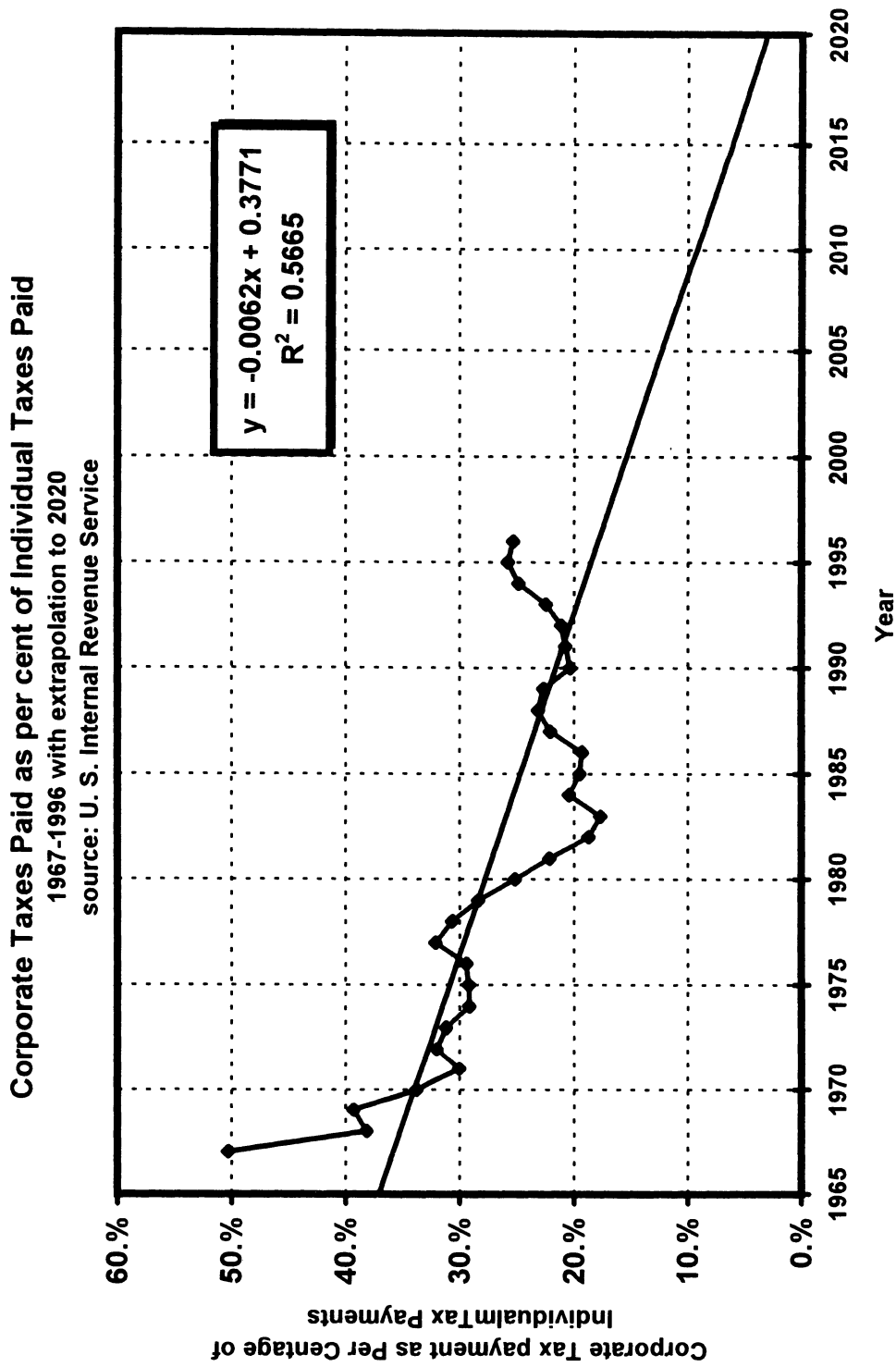


Chart 1 - 96CR04PS.XLS

**Total Corporate Income & Profit Taxes as Per Cent of All Federal Taxes Collected**  
 1967-1996 with 1st degree LSBF trend-line extrapolation to 2020  
 Source: 1967-1996 data U. S. Internal Revenue Service

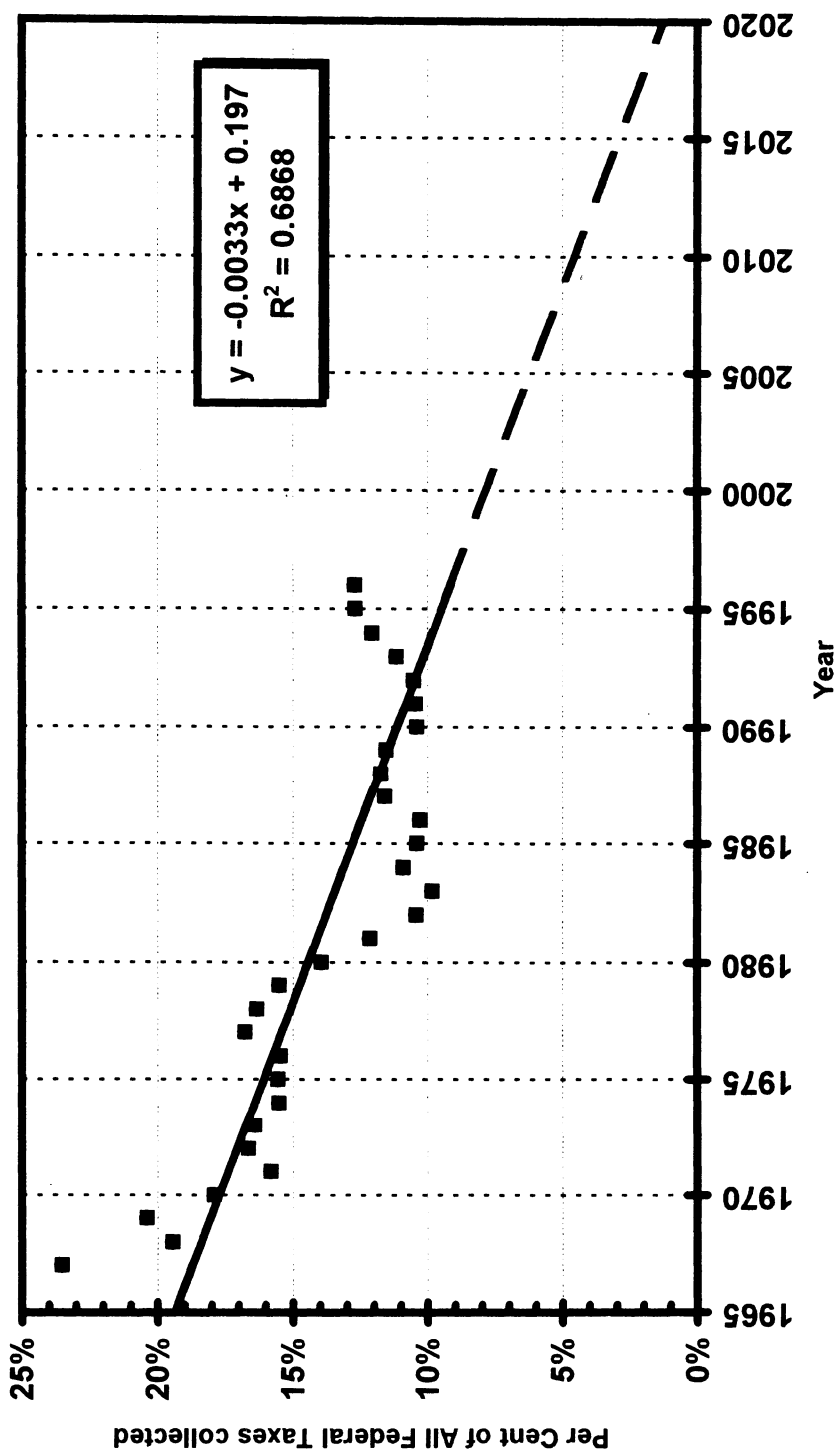


Chart 2 - 96CR04PS.XLS



manufacture has shifted from the United States to Guatemala as indicated by the garment labels, first as “US made parts assembled in Guatemala,” then *Hecho en Guatemala* (Made in Guatemala).

### What Is the Value of Value

The use of the Consumer Price Index [CPI] to convert variable value dollars to constant value dollars to allow meaningful comparisons across time has been discussed. The Bureau of Labor Statistics also maintains a Producer Price Index or PPI, which tracks the change in the relative value of the dollar to the producer or manufacturer using a somewhat similar process. The PPI, as has the CPI, has been updated and improved over time. The original PPI had 3 components, this was increased to 10 in 1947, 12 in 1962, 13 in 1969, 17 in 1974 and 18 in 1978 where it remains is today. The PPI and CPI data was combined into one dataset PPIACO.XLS. The BLS category “PPIACO” is a weighted combination of the component PPI indici and corresponds to the overall CPI index. The year end (December) values were extracted for the period 1947-1998 (1998 November data) and plotted on Chart 1 PPIACO.XLS.

Note the following points:

1. Up to about 1980, there was very close agreement between the PPI and CPI, that is the consumers (employees) and the producers (employers) were using money that while it decreased in value, it was substantially the same decrease for both groups.
2. Beginning in about 1980, the CPI and PPI values began to diverge, with the result that the consumer (employee) and employer (producer) began

to perceive money as having different “value,” and these “perceived” differences are increasing with time.

3. Far from being a esoteric bit of data, this appears to provide a plausible and quantitative reason for the increasing perceptions of “unfairness” by many employees. The ratio between the composite CPI and PPI indici are presented on Chart 2 PPIACO. Note the following:

- 3.1. Up to 1963, the CPI was below the PPI with the affect that the employee/consumer tended to perceived the value of the dollar they received to be greater than the employer/producer perceived it to be.
- 3.2. Between 1963 and 1973, the CPI was greater than the PPI, with the result that the employee/consumer tended to perceive the value of the dollar they received to be *less* than the employer/producer perceived it to be.
- 3.3. Between 1973 and 1982, the PPI was again greater than the CPI, with the employee tending to perceive the dollar to be worth more than their employer.
- 3.4. From 1983 to the present the employee’s perception of the value of a dollar has steadily fallen below the employers perception at an increasing rate. Currently (1998) one dollar as perceived and paid by the producer/employer is perceived to be worth 74 cents by the employee.

- 3.5. Using the LSBF trend- or correlation- line ( $R^2 = 0.7632$ ) the tendency of the employee to under-value (or the employer to over-value) the wages paid is projected to continue and increase into the future.
  - 3.6. This tendency to under-value will exist when ever the observer has mainly CPI perception of the value of money. Specifically, in the case of taxes paid by the producer / employer, even if the collector (government) does not have this perception, the average citizen in the community is likely to so perceive.
4. Because the entire BLS PPI data set was downloaded, the internal “consistency” of the component PPI indici could be investigated. This data is presented in a series of charts.
    - 4.1. Chart 1 PPIALL charts the minimum and maximum PPI values. Note that some economic segments and their corresponding PPI have fell steeply to about 60 in 1986 have recovered to only about 70 (Crude Energy Materials - Oil) indicating that their products are less highly valued (less money per unit) compared to past or historical relationships to other products, while other segments have consistently increased PPI and are currently above 140 (finished goods less energy), indicating that their products are over-valued (more money per unit) when compared to past or historical relationships to other products.

4.2. Chart 2 PPIALL plots the range from the minimum to the maximum PPI year-end value. As would be expected, there was some variation year to year between economic sectors and their particular PPI, but from 1945 through 1965, there was a consistent range of 20 points, from minimum to maximum PPI indici. The divergence slowly increased from 1965 to 1972 to about 30, when it took an abrupt jump to about 70. This then fell to about 40 in 1979. The PPI indici were “renormalized” and reset to 100 in 1982<sup>25</sup>. Four years later in 1986 the range again spiked to 58 and has closely followed the trend line to the current range of 80. (1998)

4.3. This phenomena, despite its apparent obscurity, has considerable importance for VOTE. Most of the highly publicized productivity “problems” and “gains” appear to be due to the affects of the industry specific PPI rather than any actions or activities of the employees or VOTE. For example, assume that in 1982 the Crude Energy Materials [CEM] sector had implemented a 5 year program to increase productivity by an average of 5% compounded for all employees, and had met this goal. Assuming the same number of employees, the total output in units would have increased to 127.6% of that in 1982. However because the CEM PPI fell from

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<sup>25</sup> The chart plots year end (December) values, When PPIs were “renormalized” the average” year was used, so min/max values are not the same on the chart.

Excise Taxes as per cent of total federal (IRS) revenue 1967 - 1996  
with extrapolation to 2005

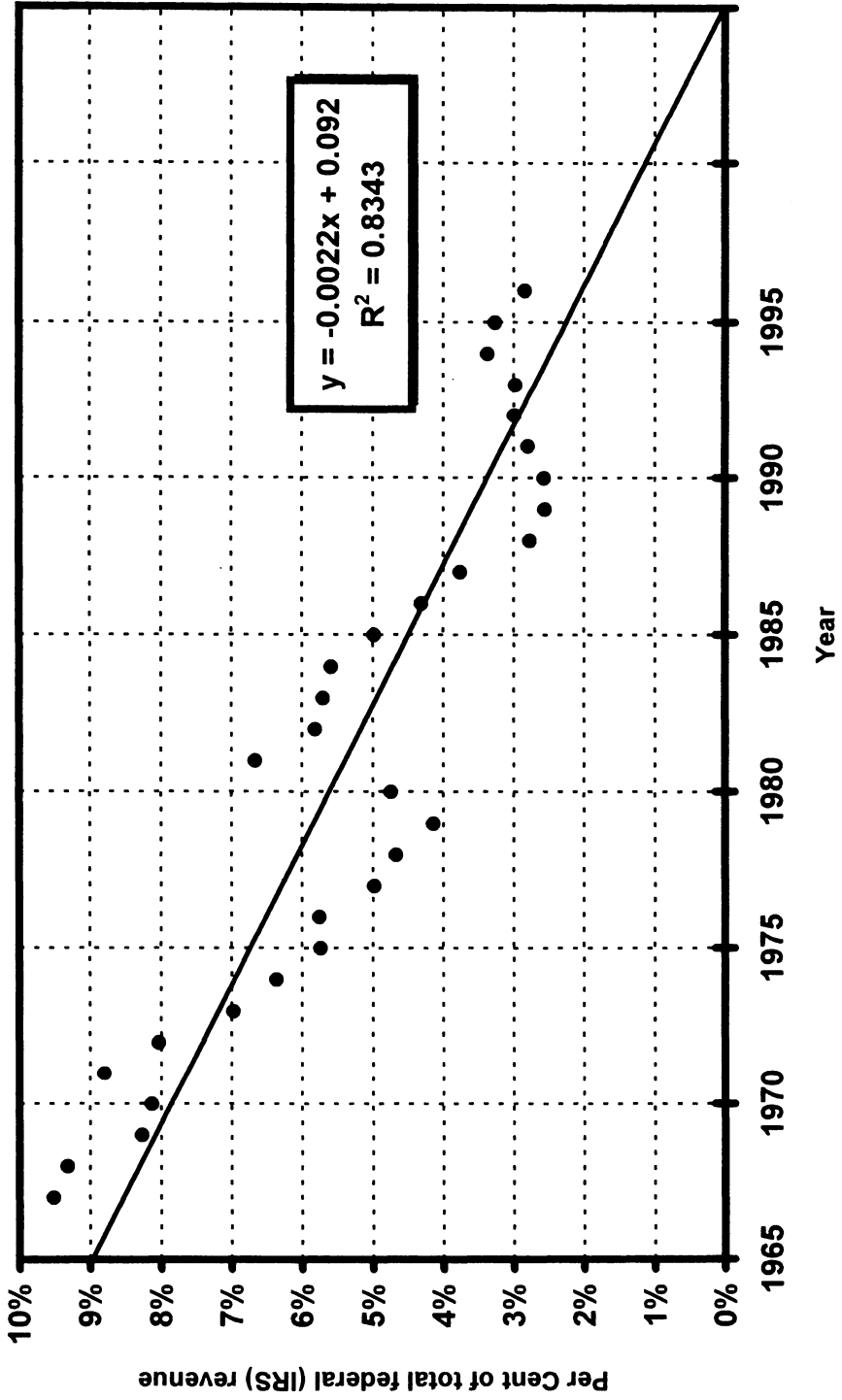


Chart 3 - 96CR04PS.XLS

# Corporate and Individual Federal Income Tax collections in current Dollars

1967-1997

source: U. S. Internal Revenue Service

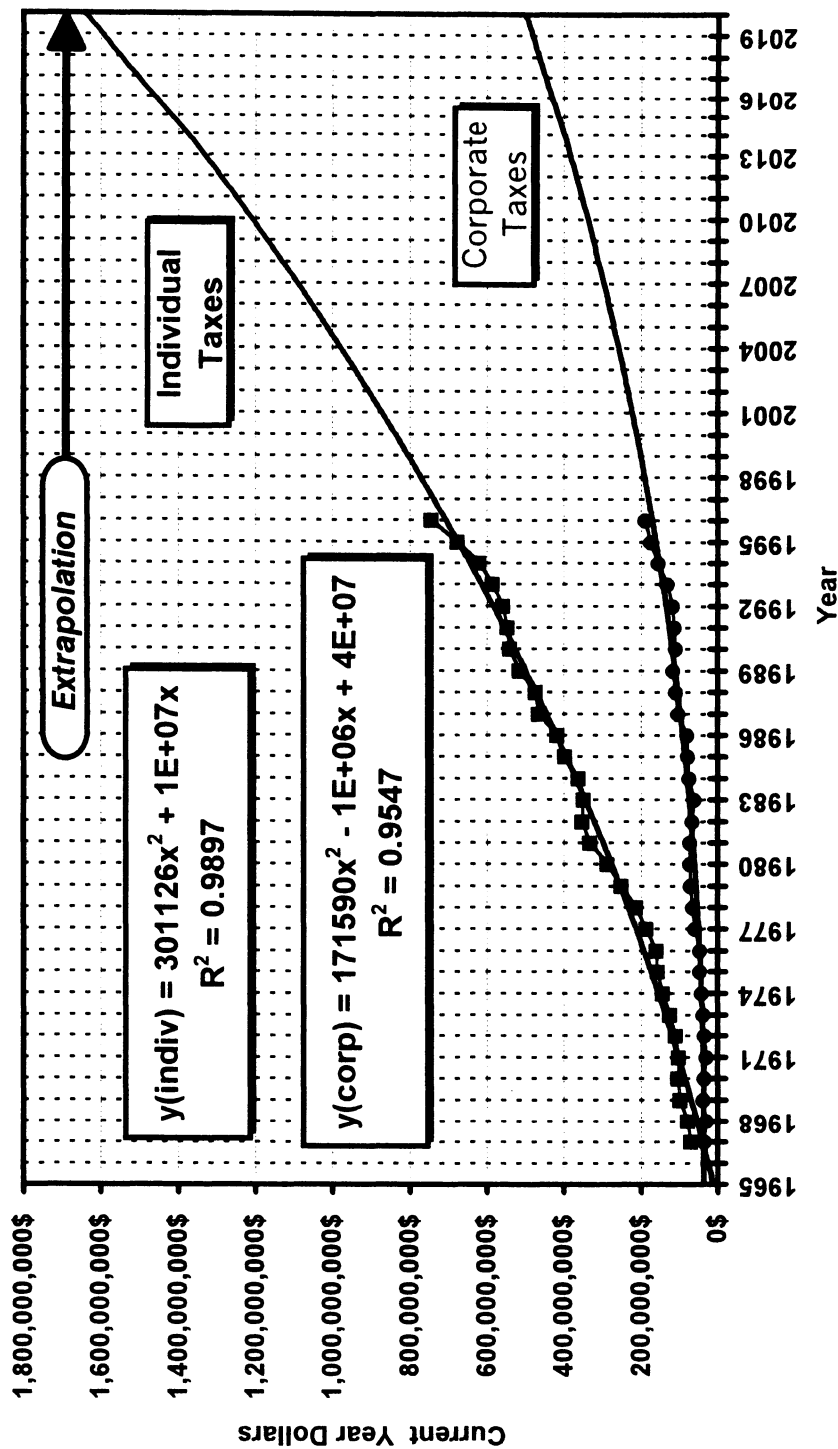


Chart 4 - 96CR04PS.XLS

U. S. PPI and CPI by Year (1982= 100)  
1947-1998 with extrapolation to 2020

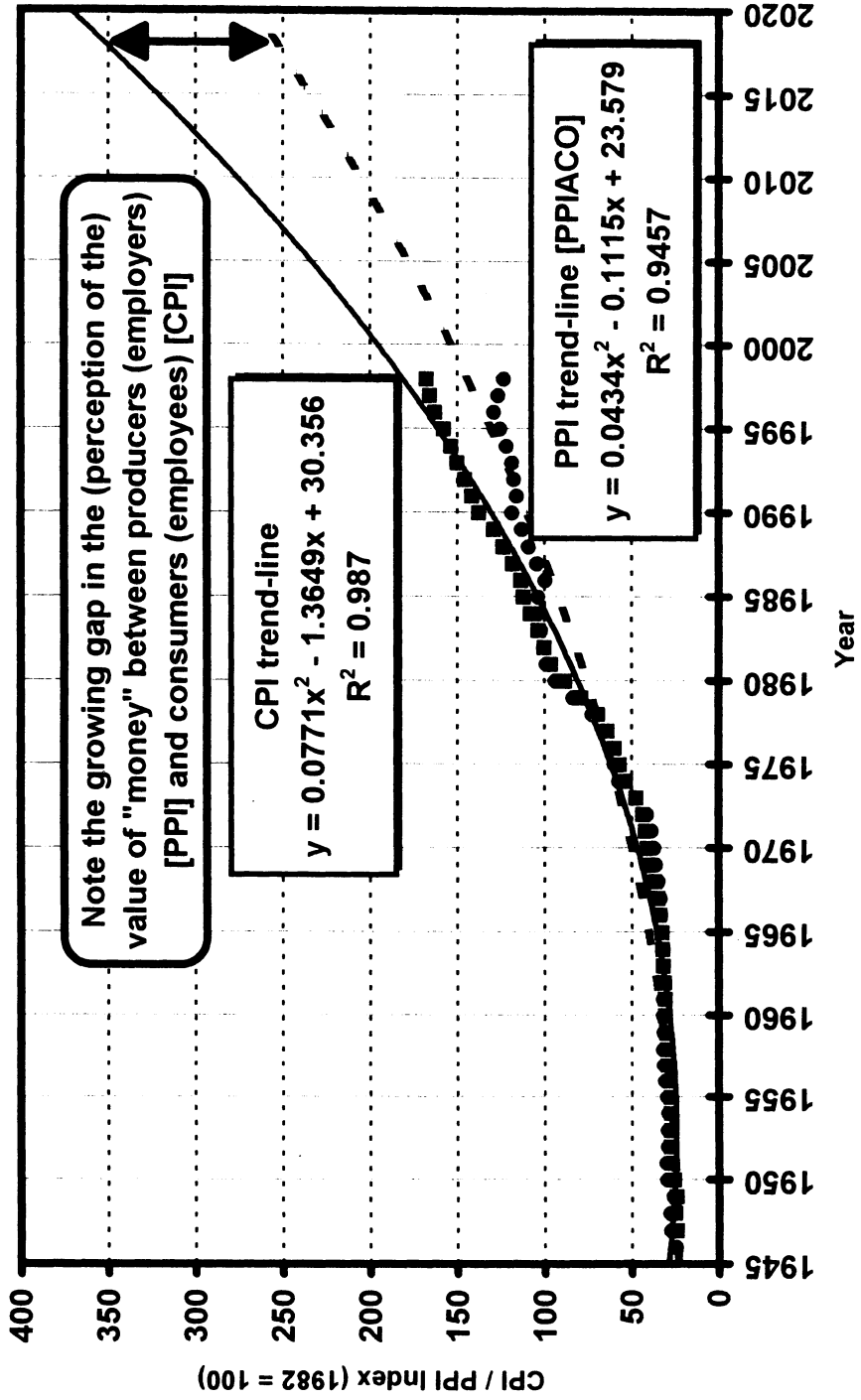


Chart 1 - PPIACO.XLS

Employee (consumer) perceived value of one employer (producer) dollar based on 1947-1998 CPI and PPI indici with extrapolation to 2020 using 2nd degree LSBF trendline

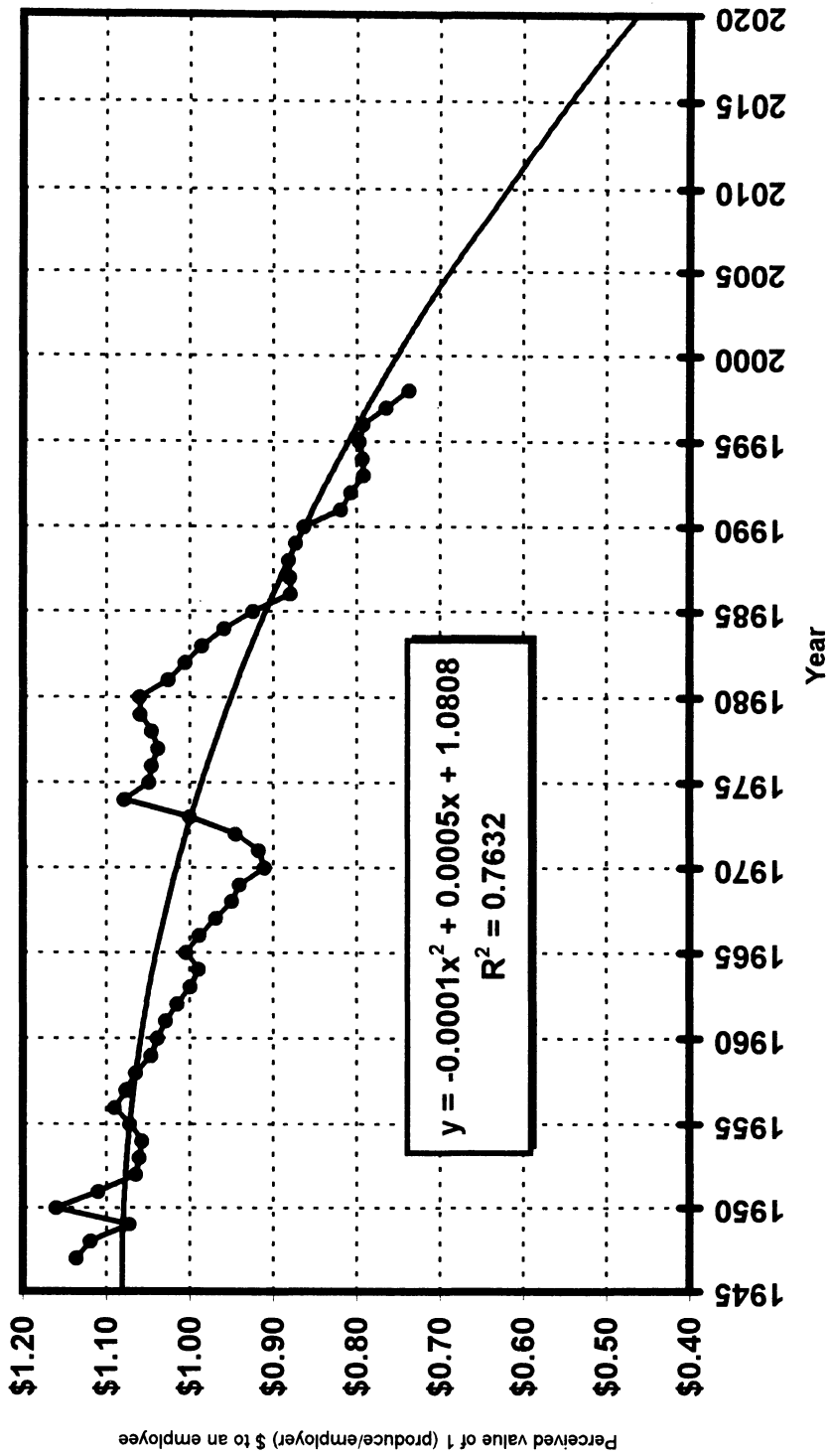


Chart 2 - PPIACO.XLS



100 in 1982 to 60 in 1987, the gross expected income based on 127.6% of 1982 production *in terms of current dollars* would have *fallen* to 76.6% of 1982. So was there a 27.6% *increase* or a 23.4% *decrease* in average individual productivity? If there was a decrease, how much and what types of VOTE or other employee (worker) actions/activities could have prevented it?

### Employer (Private Sector) Data

As a measure of “profit,” stock prices as measured by the Dow-Jones Industrial Average in current year dollars indicates an essentially continuous increase. This increase is particularly rapid after 1983, which perhaps coincidentally was the year when the CPI adjusted median income began to fall. As indicated on chart 1 / DJ1900M.XLS, the LSBF curve for the period 1900-1997, was exponential ( $R^2 = 0.9285$ ) indicating a compound growth pattern with an annual increase of about 4.5%. The index from about 1982 was far above this curve indicating a far greater than historical rate of growth.

1. The CPI inflation adjusted DJ index, as presented on Chart 4 DJ1900M.XLS, indicates a very different picture. From the end of WW II to about 1962, the index showed a consistent increase from about 700 to about 2900. From the peak of 2900 in 1962, the index showed a consistent decrease to about 900 in 1982. From this low, it rapidly and consistently increased to an inflation adjusted high of 4600 in 1997. Again this rapid increase coincides with the decrease in the inflation adjusted median wage.

2. Charts 3 and 5 DJ1900M.XLS present the above current and CV DJ index data using a logarithmic Y axis to emphasize the rate of change. It can be seen that there are three distinct periods. 1945-1965, 1966-1982, and 1983-present. This provides support for the accretion model introduced in chapter 5. The period 1945-1965 would appear to correspond to the dominion of heavy industry and mass production, 1966-1982 to the ascendancy of “cannibalistic” or “value extractive” capitalism, and 1983 to present the position of trans- or multi- national capitalism at the top of the food chain.
3. While not directly part of VOTE, corporate bond yield data is also included as this not only provides additional data to evaluate the employers’ circumstance but also examines another “they say” and “everyone knows,” specifically that interest rates are at historic lows. Chart 1 of CORPBOND.XLS presents the historic corporate average nominal bond yields from 1857 to the present. Examination of this data indicates that the lowest corporate bond interest rates were actually during WW II at about 2.5%. The current rates of about 5% are about the average bond rate for this period. Chart 1 INFCBND.XLS presents the inflation adjusted corporate bond rate plotted for the period 1913-present (using available BLS CPI data). At the end of WW II (1946) the inflation adjusted interest rate without tax affect was about 2.5 %. This increased steadily to about 1978 when it reached 8%, or a increase of about 0.17% per year. This abruptly jumped from 8% in 1978 to 13% in 1981 or about 1.67% per

D-J industrial index yearly average 1900-1997  
in current dollars with power LSBF trendline and extrapolation

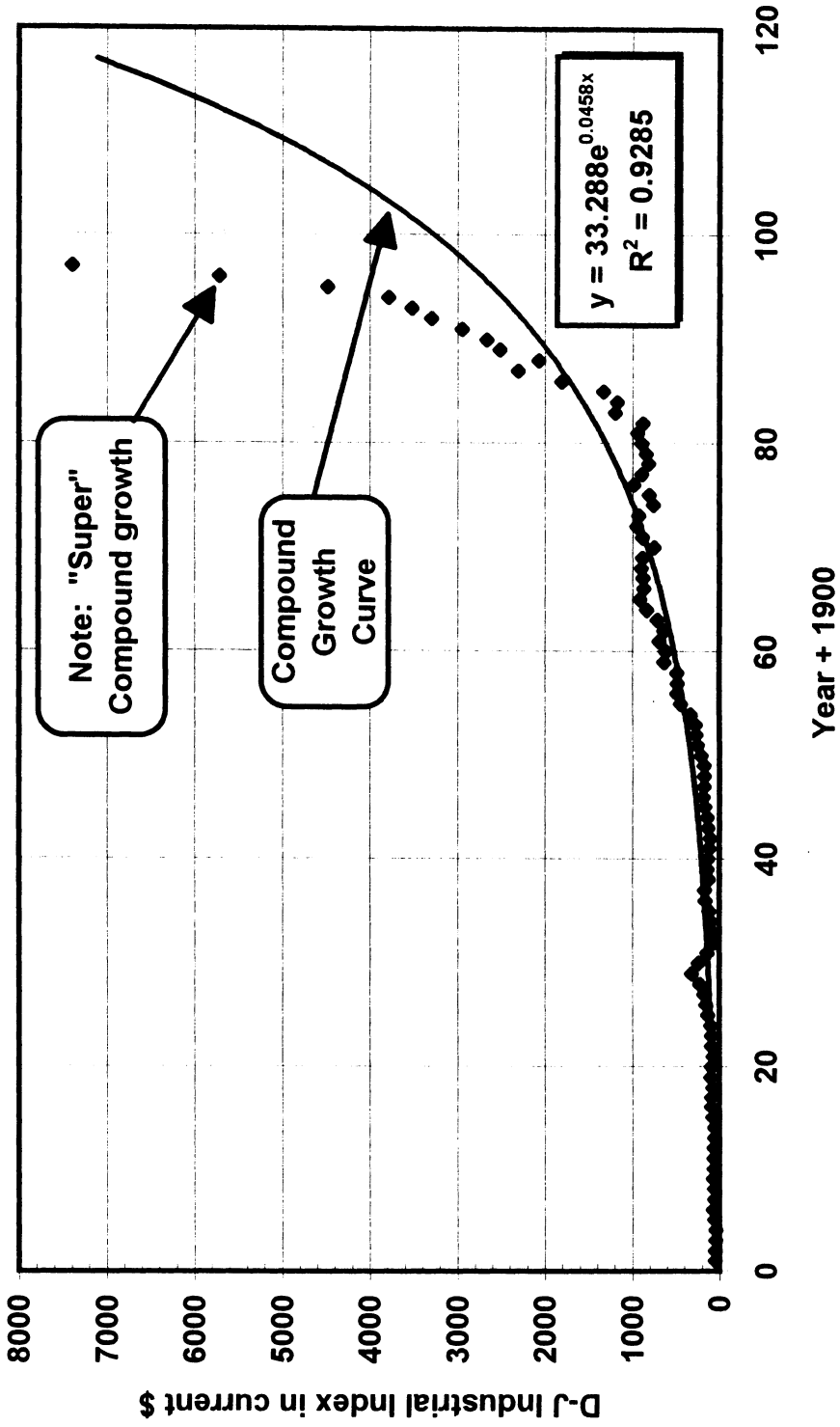


Chart1 DJ1900M.XLS

D-J Industrial Average in current \$ 1900 -1997  
with Logarithmic Y Axis

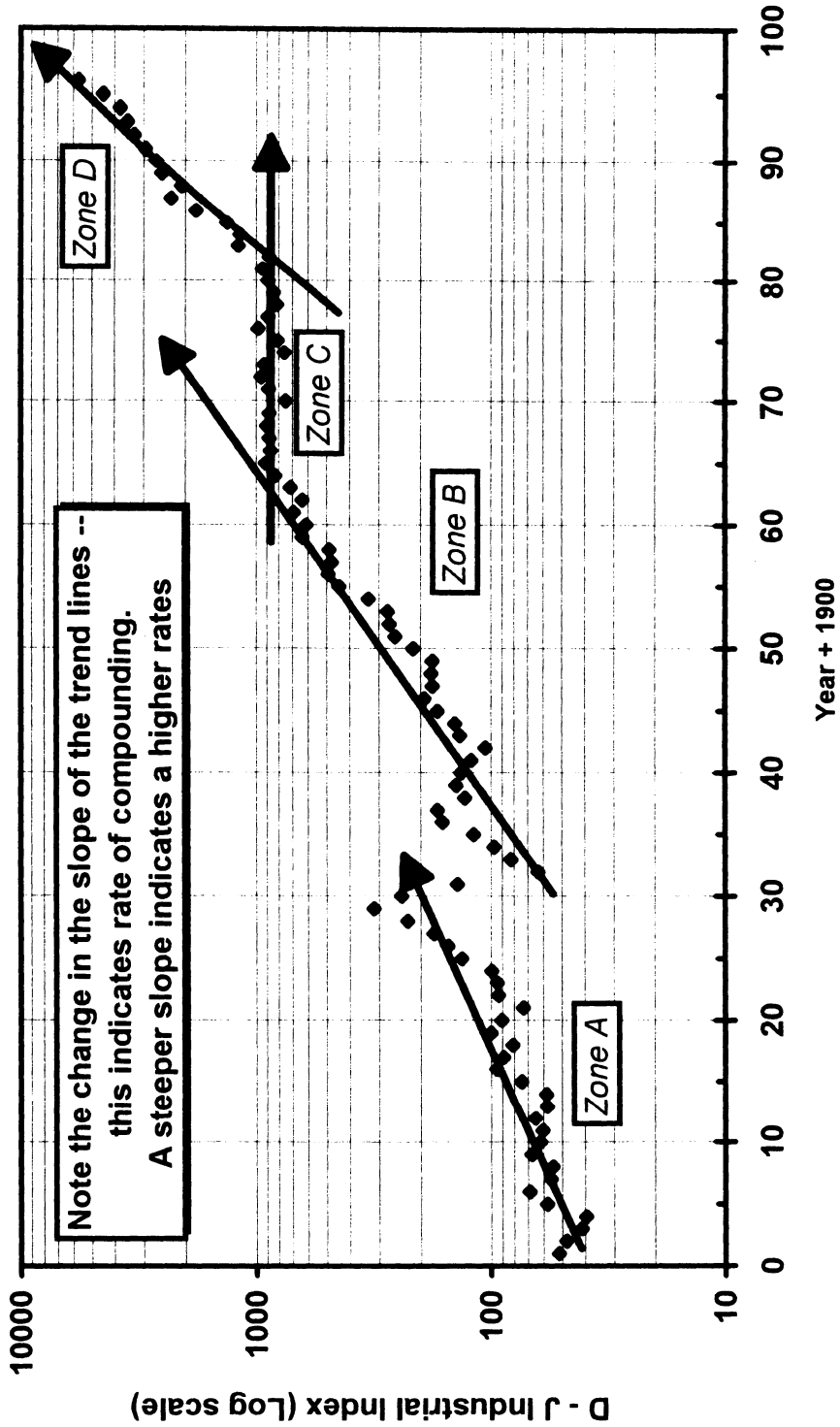


Chart3 DJ1900M.XLS

Inflation Adjusted D-J Industrial Average in CV CPI \$ (1982-1984=100)  
1913 - 1997

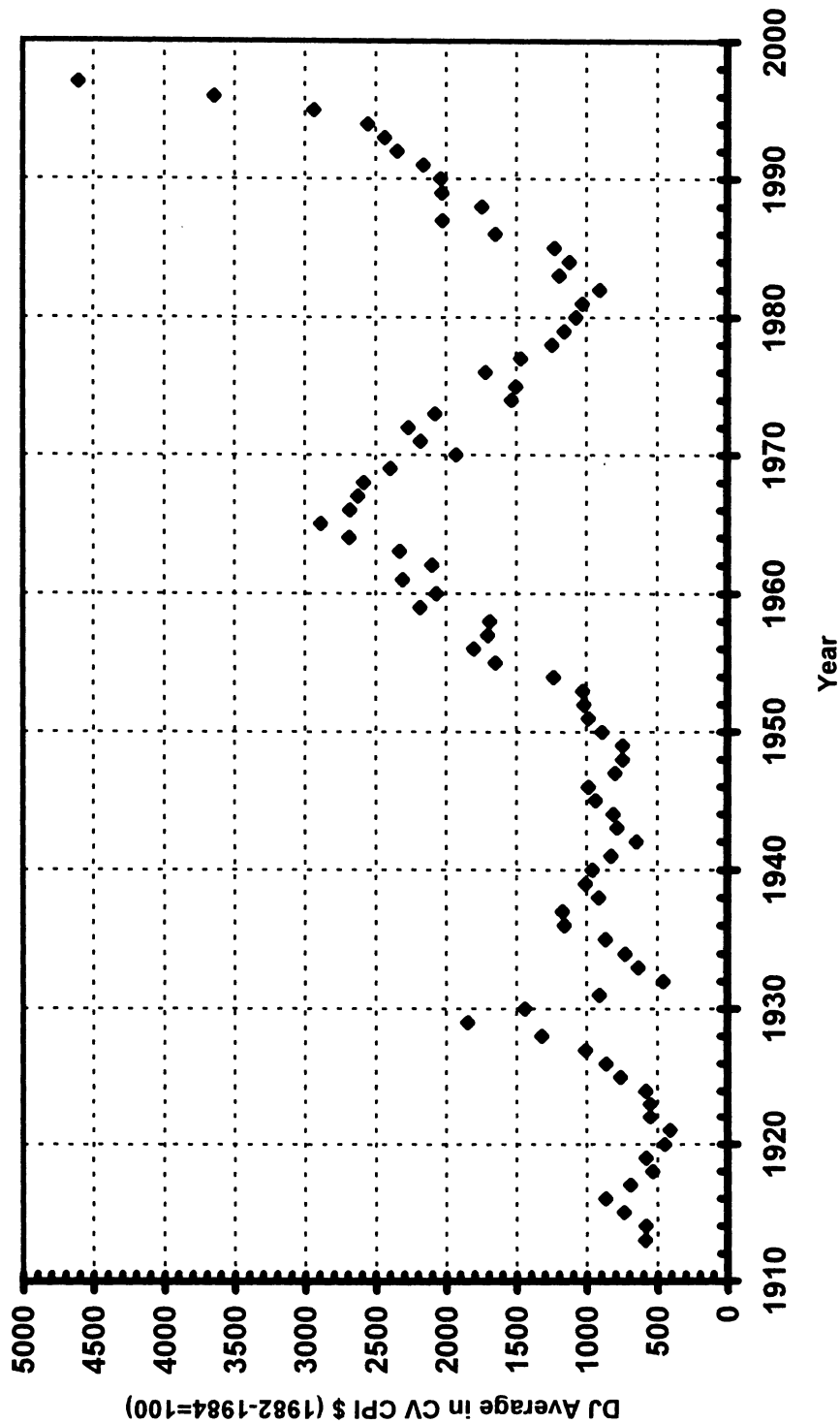


Chart4 - DJ1900M.XLS

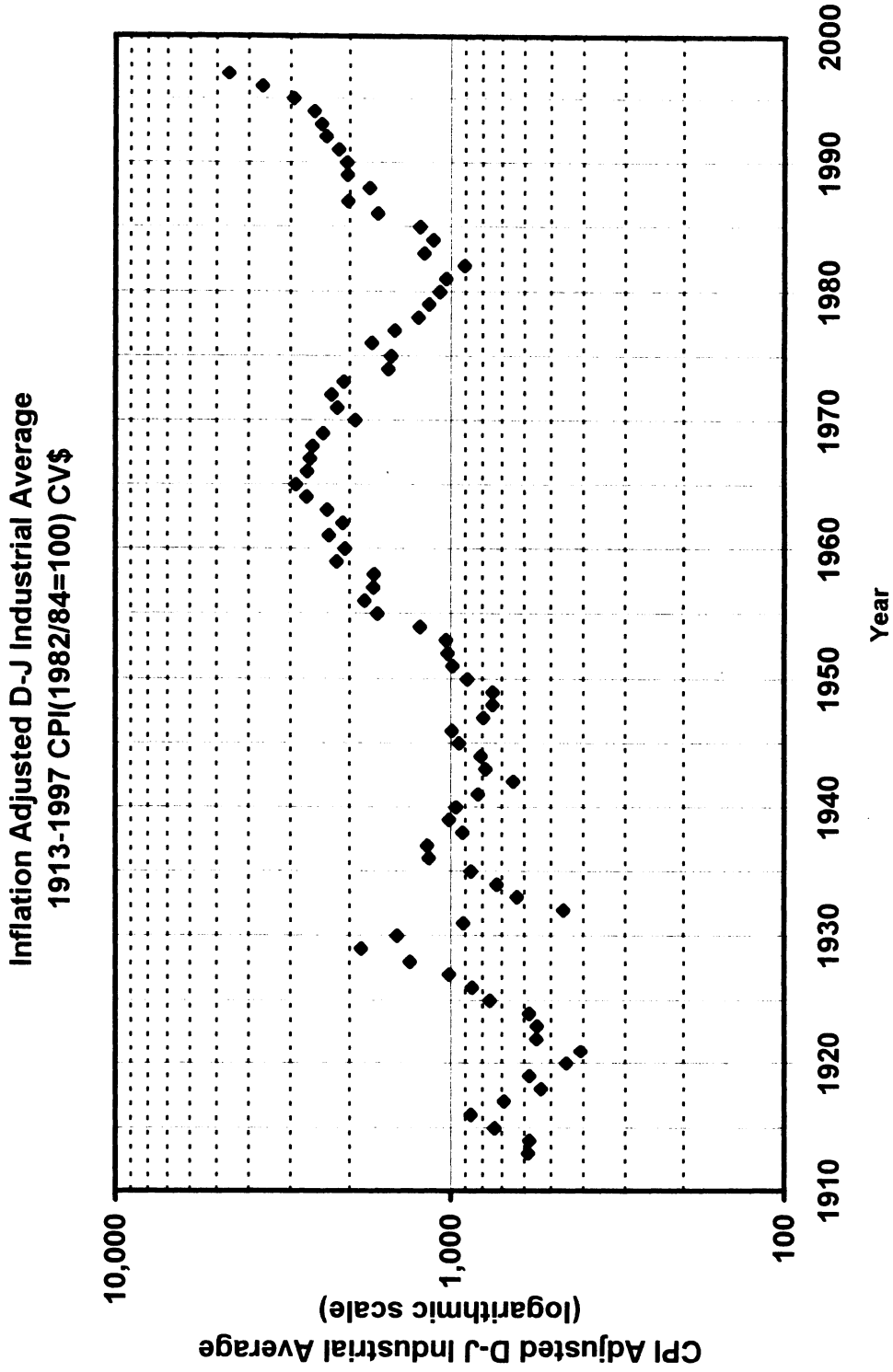


Chart5 - DJ1900M.XLS

Average Yearly Corporate Bond Yield (Nominal)  
with 2nd degree LSBF trendline and extrapolation

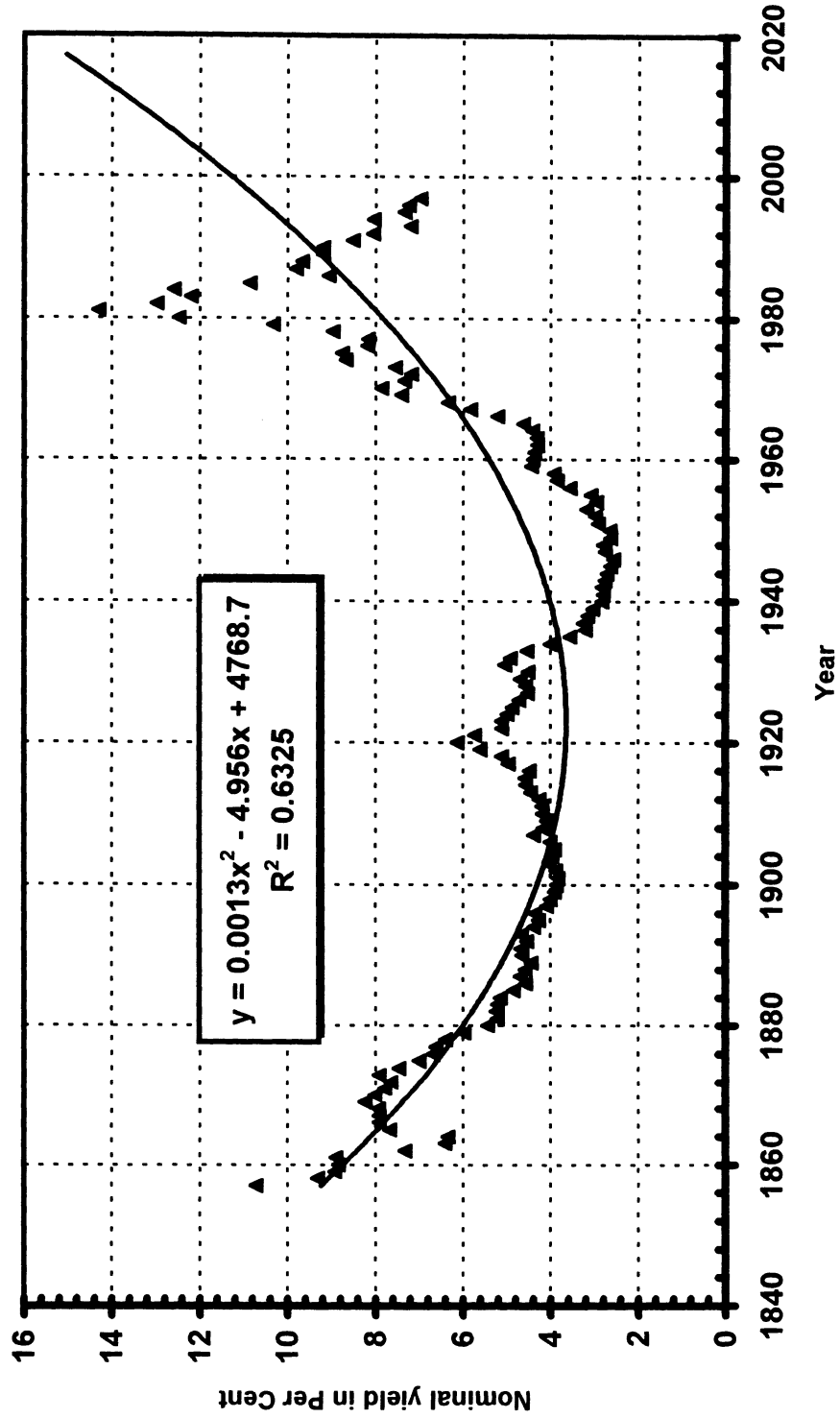


Chart1 - CORPBOND.XLS

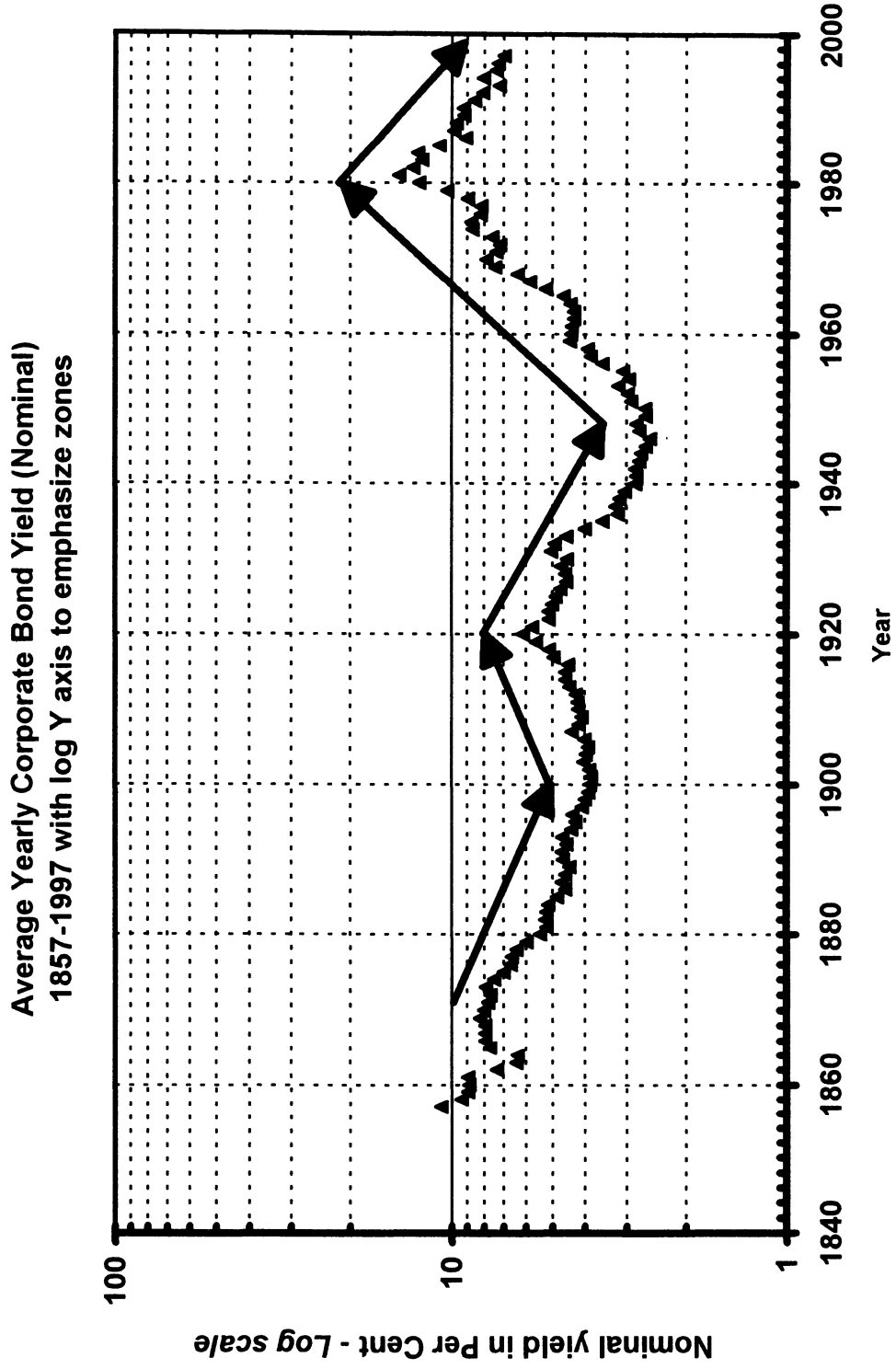


Chart 2 - CORPBOND.XLS



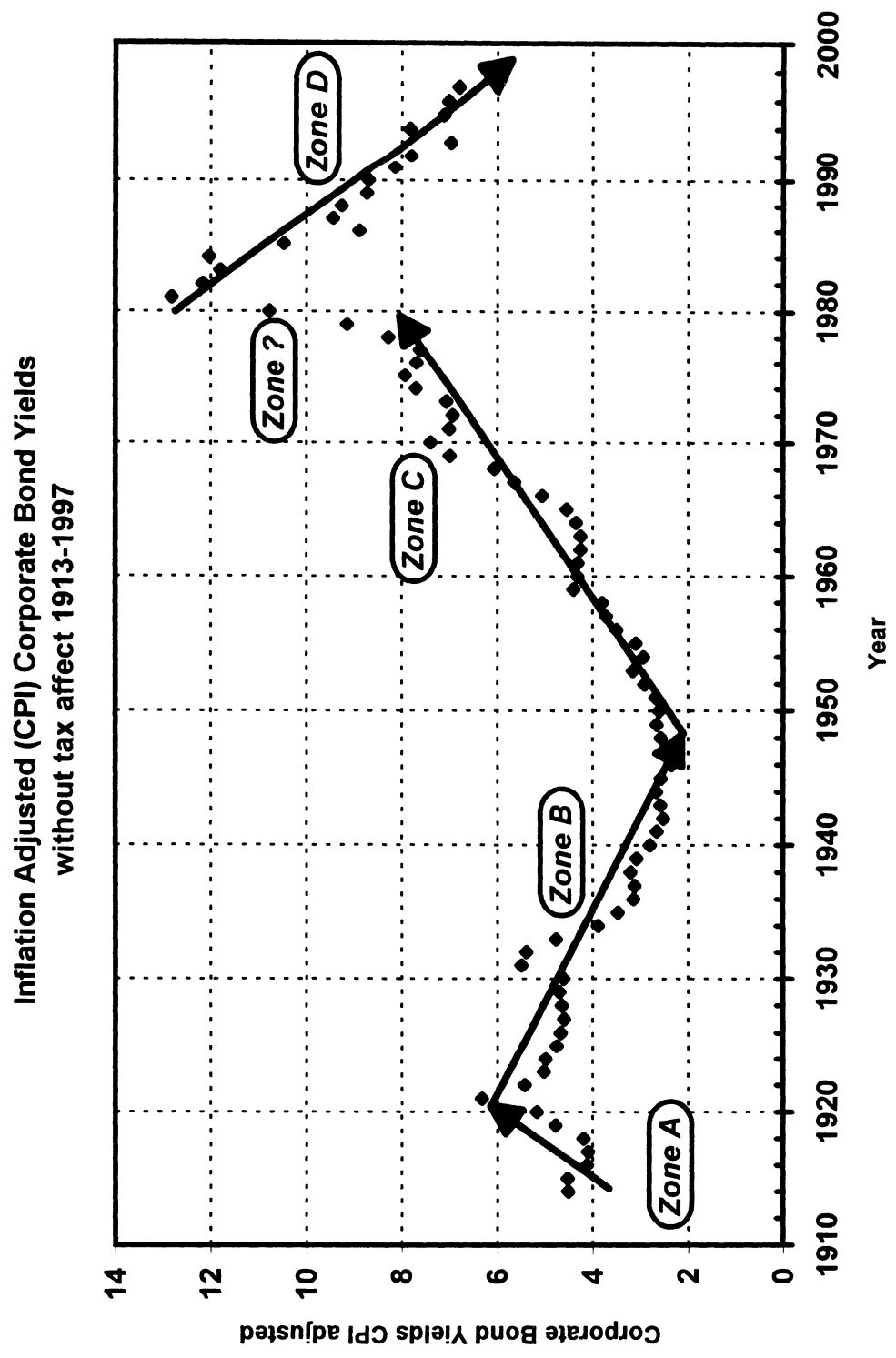


Chart1 - INFCBND.XLS

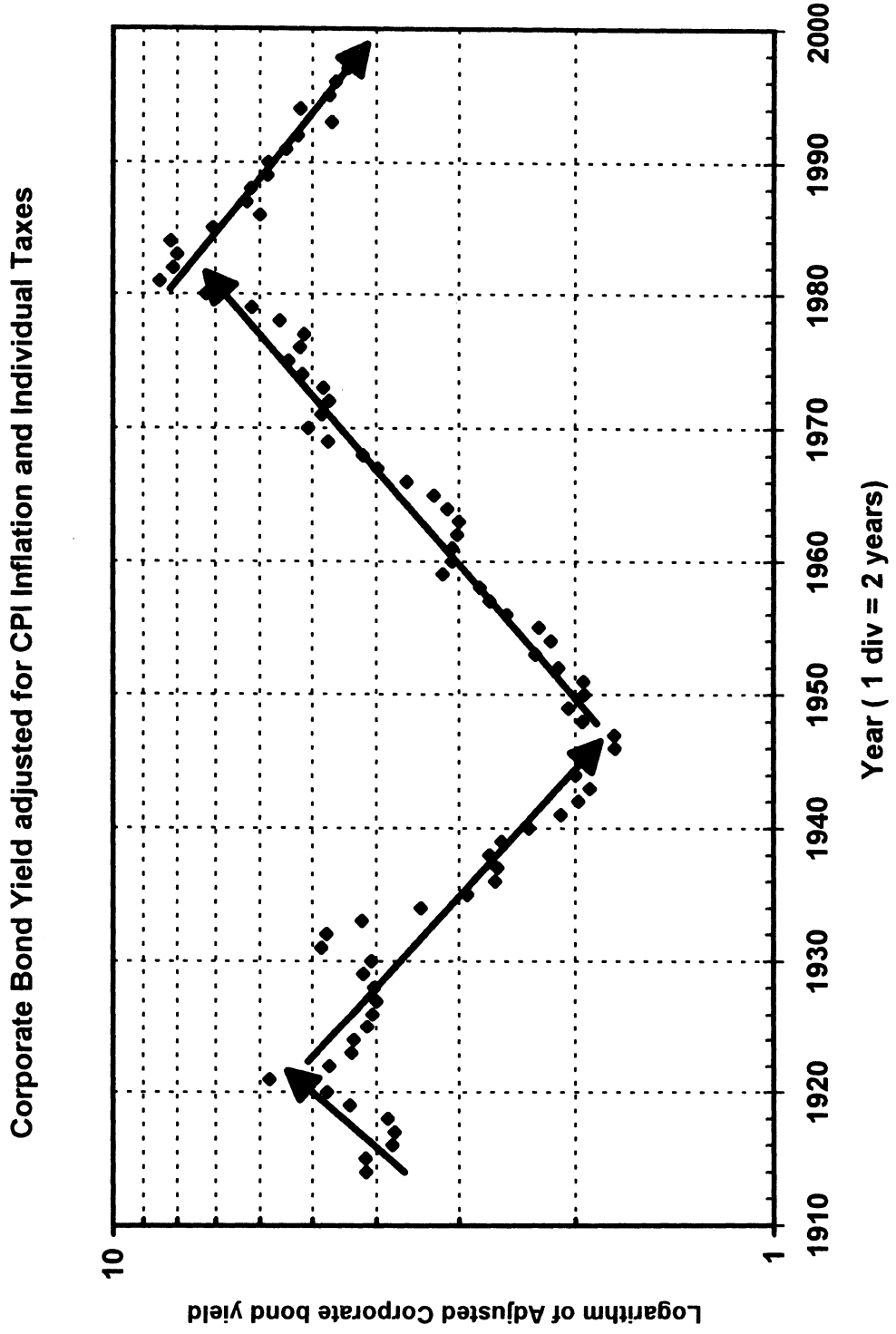


Chart 2 - INFCBND.XLS

year. The inflation adjusted yield has since decreased from 13% in 1981 to the current 6% or about a -0.4% per year. To emphasize this rate change and to support the accretion model, corporate bond yields are also plotted with a logarithmic Y axis.

### Adam Smith in the Third Millennium

After the initial shock, surprise and disbelief of the discovery that so much of what “everybody knows” and “they say,” about VOTE in particular and education, economics and government in general, is at best non- and to a considerable degree counter-productive dissipated, a further review of the literature indicated that persistent and continual work has been done in these areas. The problem was that these researchers did not look at the situation as a whole, and apparently because their conclusions were contrary to popular knowledge and desires they were (and are) largely ignored. One of the earliest critical analysis was Railroad Transportation, Its History and Its Laws by Yale political science instructor Arthur Twining Hadley published in 1885, detailed the inapplicability of the 1817 Ricardian theory of free enterprise as applied to industries having large permanent investments, either in the sense of not being easily liquidated or easily used for the production of a alternative good or service. Not only was Hadley’s book widely read, but he also testified before a Senate committee drafting an interstate commerce bill in 1887. Hadley’s key points were:

1. The 1817 Theory of Free Enterprise as developed by Recardo, requires that *capital be free to shift* from less profitable to more profitable investments.

2. While this was largely true in Ricardo's time, the newer technologies such as railroads and steel making both require huge capital investments in comparison to anything in Ricardo's time and lock this capital into assets which:
  - 2.1. can not easily be used for anything else;
  - 2.2. can not easily be liquidated; and
  - 2.3. which cost (almost) as much in upkeep when not operating as operating.

Hadley's 1885 insights into not only domestic but international trade and commerce are remarkable. Some of the more useful passages, which apply to today's problems are:

If it becomes possible for me to sell my goods in markets five thousand miles distant, it becomes possible for a hundred other producers in a dozen different parts of the world to do the same thing, and compete with me at almost every point. Of the conditions under which my competitors are working I can judge but imperfectly; of mistakes which they are likely to make, I can hardly judge at all. No one producer can judge of the aggregate supply and demand of the world. If a few reckless producers make a mistake, it means not merely local over-supply, but over-supply in every market, a fall of prices everywhere. The ruin of a few drags down all the rest into cutthroat competition. In this over-production, real or apparent, railroads are not merely the instruments but the sufferers. The causes which lead to increased prices and increased production. lead to the multiplication of railroads beyond all reason. When prices fall, railroad charges have to be reduced to unremunerative figures in order to retain any business at all. And railroads have not the refuge, available in most other lines of business, either of contracting their capital or of driving their competitors of business. A railroad once built is come to stay. It can neither retire from business voluntarily, nor be forced to do so by any other competitor. Drive it into bankruptcy, and it only fights the more strongly and recklessly. [P20]

This excerpt seems to provide powerful arguments against allowing “unregulated international commerce” or “free trade.”

Until about 1850, it was assumed that railroad business was subject to the same laws as any other business, and in particular to the so-called laws of competition, by whose free action rates would be brought down to cost of service. It was gradually seen that this assumption was not strictly true ; that in many instances it was very far from the truth. A railroad differs from many other business enterprises, in the existence of a large permanent investment, which can be used for one narrowly defined purpose, and for no other. The capital once invested, must remain. It is worth little for any other purpose than the one in question. A railroad cannot contract its capital merely because it does not pay ; nor can it be paralleled at short notice when it happens to pay remarkably well. In these respects it differs quite sharply from a bank or a store; and, to a certain extent from a factory. The different lines of business -- bank, store, factory, railroad -- for a series, at one end of which we have an elastic business capital, which can be readily expanded or contracted, while at the other end we have a large permanent investment of “fixed” capital, which cannot thus adapt itself to the wants of trade. ... The early political economists were for the most part men who had made a special study of banking business. David Ricardo, the man who did more than any one else to give English political economy its present shape, was himself by profession a banker. *He was thus led to treat capital as something not fixed, but freely circulating, which could be at once withdrawn from a business when it became unprofitable.* In the case of a factory this is by no means true ; in the case of a railroad it is absolutely untrue. [P40-41]

This observation would seem to have applicability to much of today’s business and industry, from the manufacture of wide body aircraft, computer chips and automobiles to fiber optics, the Internet and cell phone communications.

Ricardo’s theory was based upon the assumption that when payment fell below the cost of service active competition would cease. His theory fails, because far below the point where it pays to do your own business, it pays to steal business from another man. The influx of new capital will cease; but the fight will go on, either until the old investment and machinery are worn out, or until a pool of some sort is arranged. [P72]

This appears to be an excellent argument for strictly limiting the length of time an organization can operate under the bankruptcy laws. The airline industry (Eastern, Texas

Air, Continental and Braniff) shows how this can be abused, and even economic sectors such as the savings and loans are also vulnerable. One year may be appropriate for the largest organizations with less time provided for smaller organizations or organizations with grossly disparate asset: liability projections. One useful requirement would be the immediate liquidation for any business that entered into a new bankruptcy within 5 years of the last one.

Labor is in the market like any commodity; its price is largely determined by competition and this too often takes the form of cut-throat competition. A workman working for starvation wages is like a factory or a railroad running for operating expenses. In flush times the workman get comparatively good wages; he marries, and is able to support a family in reasonable comfort. The family becomes a fixed charge upon him ; and it is of the utmost importance to society that he should be able to meet his fixed charges in this respect. But a commercial crisis comes, and the demand for labor diminishes. Men who have no family to support come into direct competition with him. He can better afford to work for what will keep body and soul together than not to work at all, even though his wages are brought so low that his children perish for lack of food which should give them strength to resist disease. And so wages are brought down to the starvation minimum, only to rise above it after long years of waiting and misery. The workman seeks relief in combination ; but combination is far harder for him than for the capitalist. Where there are ten factories to combine, there may be ten thousand workman to be held together, -- not to speak of the almost unlimited floating labor supply which may be brought in at any point. The law will not help him. If the law regards the pool with disfavor, it regards most of the manifestations of trades-unionism with absolute hostility. No wonder that our workman try to change the law; no wonder that they call for special statutes against labor importation; no wonder that they seek to limit the supply in the market by a universal eight-hour law. [P78]

Considering that this was written in 1885, it is remarkable that we still have the same problems of: (1) a livable minimum wage; (2) striker replacement; (3) uncontrolled immigration; and (3) hostility to and restrictions on unionization.

## How Does this Relate to the VOTE Stakeholders' Expectations And Objectives Listed in Chapter II?

### Summary

To a large extent, it appears that much of what “Everybody’s Knows,” and “They Say” are now not only castles in the air, but are castles constructed of bricks made of Jell-O, laid out using rubber rulers. The basic utility and soundness of post-modern deconstruction is clearly demonstrated in the preceding sections where the basic definitions of words were examined and the assumed principal of cause and effect examined, in the sense that the difficulty in determining which was the cause and which was the effect was explored.

### Implicit and Explicit Vote Stakeholder

#### Goals Versus Current Reality

#### The Learners and (Prospective) Employees Goals and Expectations (From Chapter II).

- Improved incomes, improved working conditions, and decreased work loads as a result of their improved knowledge, skills, and methods.  
(Working smarter not harder in the modern idiom.)

*The Current Reality:* As indicated the male median income is falling and the female median income is flat. The reduction of the wage differential between male and female employees seems to be more the result of falling male wages than increasing female wages. Hours of work are increasing,

and benefits are being reduced. Employment security also falling.

Reported reductions in poverty and unemployment levels appear to be more the result of re-definition than actual improvement.

- Increased employment opportunities because of new industries made possible by the existence of adequately skilled and educated labor.

*The Current Reality:* Employment opportunities in other than low-skill low-pay service jobs is decreasing. (See Chart SECTOR.XLS)

Manufacturing and industry jobs continue to be eliminated or exported even as the population increases.

- Improved social and economic status by changing from “unskilled” to “skilled” labor status.

*The Current Reality:* As indicated in the “Skills Premium” section, every effort is being made to “de-skill” jobs to minimize cost and reduce product/output variation.

- Pride in making American products better than, or at least as good as, any produced in the world.

*The Current Reality:* High-tech and commodity manufacturing and production facilities continues to leave the United States.

- Pride in (appropriate) participative citizenship by more effectively taking part in activities to improve their community by improving their communications and organizational skills and knowledge of the world.

*The Current Reality:* Increased working hours and decreased leisure time has reduced participation in service clubs and other volunteer activities.



Feelings of alienation continue to increase as indicated by reduced voter turnout. Newspaper polls indicate citizen belief that government will act in their best interests is at an all time low.

As indicated, the major objective of the employees or workers for participating in VOTE, indeed education in general, was to *improve their economic and thus social status*. In this context, both the wage level and the stability of employment are important. When the inflation adjusted median wages and other indicators such as poverty and bankruptcy filing rates are considered, in the aggregate, it does not appear that these objectives are being met. While it is true that there is considerable incremental change in income between levels of educational attainment, it appears that those changes result from the redistribution of income rather than any actual increase in overall earnings. Despite their falling real median income, the bottom 80% of the population as measured by income are absorbing an ever increasing fraction of the cost of government.

#### The Employers Goals and Expectations (From Chapter II)

- Adequate or at least an increased supply of trained labor.
- Increased profits by maximizing production and minimizing waste using existing plant and equipment because of improved employee qualifications and competence.
- Increased profits through the introduction of new or improved technology and products made possible because of the availability of trained and educated employee.

- A workforce that “understood” the realities of industrial life and would support (or at least accept) it, thus minimizing labor unrest, sabotage and work stoppages.
- A desire resulting from both self-interest and patriotism to have the American economy as independent as possible, and to produce goods better than, or at least as good as those produced anywhere. The intent was to minimize the need to import and maximize exports.

The employers now have a very short agenda. *They wish to maximize profit.* In the following analysis it is assumed that the employer is a corporation, which is largely correct. The above data indicates:

1. The supply of qualified employees with high-school diplomas, post-secondary education/training, and baccalaureate/advanced degrees, as measured both in absolute numbers and as proportion of the population is at an all-time high and continues to increase.
2. The CPI adjusted minimum wage has fallen since 1966, despite periodic increases in the current (nominal) dollar minimum wage.
3. From 1973 the CPI adjusted median wages for employees in all categories below the baccalaureate degree fell indicating *an increasing surplus of such candidates.*
4. The CPI adjusted median wage for employees with a baccalaureate degree has remained constant from 1973 to the present indicating an adequate supply of such candidates, in that supply and demand are about equal, and there is no shortage.

5. Only in the category of employees with advanced degrees, masters and above, does the inflation adjusted median wage show an increase in wages indicating a “shortage.” *Even the broadest definition of VOTE does not include this category.*
6. Complaints and concerns about the low rates of increase, and in some cases reductions in employee productivity, appears to be largely the result of changes in the prices of the commodities as measured by the PPI index, rather than any real changes in unit productivity per employee.
7. The share of the cost of government paid by corporate income and profit taxes continues to decrease and is projected (although it is unlikely) to reach zero in 2020.
8. Because of the reduction and elimination of import tariffs and duties under NAFTA/GATT, both the absolute amount and relative proportion of these taxes have decreased, further reducing the share of the cost of government paid by corporations.
9. As a measure of “profit,” the Dow-Jones Industrial Average in current year dollars indicates an essentially continuous increase. This increase is particularly rapid after 1983, which perhaps coincidentally was the year when the CPI adjusted median income began to fall. As indicated on Chart 1 DJ1900M.XLS, the LSBF curve for the period 1900-1997 was exponential ( $R^2 = 0.9285$ ) indicating a compound growth pattern with an annual increase of about 4.5%. The actual index from about 1982 on was far above this curve indicating a far greater than historical rate of growth.

10. The CPI inflation adjusted DJ index, as presented on Chart 4 DJ1900M.XLS, indicates a very different picture. From the end of WW II to about 1962, the index showed a consistent increase from about 700 to about 2900. From the peak of 2900 in 1962, the index showed a consistent decrease to about 900 in 1982. From this low, it rapidly and consistently increased to an inflation adjusted high of 4600 in 1997. *Again this rapid increase coincides with the decrease in the inflation adjusted median wage.*
11. Charts 3 and 5 DJ1900M.XLS present the above current and CV DJ index data using a logarithmic Y axis to emphasize the rate of change. It can be seen that there are three distinct periods. 1945-1965, 1966-1982, and 1983-present. This provides support for the accretion model introduced in chapter 5. The period 1945-1965 would appear to coincide with the dominance of domestic heavy industry and mass production capitalism, 1966-1982 with the dominance of “cannibalistic” or value extraction capitalism, and 1983 to the present with trans-national capitalism.
12. While not directly part of VOTE, corporate bond yield data is also included as this not only provides additional data to evaluate the employers’ circumstance but also examines another “they say” and “everyone knows,” specifically that interest rates are at historic lows. Chart 1 of corpbond.xls presents the historic corporate average nominal bond yields from 1857 to the present. Examination of this data indicates that the lowest corporate bond interest rates were actually during WW II at about 2.5%. The current

rates of c. 5% are about the average bond rate for the period 1857-1998. Chart 1 / INFCBND.XLS presents the inflation adjusted corporate bond rate plotted for the period 1913-1998 (using available BLS CPI data). At the end of WW II (1946) the inflation adjusted interest rate without tax affect was about 2.5 %. This increased steadily to about 1978 when it reached 8%, or an increase of about 0.17% per year. This abruptly jumped from 8% in 1978 to 13% in 1981 or about 1.67% per year. The inflation adjusted yield has since decreased from 13% in 1981 to the current 6% or about a -0.4% per year. To emphasize this rate change and to support the accretion model, corporate bond yields are also plotted with a logarithmic Y axis on the following chart.

13. To sum up for the (corporate) employer, since 1982:
  - 13.1. Median male wage rates are falling, female wage rates are static.
  - 13.2. Their share of the cost of government (taxes) is falling.
  - 13.3. The value of their company, which implies profits, as measured by the Dow-Jones Index of stock prices has never been higher.
  - 13.4. The cost of equity capital is low because of the high IPO share prices.
  - 13.5. The current cost (1998) of borrowed capital is about the average that it has been since 1857.

The Goals and Expectations of the Public at Large as Government (From

Chapter II)

- National Defense considerations specifically armament production.
- Other National Defense material considerations such as food, communications, transportation, and clothing

*The Current Reality:* For the above two items, VOTE no longer has significant effect because much of the materials and machines required to utilize the skills, education and training are no longer domestically produced. Based on the tremendous numbers of layoffs at aero-space and other defense contractors, even those with backorders such as Boeing, the availability of trained man-power far exceeds the current demand or capacity. Steel as a basic commodity is now largely imported and specialty alloys such as René41, Inconel, Hastaloy and special steels such as HY110 and HY150 are now being dumped by foreign producers such that even this niche capability is being destroyed. The required machine tools to process this material in general are also no longer domestically manufactured, and the electronics required to operate the newer CNC equipment is largely produced abroad. Other critical components such as RAM chips, computer hard disk drives, LCD displays, and electro-optical components are also not domestically produced. Indeed, even such basic commodities as uniforms and boots are becoming a concern as domestic

production capacity continues to fall. A recent example is the transfer of most production of Levi's<sup>26</sup> to off-shore factories and sub-contractors.

- Economic independence by domestic production rather than import.
- Increased domestic economic activity by domestic production

*The Current Reality:* The ever increasing trade deficit indicates that these goals are not being attained. The de-industrialization of America and the ability to obtain services such as data entry and computer programming from foreign sources at far lower prices indicates that VOTE, at best, can have only a limited (delaying) affect. Recent increases in economic "activity" seem to be driven more by financial speculation by upper income groups than by any actual increase in the production and consumption of beneficial goods or services by the majority.

- Increased revenue by broadening the tax base, not increasing rates

*The Current Reality:* Because of the reduction in the number of individual with higher paying industrial and manufacturing jobs, proliferation of "not-for-profit" organizations such as the National Football League that are largely exempt from taxes, elimination of tariff and duty revenues because of NAFTA and GATT, and the export or liquidation of American factories, *the total tax base has shrunk, not grown.* Governmental expenditures at all levels have tended to increase even though the tax base has contracted, therefore when all taxes, governmental fees and charges are included, the individual tax rate has increased both as a fraction of income

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<sup>26</sup> Jones, D. (1999, February 23) What caused Levi's blues? USA Today B1-2.

and as a total amount, even with declining (male) or static (female) individual median incomes.

- Increasing citizen support for (or at least acceptance of) existing economic and social order.

*The Current Reality:* Citizen participation in government is at record lows as measured by voter turn-out. Media polls indicate growing distrust of government at all levels with a majority of respondents expressing the belief that government now generally acts, not in the best interests of the citizens, but on behalf of special interest groups.

- Meeting the employers' needs for trained labor from domestic sources rather than through immigration

*The Current Reality:* As indicated by the continuously falling or static wage rates, there is no lack of domestic trained labor in the normal sense of the word, and employers are increasingly turning to foreign production, either through outright ownership of foreign facilities or through sub-contracting.

### VOTE Professionals and Practitioners

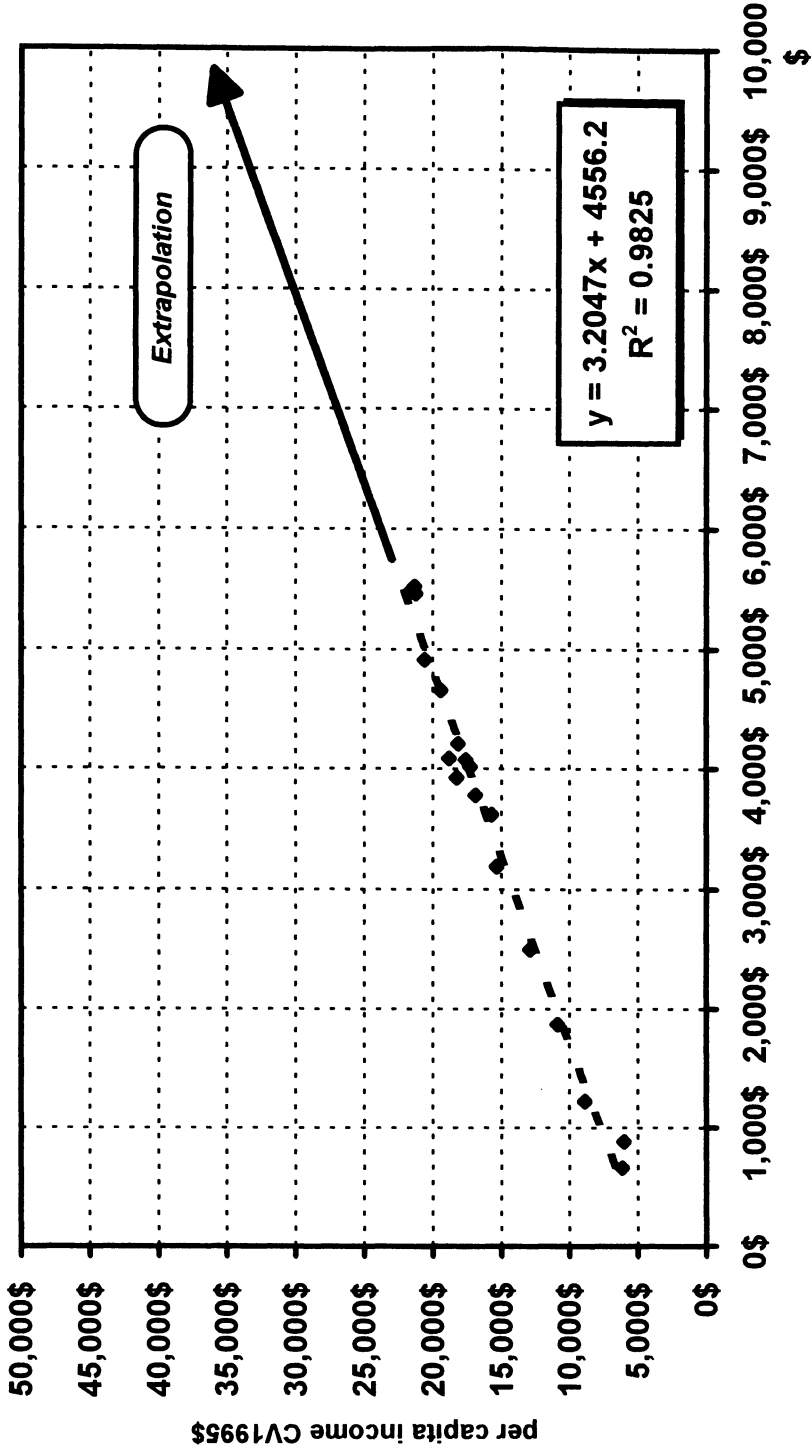
The US Department of Education and its predecessor agencies has maintained a index of public support for post secondary and primary-secondary education from 1930 through 1993 with extrapolation. These data were combined with BLS data for median income by year to form dataset ed.xls and two graphs were generated.



1. Chart 4 ED.XLS presents the National Education Support Index versus time (year). Note the following:
  - 1.1. Support for post-secondary education peaked in 1965 and in 1993 was roughly the same, although slightly below, were it was in 1930.
  - 1.2. Based on the LSBF trend-line ( $R^2 = 0.7952$ ) support for post-secondary education is projected to continue to decrease into the foreseeable future.
  - 1.3. Public support for primary and secondary education will continue to increase, based on the LSBF trend-line ( $R^2 = 0.9391$ ).
  - 1.4. From about 1986 public support for primary and secondary education has exceeded that for post-secondary education.
2. Chart 3 ED.XLS presents the National Education Support Index for Primary-High-school and post-secondary education vs. Median per capita income in CV\$ (1995 CPI). Note the following:
  - 2.1. Because of the strong correlation of inflation-adjusted median income with time, *this is not entirely separate data but effectively is an alternative way of presenting the above data.*
  - 2.2. Support for primary and secondary education rises with rising income with a correlation of  $R^2 = 0.9255$ .
  - 2.3. Support for post-secondary education follows a more complicated pattern. From \$6,000 to \$13,000 inflation adjusted median income, support increases. Beyond \$13,000 support for post-secondary education decreases. The correlation for this trend is  $R^2 = 0.7329$ .

### Per student Pri & HS costs vs Per Capita income (CV1995\$)

Source: U. S. Department of Education



Elem & HS per student costs (CV1995\$)

Chart2 - ED.XLS

**Index of Support for Secondary Education vs Per Capita personal income  
(CV1995\$)**

source: U. S. Department of Education and BLS

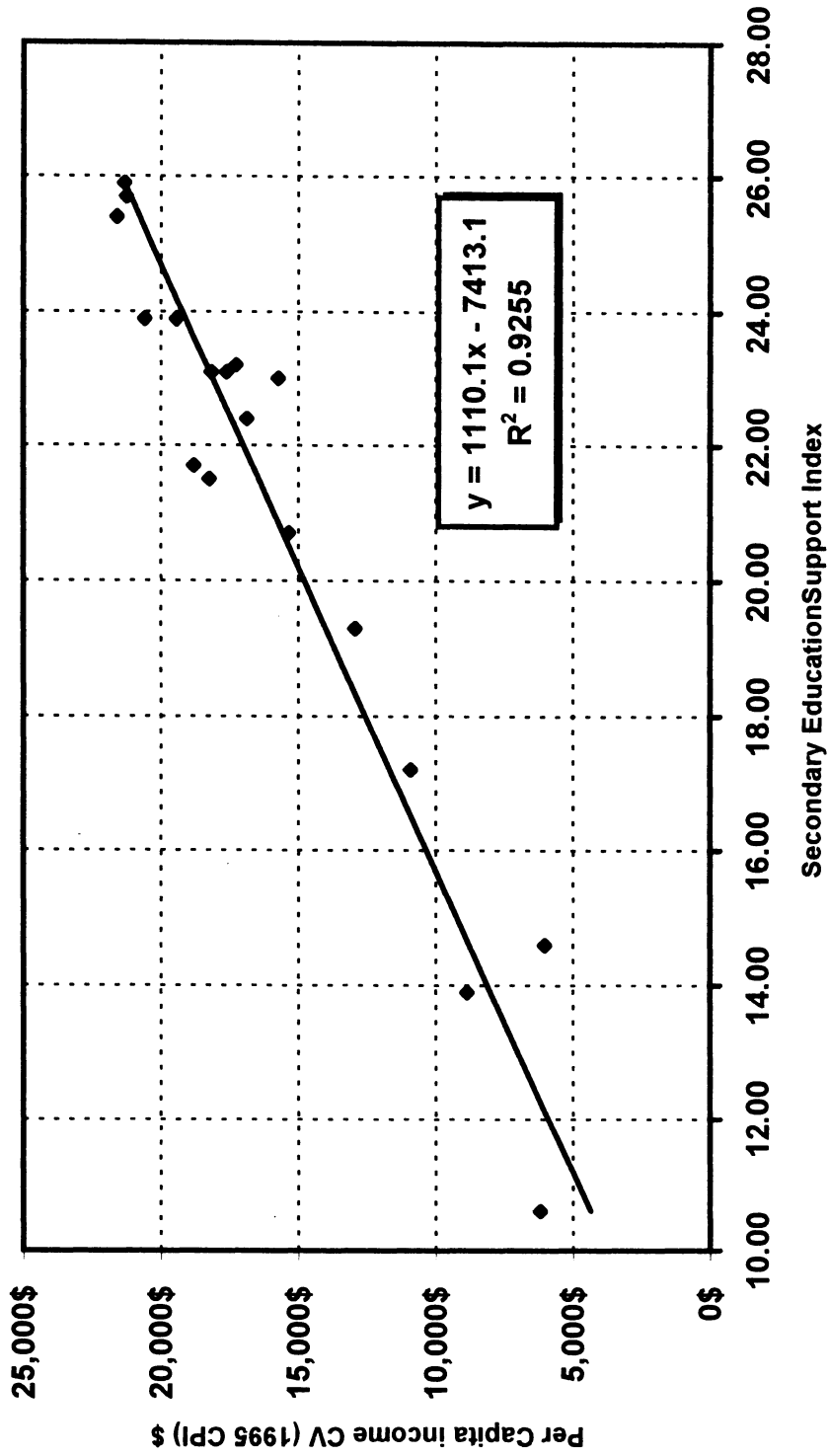
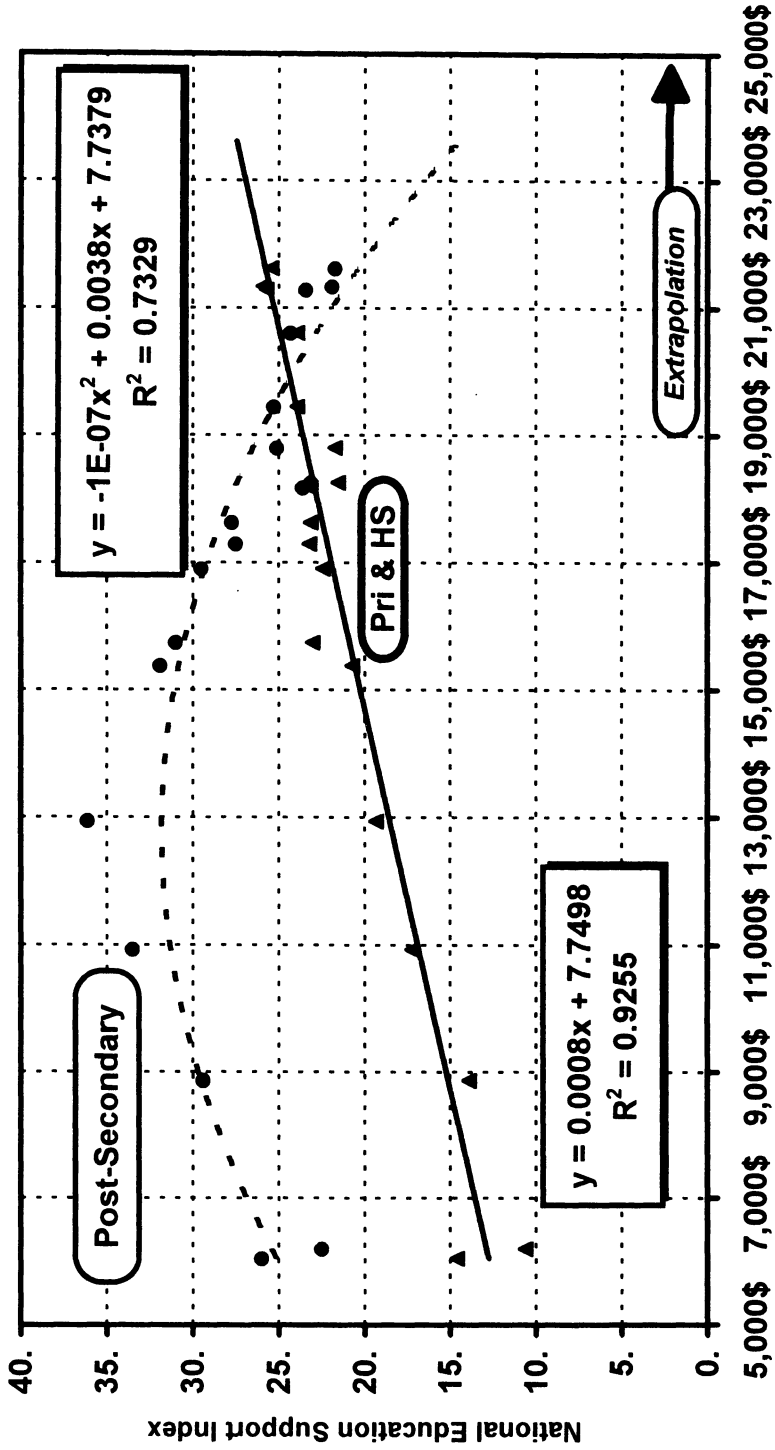


Chart1 - ED.XLS

Index of National Support for Education vs Personal Income (CV1995\$)



Per Capita income CV (1995 CPI) \$

Chart3 - ED.XLS

National Support for Education Index by Year 1930-1993 w/ extrapolation to 2010

source: U. S. Department of Education

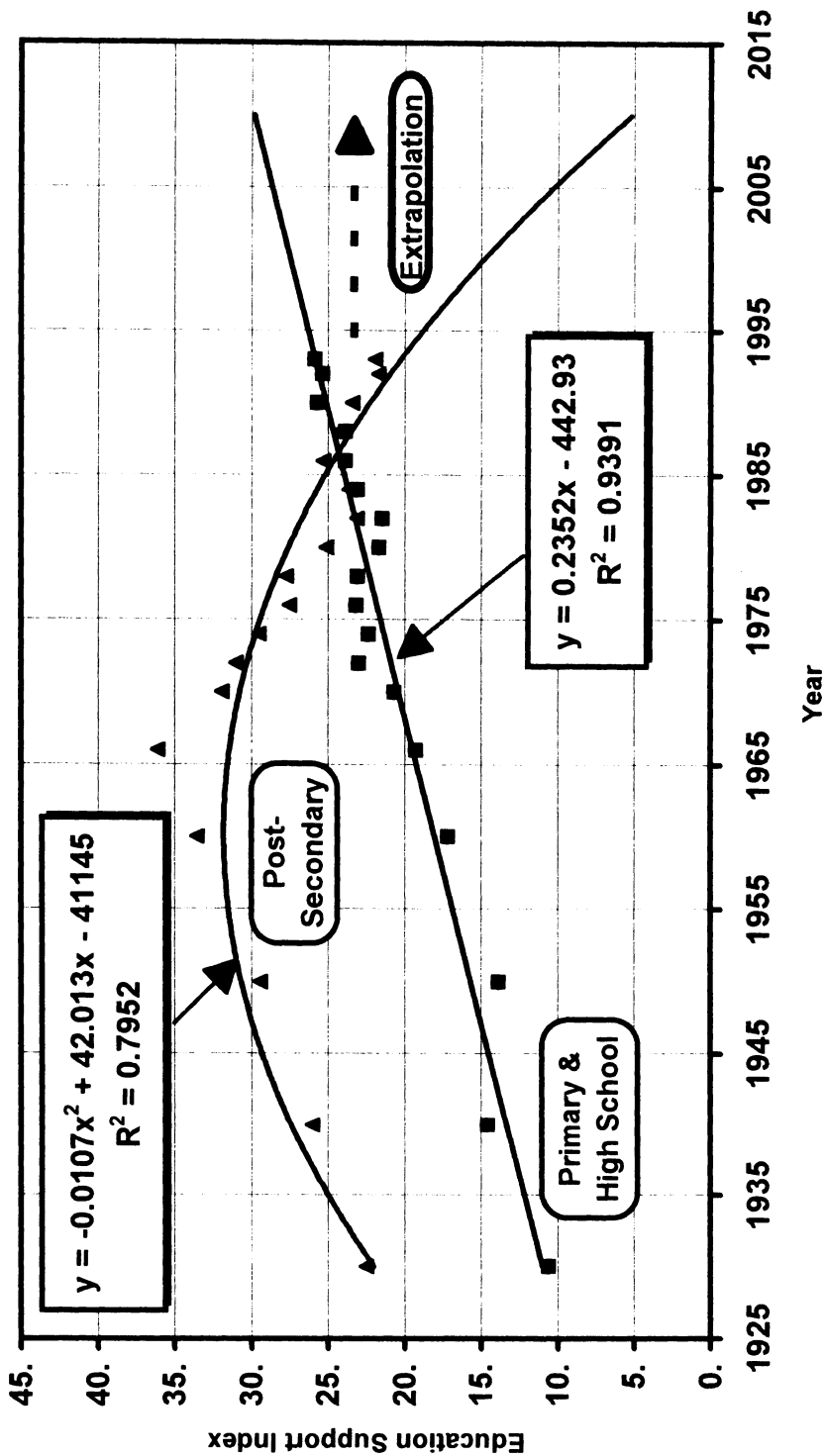


Chart 4 - ED.XLS

3. There is an almost perfect correlation between median individual income and the combined per capita costs for primary and secondary education ( $R^2 = 0.9825$ ) when measured in constant value CPI dollars. This is presented in graphical format on Chart 2 ED.XLS.

## CHAPTER V

### CONCLUSIONS AND DISCUSSION

Because of the controversial nature of much of the following material, the limitations and qualifications of this study are listed first.

#### Limitations

1. The range of United States current educational attainment examined is limited from a low of 72.7% (West Virginia) to 92.1% (Alaska) of adult population which completed high school and a low of 12.7% (West Virginia) to 38.3% (Colorado) which hold a baccalaureate or higher degree. There may well be significant relationships outside of these (current) ranges.
2. The relationships examined are largely between “education” in the aggregate and the other, primarily economic, factors. Significant relationships may exist for specific majors or vocations and/or other, highly desirable but non-economic factors.
3. Predominantly economic factors have been used in the evaluation and discussion. Rationally, different conclusions may have been reached if

other more subjective criteria such as expanded “Quality of Life” considerations or individual growth/development had been used.

### Overview of Significant Findings

The following findings are particularly disturbing when the enormous amounts of money, time and effort invested in all forms of education and training are considered.

1. From 1980 the available data indicated a *continuously falling real median wage and increasing poverty for individuals employed full-time* which is not compatible with the common belief or perception that there has been, is, or is likely to be a general labor shortage in the United States, at least not since 1970.
2. Despite popular belief and perception, in the aggregate, inflation adjusted annual income of individuals with less than a baccalaureate degree but with post-secondary education (which includes the majority of VOTE participants) continues to fall, albeit at a slightly lower rate than that of high school completers and non-completers, indicating *a continuing oversupply not a shortage* of employees with these qualifications.
3. The available data does not support the common belief or perception that there has been, is, or will be a shortage of employees with baccalaureate degrees in the United States, rather a good balance between supply and demand based on the stable per hour wage rate.
4. The only group with rising incomes indicating a *possible* shortage are those with advanced degrees. However this apparent increase may be due to



additional time worked or non-employment (investment) income rather than any increase in the actual rate of employee compensation, as popularly understood.

5. Economic growth or development as measured by the annualized rate of change in the inflation adjusted Gross State Product although statistically correlated is not significantly affected by the educational attainment levels of the states expressed as fraction of the population which have completed high school.
6. Economic growth or development as measured by the annualized rate of change in the inflation adjusted Gross State Product is both correlated statistically and significantly affected by the educational attainment levels of the states expressed as fraction of the population which have baccalaureate or higher degrees. Unfortunately, this correlation is *negative*. That is a one percent increase in the fraction of a state's adult population is projected to result in a 0.8% *decrease* in its expected rate of growth. A simple cause-and-effect relationship is not posited, however this unexpected result indicates that anticipating an increase in state economic growth by simply increasing the number of college graduates is no longer a viable strategy.
7. Although there is a statistical correlation, a state's median hourly manufacturing wage is not significantly economically affected by the fraction of the population which have completed high school.

8. Despite popular belief and perception, the inflation adjusted minimum wage in the United States has consistently decreased since 1967, with only minor variation about the trend line.
9. The inflation adjusted quintile family income distribution in the United States remained substantially constant from 1947 until 1969, when the distribution began to increasingly diverge. Of particular concern is that this divergence is as much due to decreases in the inflation adjusted income of the lower groups as it is to increases in the higher income groups.
10. The distribution of income in the United States, as measured by the Gini coefficient, is the most unequal of any of the OECD countries, and is rapidly increasing.
11. “Quality of Life” as measured by the total, homicide, suicide, and accidental young adult death rates does not appear to be significantly related to levels of educational attainment in the United States but some selected quality-of-life measures do appear to be significantly correlated to the Gini coefficient of equality of income distribution.
12. Many of the widely publicized problems of stagnant or falling “productivity” of American workers appears to be due more to abrupt and steep changes in their economic sectors’ Producer Price Index [PPI] than to any lack of motivation or training. That is, because of factors totally outside the control of the employees (as indeed, even the managers and officers).

13. An additional factor in the perception of stagnant or falling productivity is the existence of a *dis*-economy of scale effect for organizations larger than about 15 billion \$US in annual gross revenue in that profit measured as a fraction of gross revenue tends to decrease past this point. In 1998 there were approximately 90 American corporations in this category<sup>1</sup> up from 77 in 1997<sup>2</sup>. In 1997, the last year for which comparable data was available, the total gross revenues of corporations with more than 15 billion \$US was slightly more than 1/3 of the entire US GDP. Given the recent and continuing trend to consolidation in several major economic segments such as automobiles, communications, wide bodied aircraft and banking, resulting in the creation and/or expansion of organizations this size or larger, it is likely that “productivity,” measured using several definitions of profits, will continue to fall from the dis-economy of scale effect alone. Of particular concern is the apparent tendency for business executives to base a decision to expand or merge on one set of criteria or definition of efficiency, and then to evaluate plant and/or worker “efficiency” using a different set of criteria or an alternative definition.
14. It now appears that “money” in the abstract rather than serving as a means of exchange and a measure and store of value, has displaced the traditional reality of the possession of raw materials, means of production, means of distribution and markets as the meaning of “wealth” in popular

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<sup>1</sup> 500 Largest U. S. Corporations (1998, April 27) Fortune. (F1-F20)

<sup>2</sup> 500 Largest U. S. Corporations (1997, April 28) Fortune F1-F20)

consciousness with all that this implies. As indicated in the discussion of the consumer and producer price indexes in Chapter 4, “Money” no longer has even a relatively common value across the population, and not only rapidly varies across time, but also abruptly varies between the sectors of the economy such that the “value” of their output abruptly varies not only in terms of “money” but in relative relationship. Effectively, money has been *quantitatively* “deconstructed.” Given that one of the major reasons given for post-secondary education by its participants was to “make more money,” and that the employer rationale for additional education and training has always be explicitly the “bottom line” it is of great importance to realize that this is now a highly nebulous and ambiguous concept.

15. There is yet another “money” problem. Beginning about 1824, with the publication of “Reflections on the Motive Power of Fire” (*Réflexions sur la puissance motrice du feu*) by French physicist Nicolas Léonard Sadi Carnot, the laws of entropy and thermodynamics have been developed, refined, and repeatedly verified. As part of this development, *perpetual motion, that is the hypothetical continuous operation of an isolated mechanical device or other closed system without a sustaining energy source has been proven impossible*. Most people today are aware of this, yet many still feel sure that they can invest their capital such that, with no further effort on their part, it will indefinitely produce income which can increase the basic investment (compounding) and / or can be used for current consumption. If true, this indicates that money and “capital” now

have no physical basis but are entirely an intellectual or virtual construction.

16. The preceding sections justify the statement that *it is not longer generally possible using the “money” standard to usefully describe employee productivity* in terms of sales, earnings or production per employee, as “money” no longer has a consistent or generally agreed upon meaning across time or between economic segments. At first, it appeared possible to use the CPI and PPI to “normalize” the money units however even a cursory examination indicates this is not only a highly subjective but circular process in which the indici are used to adjust the data that are used to produce the indici. It is now clear that much of the concern and self-flagellation about stagnate or even falling employee “productivity” has been generated, not by any actual changes in employee motivation, qualifications or dedication, or even management actions / activities, but rather changes in the unit of measurement (money) which are totally outside their control.
17. As an alternative, the use of production units such as tons of coal, customers served, or television sets per employee hour was considered, but this was also found to be highly variable across time and between industries. For example, in a basic category such as “raw materials - energy,” it would appear possible to use tons of coal per man-hour as a measure. The problem is that there are many types of coal and many mining methods. For example, bituminous or soft coal is commonly mined using the open pit method and anthracite or hard coal is commonly mined

using the cut and fill or deep mining methods, which inherently have very different production rates per man-hour. Thus, even in these apparently similar industrial sectors with static products very different baselines exist. Even with static and uniform products that are easily measured such as barrels of oil or thousands of cubic feet of natural gas, changing production conditions such as the depletion of easily accessible oil and gas fields or political unrest can result in apparent decreases in productivity which are totally beyond the control of anyone. Economic sectors which appear to have increases in productivity are also subject to this effect. For example, the consumer electronics PPI has greatly increased indicating among other things, significant gains in productivity. This “productivity gain” does not appear to be the result of any improvements in employee motivation or training, and indeed only minimally to (production) management actions such as the introduction of automatic insertion equipment, but almost totally the result of changes in the basic components. The original products were assembled from several hundred to several thousand discrete components. Integrated circuits which combined the functions of many discrete components into a single unit reduced the part count to less than a hundred. Continued application of this principal has resulted in LSI [Large Scale Integration], VLSI [Very Large Scale Integration], and the current ULSI [Ultra Large Scale Integration]. It is now possible to construct a high-performance multi-band radio using a single chip, a television using a few chips, certainly less than ten, and a personal

computer with literally a billion or more transistors with a few dozen chips. The conclusion is that while there has been great increases in productivity, or stated another way, great reductions in the labor required to produce, *in some segments of the economy*, in most cases these do *not* appear to be mainly due to improvements in employee motivation and training but rather changes in the basic materials/components and production process. As previously stated, static or falling productivity is also minimally connected to employee motivation and training. Therefore, it appears that:

- 17.1 “Productivity” in the current economic, social, political, et cetera, environment is only minimally connected to specific education/training for employees, and what connection there is negative, that is insufficient education/training may reduce productivity, but it is doubtful additional education/training will or can significantly increase it.
- 17.2. Comparisons of “productivity” between/among economic sectors is generally a waste of time, especially if the comparison is money based as changes in the relative values of the currencies and/or commodities/services (the PPI) “swamp” or mask any actual changes.
- 17.3. The “Law of Diminishing Returns” applies to employee training and education just as it does to anything else. If the current employees are reasonably competent and motivated, in general it is doubtful

that additional education and training will have any significant affect on productivity.

17.4. If “productivity” has suddenly become a problem, before any action is taken, the reason for the problem must be determined. As indicated, external factors beyond the control of either management or the employees are likely, and it is simply a waste of time to begin “training.”

17.5. As previously established, VOTE was specifically designed for and implemented in the c. 1890-1970 environment of expanding heavy industry, increasing mass production and sustainable entrepreneurial cash crop agriculture. The current environment of unregulated international commerce or “free trade” is so different from the environment in which VOTE was conceived, prospered and thrived that its continued viability in its present form is highly doubtful. These data render the accretion model of economic development more plausible as it shows how the model of profit maximization has changed because of the globalization of capital and internationalization of corporations. (See section on “Free Trade” in the Appendix)

18. The Accretion Model of Economic Evolution is one of the major findings of this study. As indicated in the extensive discussion in the appendix, the key to this model is the realization that existing economic, social and cultural methods and organizations are abruptly replaced only under



exceptional circumstances by newer systems<sup>3</sup>. Rather, these tend to be overlaid by the newer systems and continue to co-exist at different levels within the overall economy. The following points are stressed:

- 18.1. Layers are as much social and cultural (perceptual) as economic
- 18.2. The gradual decrease in the apparent effectiveness of VOTE appears to be due to the increasing subordination of the traditional (domestic heavy industry, mass production and entrepreneurial free-holder agriculture) economy to a more global and service oriented economy.
- 18.3. VOTE still seems to be affective in some areas because these areas are still operating in the traditional domestic manufacturing or entrepreneurial agricultural mode. It seems almost certain that as soon as these areas convert to the newer modes of economic activity and their need for large numbers of highly trained (and well paid) employees is eliminated, this (residual) effectiveness will disappear.

The New Dichotomy Between Organizational and National Competitiveness – The illusion of maintaining national competitiveness through preeminence in high-tech industries *A new general principal is that dominance by a trans- or multi- national corporation which is nominally American in a particular field, is no assurance that America will be dominant in that field or that “Americans” will benefit.*

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<sup>3</sup> For example, the imposition of collective agriculture under Stalin or the communes under Mao. Such drastic changes also generally are accompanied by social and political chaos.

Many researchers include economic segments such as wide-body aircraft (Boeing-MacDonald-Douglas-Lockheed), telecommunications (MCI, Sprint, Bell, ATT, AoL), computer chips (Intel, AMD), communications satellites (Loral, Hughes), computer programming (MicroSoft, Oracle) and bio-technology as some of the economic niches or segments where America will maintain its global economic competitiveness. The exact composition of this group is unimportant. What is vital is that all of the significant organizations active in these sectors have research and production facilities and / or sub-contractors located throughout the world, and all of these organizations have demonstrated that they will source (produce) a product where ever it will maximize their short-term profits, even if such production and the resulting inevitable technology transfer seriously compromise the long-term national security and economic interests of the United States. This is a serious statement and examples are provided below:

1. Loral and Hughes, both divisions of the General Motors Corporation, transferred guidance and launch vehicle technology to the Peoples Republic of China when they contracted with the PRC to launch several of their communications satellites.
2. MicroSoft, IBM, Oracle and Novel-- Premier companies in personal computer software and networking have established offices in New Delhi and Bangalor India to take advantage of experienced programmers who earn about 20% of what a comparable programmer would earn in the United States. Significant amounts of the latest release of Novel

Netware (v5) were created there. By 2020 software exports are expected to account for 20% of all Indian exports.<sup>4</sup>

3. Boeing -- When Boeing acquired McDonnell Douglas, in 1997, it also acquired McDonnell Douglas's extensive operations in China. McDonnell Douglas Chairman John McDonnell said in March 1997 that the merger "is good news for the Chinese airline industry." McDonnell Douglas's 1996 annual report says the company has at least 10 employees in China involved in the "co-production of and spares service center for commercial aircraft." McDonnell Douglas assembles some of its MD-80 and MD-90 aircraft in a Shanghai venture, and procures parts and sub-assemblies from ventures in Shanghai, Chengdu, Xi'an and Shenyang. A November 1996 U.S. General Accounting Office report found that China National Aero Technology Export-Import Co. (Catic) purchased dual-use machine tools from McDonnell Douglas in 1994 and shipped them to China, ostensibly for "civilian purposes." (The factory produced parts for the B-1 bomber, C-17 military transport aircraft and Peacekeeper missiles.) In October 1995, 33,000 Boeing workers went on a 69-day strike to protest the company's decision to export jetliner production and technology to China, which "aims to build its own airliner industry with help from the West," according to articles in The Wall Street Journal published Oct. 13, 1995, and Nov. 10, 1995. On the 58th day of the Boeing strike, Chinese labor activist Harry Wu, who was expelled from China earlier in 1995, addressed striking

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<sup>4</sup> See Schmit, J (1999, Feb 24) Software industry grows in India. USA Today B1-2.

workers and accused companies like Boeing of ignoring human rights abuses in the pursuit of corporate profits, The Wall Street Journal reported. The rally that day centered around what workers said was Boeing's practice of sending work and technology abroad in exchange for aircraft orders. Representatives from the machinists union contended that while Boeing used to make the tail section for its 737 plane in Wichita, Kan., workers in a military plant in China are now producing the parts for salaries of \$50 per month<sup>5</sup>. Boeing responded that the total number of jobs the company was exporting had fallen in recent years. The company also announced in 1994 that it would invest \$100 million in a factory to make tail sections for Boeing 737 jetliners, build a spare parts service center, and finance training programs for Chinese flight crews and maintenance workers<sup>6</sup>.

### Is the "Free Market" Still a Viable Concept?

It appears that most people and their political representatives in the United States have a pathological fixation on and obsession with the idealized free market as first described by Adam Smith in 1776 and elaborated by David Ricardo in 1817. Indeed, this ideology or philosophy has proven high effective, however since at least 1885, when Yale political science instructor Arthur Twining Hadley published his seminal work

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<sup>5</sup> An American unionized aircraft sheet metal worker earns at least 20\$ per hour. Assuming 2080 hours per year this is \$41,600 or 69 times what the Chinese worker will earn per year (600\$). It is unclear what type or how much education / training will enable the American worker to produce 69 times as much as his Chinese equivalent.

<sup>6</sup> see <http://www.irrc.org/labor/Boeing.htm>

“Railroad Transportation, Its History and Its Laws<sup>7</sup>,” it has been known that *the 1817 Ricardian theory of free enterprise does not apply to industries having large permanent investments and a high proportion of fixed to variable costs*. Hadley conclusively showed these factors to be sources of (economic) instability and to result in a tendency toward combination, that is restraint of trade. This should be of particular concern to VOTE stakeholders as the segments of the economy which are generally projected or forecast to be the mainstays of the American economy in the next century all have high and continually increasing permanent investments, and all have very high ratios of fixed to variable costs. These segments include wide-body aircraft (Boeing-MacDonald-Douglas-Lockheed), telecommunications (MCI, Sprint, Bell, ATT, AoL), computer chips (Intel, AMD), communications satellites (Lorel, Hughes) and computer programming (MicroSoft, Oracle). Other frequently mentioned areas such as bio-technology also exhibit the same patterns of capital investment (very large start-up costs with delayed payoffs) and allocation (primarily items which cannot easily be liquidated and the capital reallocated).

### Research Questions and Summary Answers

1. Given That Median Wage Rates Are Either Stable or Decreasing for All Educational Attainment Levels below Advanced Degrees, How Can a General “Labor Shortage” Be Declared to Exist? (See Chart EDWAGES in Chapter IV)

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<sup>7</sup> Hadley, Arthur T. (1902) *Railroad transportation, its history and its laws*, New York : G. P. Putnam's Sons, call number 385 H11r OSU Main Library

The usage of a special definition of “shortage” with the criteria of a non-zero “skills premium” does indeed indicate a “shortage.” This confusion arises because of the assumption that common words are being used in common ways when in reality a very special and particular meaning was intended by researchers in a very limited field, that of Labor Economics.

2. While Selected Individuals Within Identifiable Target Groups Can Be Documented to Have Attained Improvements in Their Economic Status and Stability, Why Has it Been So Difficult to Improve the Economic Status of Their Entire Group or Cohort? Indeed, official governmental data indicates that the fraction of all U. S. full-time employees with incomes below the poverty level has not fallen but has *increased at an almost constant rate of about 0.25% per year* from about 24% in 1973 to 31% in 1995. (See Chart POVWAGES.XLS in Chapter IV)

This appears to be a classic example of an “Error of Composition” in which the whole is assumed to be represented by its parts. In retrospect, from an examination of the data, it is clear that what is actually occurring is a redistribution of income within the lower income categories, not an increase. That is for every person in the lower income categories who advanced their income, another’s income was reduced. It is a game of musical chairs with 10 players and 9 chairs. When the music stops there will always be one person without a chair, no matter how well the players are trained and conditioned, although a different player may well be “out” each time. This is discussed in greater detail in the section in the appendix “Aggregate/Generic vs. The Individual/Case model.”

3. Although this Study Concentrates on Mainly the Non-Agricultural Aspects of vocational education, Agricultural Education formed one of the legs of the triad which supported the introduction of vocational education and it continues to be a major component of vocational education in many rural areas, especially at the secondary level. Therefore this study also asked, at least in an introductory way: Does governmental data exist which indicates any clear trends for Agricultural Education similar to the data for Vocational Education, and if so what do these trends generally indicate?

As the section in Chapter IV makes clear, the governmental data for the prices received for the major agricultural commodities including livestock is not good, and indicates a drastic change in the near future in that on the average, the sale price is at or below the cost of production, indicating a significant fraction, 50% or more, of farmers and ranchers are losing money. Indeed, for some crops such as corn the sale price is projected to be zero by 2005 and current hog prices (Jan 1999) of \$7.00 per cwt. are lower, even in current dollar terms, than during the depths of the last depression and are far below depression era prices when inflation is considered. This appears to be a classical situation of the combination of a disappearance of an established market (export sales) either because the customer has decided to produce their own, or because the customer no longer has the funds required to pay for the merchandise, and consolidation of production into a few, very large organizations which have better access to capital, technology and legislators/regulators. In short, *the era of the small independent farmer and rancher is generally over*. The future of Ag-Ed appears to be the contextulization of learning in rural areas rather than preparation for independent production and self-employment.

### Primary (Implicit) Research Question

Does VOTE Remain a Viable Educational Option? If by objective data, two of the three primary groups (the learners and the government) are in general not receiving what they are paying for and expect from VOTE, and the third group (the employer) is intensely dissatisfied with “education” in general and VOTE in particular, despite continuing and massive efforts to amend and revise it, there appears to be *little or no incentive, requirement or rationale to maintain the current programs and implementation of VOTE as a function of government at great public expense.*

### Major Conclusions of Research

These conclusions are highly disturbing, and while these factors in items 1 through 3 were known to exist, the extent or proportion to which they exist and appear to control organizational and public policy was not anticipated.

1. There appears to be a significant divergence in world view or perception of the state of the United States economy and society between the business and governmental leaders and the majority of people. This appears to be primarily due to the different criteria used. One hand there is a rapidly rising stock market with considerable financial activity, and on the other hand continual reduction in both the number of higher paying manufacturing and industrial jobs and reduction in the wages, benefits and working conditions of the remaining jobs. Abstractions such as increases in the per capita gross domestic product or the Dow-Jones index appear to



have largely replaced concrete measures of the status and attitudes of society such as the infant mortality rate and existence/prevalence of poverty among full time workers.

2. As an extension or amplification of item 1, the significance of the increasing divergence in US per capita income as indicated by the rapidly rising Gini coefficient does not seem to be appreciated. As indicated in Chapter IV, significant income disparity is highly correlated with quality of life factors such as murder rates and individual tax levels. It is the height of folly to assume that the United States will somehow avoid the social instability and alienation between citizens and government that all other nations with high Gini coefficients are experiencing. Areas in the United States with high local Gini coefficients, such as many major urban areas, are already exhibiting many of these symptoms such as high crime rates and random violence, which are contained only with extensive (expensive) and frequently extra-legal law enforcement measures.
3. Major “American” corporations are now American in name only. The time when the Secretary of Defense and former President of General Motors, Charles W. Wilson could in truth say “What is good for General Motors is good for the United States, and what is good for the United States is good for General Motors” are long past. The tacit and frequently sub-liminal assumption that if a community supported a profit making organization that the profit making organization would in turn, at least to some extent, support the community, no longer appears viable. At least in part, this is

because the organizations have become so large that they can no longer identify with a nation let alone a community, and the actual policy and decision makers may reside on the other side of the world.

4. Based on economic performance to date, there appears to be little rationale for continuing publicly funded and administered VoTech as currently implemented. The atrophy of heavy industrial and mass production operations in this country have largely rendered VoTech obsolete because of the elimination of the need for large numbers of highly trained, skilled, and paid employees. As indicated in Chapter IV, almost all new jobs will be in the service sector and the higher paying jobs in this sector such as doctors, lawyers, accountants, and teachers all require professional training and licensure which is not within the scope of vocational education. The bulk of the new service jobs require little skill or training, which in most cases can be done on the job by the employer. There will be a need for highly skilled technicians and technologists in some specialties and areas but proprietary institutions are available to provide the required training and education, if the employer is unable or unwilling. Rather than continuing to fund the existing public “generic” VoTech system, it appears that direct grants to qualified candidates to cover tuition and other costs at these proprietary institutions would be more cost effective.

## Contrasts with Existing Studies and Contrary Findings

As indicated in the earlier sections, a careful review of the literature did not indicate the existence of any study of this type in at least the last twenty years. While the findings and conclusions of this study are directly contrary to many currently held beliefs and feelings, there does not appear to be any data, other than individual anecdotes, which contradicts this study. Where this study is vulnerable to criticism is that unavoidably qualitative criteria were used to evaluate the “meaning” of the data. For example, it can be argued that the increasing Gini coefficient is a good thing in that it indicates that the hard working and talented are at last receiving their fair share over that of the slackers and dullards, that most American workers have been paid too much in the past, and lower wages help make America more “competitive.” Such appeals to economic and social “Darwinism” are not persuasive to this researcher but appear to be more of a rationale or excuse than justification.

## Suggestions

It should be noted that as it has been demonstrated that [lack of] VOTE or “education” is neither a significant *cause nor “cure”* for the declining median wages and increasing disparity of income, with all that this implies, many of the following actions suggested do not directly involve either academic or vocational “education” but actions/activities which should help to attain some of the historical stated and implicit goals/objectives of traditional VOTE by other means. While admittedly a value judgment by this researcher, the VOTE stakeholder goals and expectations developed in Chapter II

generally remain highly desirable and from the historical record appear necessary for a reasonably stable and functional democratic society and culture. As indicated by the accretion model, *traditional VOTE actions and activities are no longer applicable to, and thus no longer produce the expected outcomes in the newer and increasingly dominant layers of "Value Extraction" (Cannibalistic) and "Trans-national" Capitalism.*

Therefore, alternative methods must be explored and eventually adopted, even if these appear to be incompatible with the increasingly subordinate traditional layer of heavy industry, mass production and entrepreneurial cash-crop agriculture for which VOTE was specifically designed.

These following suggestions are highly controversial, however the intent is not in any way to replace or overthrow the "Free Market," but rather to insure its continuing relevance and ability to function. As an analogy, operation of trucks on the public roads in excess of 160,000 pounds gross vehicle weight at excessive speeds by unlicensed drivers is not permitted. These limitations or restrictions are imposed not because of any ideological beliefs in the inherent evil of large trucks, but because the public roads must be used by everyone, because the public roads are paid for by the public, because the public roads are inordinately damaged by overweight trucks, and because operation at excessive speeds and/or by unqualified drivers has been shown to result in unacceptably high accident rates. Note that these restrictions do not prohibit vehicle operations at very high speeds or the transportation of very heavy loads, but that high speed operation must take place on a race track, and extremely heavy (or large) loads must be transported on a railroad or barge line, or they must be broken down into smaller loads. While it is certainly possible that public roads could be constructed that would allow safe operation

of “180 wheeler” trucks at 200 miles per hour, the public has determined that this would involve excessive investments in roads which would directly benefit only a very few individuals and have opted instead to limit truck size and speed to what the existing infrastructure can reasonably be expected to safely accommodate. Similarly, the currently existing American financial, judicial and other social and governmental “systems” and practices also appear to have upper limits on the size and “speed” of business operations which these can safely accommodate. Therefore the following palliative or ameliorative measures, in that these address the symptoms and not the root causes<sup>8</sup>, are suggested:

1. Limitations on the absolute size of organizations that are allowed to operate under the rules of the “free market,” that is before they are treated as a monopoly public utility with limitations on their rates of return, public representatives on their boards of directors, and operational oversight by a governmental organization. This may vary from economic segment to economic segment but as indicated in the section of the “Economy of Scale” in chapter four, most likely should be less than 15 billion \$US gross sales per year.
2. Limitations on the amount of “market share” an organization can have and still operate in the “free market,” that is before they are treated as a monopoly public utility with limitations on their rates of return, public representatives on their boards of directors, and operational oversight by a governmental organization. Restrictions and limitations on vertical

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<sup>8</sup> Which in the opinion of this researcher is the combination of unlimited rapid growth in the size and complexity of economic organizations combined with the explosive development of unregulated international commerce or “free trade.”

integration may also be required. For example there is a trend for automotive manufacturers to establish their own retail outlets in competition with their independent franchised dealers. In areas where this has occurred, the number of dealerships has been reduced, competition eliminated, and the number of independent businesses paying local taxes and providing employment decreased. Because the automotive corporations also have divisions that provide consumer financing and insurance, establishment of manufacturer owned retail stores also adversely affects local banks, other local consumer credit providers, and independent local insurance agents.

3. Limitations on the rate at which an organization of significant size can grow and still operate in the “free market,” that is before they are treated as a monopoly public utility with limitations on their rates of return, public representatives on their boards of directors, and operational oversight by a governmental organization. Whether done with the intent to defraud or as a result of “irrational exuberance” by the officers and directors, extremely rapid growth of an organization appears to have a high correlation with serious problems frequently leading to bankruptcy.
4. The family farm has well served the American public, and the re-imposition of state bans on corporate farming, and prevention of vertical integration of the food supply appears to be highly advisable if it is to be retained.
5. The total annual GNP of the United States is estimated to be about \$7 trillion [1998]. The value of the stocks traded on the three major

exchanges (NYSE, AMEX, and NASDAQ) are approaching this amount per day, while foreign exchange contracts traded reach this value every few days. It is clear that majority of this activity must be simply speculation, and thus serves no useful social, economic or commercial function. It is therefore suggested that a small tax be place on each individual transaction<sup>9</sup>. A small tax should have minimal affect on legitimate transactions because there are so few of them, but multiple trades within a short period of time would incur a heavy tax liability thus discouraging this type of activity. An alternative would be a special “capital gains” tax on investment profits. This tax could provide for a 99.9% tax on the profit gained from the sale of an asset held for less than 10 days decreasing to a zero tax on profits from assets held for three years or more. The objective of this is to divert the capital and more importantly the time, energy and attention of the very highly talented people involved in these activities into more productive and socially useful activities than simply making “money,” which as demonstrated in of Chapter 4 has become an increasingly meaningless and abstract “commodity.” These are not new proposals, but have been rejected on the grounds that such taxes would simply cause speculative trading activity to move off-shore. This researcher does not find this argument particularly convincing. Prostitution and narcotics are two highly profitable activities which are unlawful in most areas, and the

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<sup>9</sup> This seems to have been first proposed by Tobin.

argument is not made that by being made illegal, these are simply being driven “off-shore.” Indeed, that is the entire idea.

6. Licensure requirements for officers and directors of organizations above a given absolute size or market share, which should include criminal record and work history checks, physical and mental evaluations, and mandatory random drug and alcohol testing. It is accepted that individuals in occupations or professions such as truck drivers, air line pilots, teachers and even barbers/hair dressers can be required to demonstrate a minimal competency in their specialties with no history of egregious anti-social activity, therefore it does not seem unreasonable to require the same from individuals whose actions and activities may affect hundreds to millions of times the number of people as these professions and occupations do.
7. A useful operational definition of the size where the above restrictions should apply is *any organization that is too big to fail is too big to operate as a free market organization* because one of the basic assumptions of the “free market” is the elimination of inefficient organizations and the growth of the more efficient. Recent examples include Chrysler (automotive), Lockheed (aircraft), Continental Illinois (banking), and Long Term Capital Management (finance).

Some Possible Palliative Measures Specifically Intended to Slow the Increase In, and If Possible Reduce, the Gini Coefficient. As indicated in the discussion in Chapter IV, the Gini coefficient indicates the degree of equality (or inequality) in the distribution of



income. There appears to be significant correlations between the Gini coefficient and many inter-related items which are generally considered to be important in a society or culture such as individual income tax rates, average life expectancy and crime rates.

Because the Gini coefficient appears to be predictive rather than causal, extreme care must be taken in attempting to reduce it if even worse problems are to be avoided. For example, one of the most direct ways to reduce the Gini is a confiscatory tax on high income individuals and organizations with either a direct subsidy check to low income individuals and/or highly subsidizing goods and services for them. Historically, from classical Rome to post-war England, this has had several bad effects: it greatly discourages risk taking and effort by the general population above the minimum required, it introduces extensive and eventually oppressive governmental intrusion into all areas of society, and it encourages the formation of a “leisure class<sup>10</sup>” albeit at a low standard of living. The following suggestions are specifically designed to avoid these problems as these will benefit only the individuals that are gainfully employed without eliminating the possibility of personal gain and advancement, although these do (intentionally) discourage some currently popular methods of individual gain and advancement. These suggestions should not require any additional governmental staffing or data collection, only the application of existing data in a new way.

1. *Indexing the Minimum Wage using the CPI.* Individuals earning the minimum wage are living so near the edge that any reduction in their purchasing power is apt to directly result in reductions in the basic necessities of life such as food, shelter and clothing. To avoid this, it is

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<sup>10</sup> As in the devil finds work for idle hands.

suggested that the minimum wage be adjusted in increments of not more than 5 cents per hour. Assuming 2,080 hours of employment per year, a *one cent* change in real income is equivalent to \$20.80 which to most people is not a major sum, but which may well be the difference in eating or not eating for several days for individuals at this income level.

2. Indeed, *given the continual rise in the expected minimum skill and educational levels*, a case can be made for not only indexing the minimum wage, but for its gradual increase in real dollars to reflect these rising requirements. A two per cent compounded real increase, over inflation would result in the doubling of the minimum wage in about 35 years, while a five percent real increase would double the minimum wage in about 13 years. Increases in this range do not appear to be excessively rapid, especially given the greatly increased (and increasing) demands and expectations of skills and abilities of employees, even those paid minimum wage. Indeed, simply returning the current minimum wage of \$5.25 per hour to the high point of \$7.21 (CV1996\$) in 1969 over 5 years would require increasing the minimum wage by \$0.40 (7.6% simple) per hour per year *before* adjustment for inflation.
3. *Defining personal and dependent income tax deductions using the government's definition of poverty*, with only nominal (income) taxes collected from individuals and families at or below these levels.
4. *Defining individual progressive income tax brackets in terms of multiples of the preceding year's median wage rather than as arbitrary fixed*

*increments.* This is specifically intended to cause the tax rates of the higher income groups to increase if their compensation increases while the income of the majority is static or falls. With the selection of proper brackets, this can avoid the need to increase the tax rates on falling incomes (as discussed in the section on GINI) to maintain a given level of governmental revenue. Additionally, this would provide considerable motivation to avoid layoffs or the reduction of wages to increase corporate profits, as one of the effects would be to increase the income tax rates of individual executives and stockholders who have benefitted from and directly or indirectly control this.

5. *Replacing the corporate income tax with a corporate gross receipts tax to reduce tax avoidance/evasion by “transfer pricing.”* This has always been a problem with organizations operating in more than one state, with the temptation to structure the accounting practices such that the amount of profit was maximized by reporting the generation of profits in the state with the lowest taxes. With the advent of trans-national corporations this has assumed grotesque proportions, with corporations chartered in such major industrial “countries” such as Aruba, Andorra and Liechtenstein with no income, gross receipt, franchise or other corporate taxes indicating literally billions of dollars of profits while corporations associated with them, chartered in the United States and other countries with “normal” tax structures, reporting only minimal profits and even “losses.” An alternative is to impose “unitary taxation” which allocates profits proportional to sales.

For example if a corporation does 20% of its combined business in Oklahoma, then 20% of its combined profits are held to be earned in Oklahoma, and subject to Oklahoma taxation.

6. *Re-instituting a steeply progressive corporate income or gross receipts tax structure in place of the current single bracket.* This is specifically to discourage mergers and acquisitions and the formation of mega-organizations. As indicated, the principal of “economy of scale” no longer appears applicable to organizations with more than approximately 15 billion \$US in gross revenues.
7. *At the state level implementing a progressive rather than flat rate tax structure on real estate and personal vehicles.* If possible the brackets should be structured using multiples of the median assessed residential and vehicle evaluation rather than fixed arbitrary limits. This is specifically intended not only to insure that individuals in the lower income brackets can continue to afford homes and vehicles by reducing their tax burden, but also to discourage ostentation and unnecessary spending on non-productive items and activities by individuals. This is also intended to discourage the creation of mega-plants and mega-malls.
8. *Because of the increasing globalization of credit and the existence of a large pool of [euro] dollars<sup>11</sup> outside the control of the Federal Reserve Board, the traditional ability of the “Fed” to manage the U. S. economy by*

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<sup>11</sup> Recent popular media reports indicate that 90% of higher denomination American currency is in circulation outside of the United States. This does not include the huge pool of “money” denominated in dollars but which exists only as ledger entries or computer bytes.

interest rate changes has been greatly reduced. Additionally, interest rate increases tend to have the most severe impact on those with the lowest incomes not only by increasing their cost of credit but also by reducing their employment, while actually boosting the return to (that is income for) individuals in the upper income brackets. It is therefore suggested that *the Federal Reserve Board should be empowered to set the rate of a special tax on high-income individuals and organizations*, with the proceeds going to the U. S. Treasury, to “fine-tune” the economy. This tax could range from 0 to 60% or more on all individual incomes over \$250,000 per year and 0 to 10% of all corporate gross receipts over \$100 million per year. This will avoid the Fed attempting to moderate speculative or inflationary activity by those in the highest income brackets by bleeding those in the lowest income brackets white through interest rate hikes and will also serve as “motivation” for those in the highest income brackets to avoid decisions and actions likely to result in activities that will require such intervention.

9. Because the Gini coefficient is such a useful predictor, it is suggested that the federal and state governments compile Gini coefficients by geographic, company and economic sector. The data required is already collected in the form of company W-2 statements. This should provide early warning about shifts in the aggregate Gini, and can be used to indicate which companies or economic sectors are likely to be good partners in economic development projects.

### Specific Recommendations for Government on “Education”

1. *Conduct a complete zero-based life-cycle evaluation of the expected “value” of education and training*, with all assumptions explicitly stated and evaluated, every four or five years, with annual up-dates. This should specifically cover primary, secondary, vocational and collage education and should include non-economic as well as economic factors. While educators must be included in such an evaluation, other qualified professionals such as accountants, actuaries, penologists and demographers should form the majority, as most of the questions are NOT specifically educational.
2. As for Item 1, except the *cost rather than the value of education* at each level is calculated. This should specifically include opportunity costs and alternative return from the investment of the cost of the education. This should include separate costs to the individual, the parents, the employer, and the community at large. As indicated in the section in chapter 4, when more sophisticated analytical methods such as net present value/ discounted cash flow[NPV/DCF] or internal rate of return [IRR] analysis is used, the common and traditional assumptions about the economic value of education no longer appear to be operational.
3. The third and most controversial/contentious step is the combination of data from items 1 and 2, to *conduct a public, in-depth, comprehensive and meaningful cost : benefit analysis of “education” under current conditions* with the specific intent to determine how much and what types

of education to publicly fund and/or require. The analysis in Chapter IV using (admittedly overly) simplifying assumptions and accepted evaluation tools such as “Discounted Cash Flow” demonstrates the urgent need to perform this study. Particular attention should be paid to the identification and separation of predictive and causal variables/factors.

4. Given that VOTE is becoming increasingly irrelevant in its present format does not necessarily indicate that VOTE should or will atrophy much as the classical apprentice system has done, but rather it should be transformed into one or more systems which will more closely meet the needs of its stakeholders/customers.

- 4.1. Such changes are in accord with current ideological and economic trends which emphasize the privatization of many formerly governmental activities such as trash hauling, public safety, prisons and other aspects of education. In 1991 an extensive evaluation of VOTE was performed by senior staff members of The World Bank [The International Bank for reconstruction and Development] and presented to the Executive Directors. [Middleton] While there are drawbacks, the following advantages were attributed to private sector VOTE.

“Training in the private sector -- by private employers and in private training institutions -- can be the most effective and efficient way to develop the skills of the work force. In the best cases employees train workers as quickly as possible for existing jobs. Costs are low compared with training before employment, and trained workers are placed automatically in jobs that use their skills. Larger employers often have the technology and their supervisors

have the expertise to train in both traditional and newly emerging skills.”

5. *All education, not just VOTE, needs to be come much more general and diverse.* Such increased diversity will decrease efficiency in the narrow “drill and test” sense but will increase effectiveness. *Education must be part of the (not the) preparation for life, of which “work,” while a substantial part, is only a part.*

- 5.1. Using strictly economic considerations, there appears to be little or no rationale for retaining for the traditional 9 month school year. Replacement of the existing 12 year by 9 month (108 months total) program with a 10 year by 12 month (120 months total) programs not only increases available classroom time by 11%, and improves facility utilization by 33%, it also eliminates the need for special summer recreational and employment programs and/or the need for the parents to arrange (and pay) for summer daycare. Because this program would graduate the students at age 16 rather than age 18 this will allow additional time to accumulate money for college if they start at the current age of 18 or will allow them to begin (and complete) college/VOTE or start full time work two years sooner than is now the case. In either case this is two more full years of employment. The current average wage is about \$22 thousand per year, so *this change by itself will increase lifetime earnings by \$44,000 on the average* and should help alleviate the current



reported “shortage of labor.” If the goal of “education” is “to make more money” this seems like a quick and easy way to do so.

- 5.2. It is the opinion of this researcher that this additional classroom time should *not* be used for more academics of limited use to the student but for instruction and participation in the many non-academic activities which people are expected to be able to perform in our society but which have generally been learned through observation and imitation of their parents or other adults. As has been detailed by many other researchers, the traditional nuclear family has “fissioned” and contact between our children and adults engaged in practical and useful tasks has become increasingly limited. Many of these tasks have significant VOTE content. For example the ability to (re)wire a lamp, clean a chicken, use a chain saw to cut wood, replace a light switch or outlet, fix a dripping faucet, change a baby’s diaper, sweat a joint in copper tubing, change spark-plugs in a car or lawn mower, tape and sand a drywall joint, saw and nail a board, drill a hole, drive a screw, and paint a wall. Topics in Home Economics of importance to both genders include how to sew on buttons, how to cook edible and nutritious low-cost food, how to avoid getting salmonella poisoning, how to wash clothes, how to select suitable clothing that is good value for the money, the cost of credit, the magic of compound interest, and how to buy a car. Other topics which in

the opinion of this researcher which would be highly beneficial include the standard Red Cross Emergency First Aid class.

5.3. Other highly useful classes which do not appear to currently exist would cover explicit financial planning (such as regular and Roth IRAs, 401K plans, and mutual funds) and conditions of employment (the doctrine of “employment at will,” prohibited workplace conduct such as sexual harassment, regulatory agencies such as the EPA and OSHA, subrogation of inventions and discoveries to the employer, non-disclosure agreements, and non-competition agreements.) The existing “civics” classes should be expanded to explicitly cover a citizen’s rights and responsibilities. For example, how many people know that there is a legal duty to report the commission of a felony and the failure to do so makes you liable for conviction as an accessory after the fact even if you did not participate in the crime? Also, specifically in Oklahoma, what is required to force a referendum or impanelment of a grand jury, what is required to get a citizen initiative on the ballot, and how do you register to vote?

5.4. As controversial as these topics are, it is the opinion of this researcher that even more contentious topics such as firearms familiarization and safety training could usefully be included. At the very least such classes would help eliminate or reduce the unhealthy mystique that firearms have attained in our culture. Hopefully such

classes would help to reduce the incidence of firearms related accidents and incidents but in any event would establish some factual basis for beliefs and opinions in an increasingly polarized and contentious area. *As a useful “rule of thumb,” the louder the special interest groups complain about the inclusion of certain topics, the more necessary these topics are.*

6. *The practitioners of VOTE should immediately and aggressively respond to all unsubstantiated charges and allegations against VOTE and/or its graduates. The continuing tendency of VOTE practitioners and the other two stakeholder groups, (Students/Employees and Government) to passively accept and defer to the demands, assumptions, perceptions and pronouncements of the fourth group, Employers, in an effort to reach an accommodation and to maintain a semblance of accord is now counter-productive. Indeed, it is also counter productive for the employers in the longer term because it helps to promote and maintain self-delusions and myths which are likely to result (and have resulted) in considerable professional and personal problems. These include the illusions of being irreplaceable, omnipotent, and “always right.” Lord Acton accurately observed “Power corrupts and absolute power corrupts absolutely.” VOTE does itself and its stakeholders no favors when it acts as a whipping boy for management and passively accepts the responsibility for claims of lower profitability, lower productivity and decreased competitiveness. Such acceptance is even less justified and more damaging when the*

organizations making such charges are recording record profits, record share prices, record dividends and record salary and bonuses for its high level management as most private sector organizations are currently doing.

### Recommendations for Future Research

1. It has been demonstrated that secondary and post-secondary “education” in the aggregate does not correlate well with a state’s economic growth or many quality-of-life factors. Further research is indicated to determine if there *any* significant correlations with *specific* VOTE occupations/trades and/or college majors and if so how rapidly does this correlation change over time.
2. Recently there has been considerable effort to establish what a person “must know” in order to function as a contributing member of society. This reinforces the folk wisdom that “smart is better than stupid,” and “knowledgeable is better than ignorant.” However, it does not appear that any effort has been made to determine if particular items are predictive or causal. This is *not* an esoteric point of only academic interest. If these items are predominately predictive, and the students are drilled in them, the only effect will be to destroy their utility as a predictive factor as, by definition, these will have no significant effect on “productivity” or other desired traits. If however these are predominantly causal, then it should be possible to take an individual that is currently contributing to society at a low rate, provide them with *only* the specific skill or knowledge, and

observe an increase in their contribution. *Individuals and society have limited resources of time and money for education/training, and these limited resources must be concentrated in areas with maximum returns,* which does have several different definitions. What must be avoided is the tendency to teach things simply because these can be taught cheaply, don't make a mess in the classroom, are "safe," and are easily testable. Therefore, research to determine if the suggested "things-that-everyone-must-know" are causal or predictive is urgently needed. If what is important is actually socially acceptable behavior, speech, and appearance, combined with hard to define but still concrete and "teachable" skills such as empathy, long and short term memory/recall, and the ability to rapidly acquire and process abstract information, then the existing educational institutions and methods may not be the most efficient/effective way to accomplish this.

### Implications for Professional Practice

1. Learners/students must be made aware that they can no longer reasonably expect consistent or long-term employment, regardless of how well educated or talented they may be nor how well they perform their job, nor should they expect an increasing income or standard of living.
  - 1.1. The traditional assets of knowledge, hard work, punctuality, good grooming, personality, and so forth impact employment only by their absence. That is if a person is habitually tardy or lazy they

will be discharged but they will not be retained just because they are punctual or hard working.

- 1.2. In a global economy, employment or non-employment for most people is no longer a matter of personal merit and is far more likely to be determined by factors totally outside the individuals control such as shifts in the PPI index of their current economic sector, changes in consumer demand, foreign exchange rates, or decisions by foreign governments about import quotas or tariffs.
  - 1.3. It is now futile to attempt to build a career based on loyalty to an organization or even a profession, occupation or trade. All economic and most other organizations are now subject to continual re-organizations, mergers, buy-outs, and, so that even if considerable personal rapport is attained with the current management, who may be entirely honest and with best of intentions, these can and frequently are replaced overnight.
2. Learners and students should be encouraged to organize their life around their family and community and not their occupation. They should be encouraged to work to live, not live to work.

## REFERENCES

Aronowitz, S. & Difazio, W. (1994). The jobless future: sci-tech and the dogma of work Minneapolis, MN: University of Minnesota Press.

Balanced Trade: Toward the Future of Economics THE McKEEVER INSTITUTE OF ECONOMIC POLICY ANALYSIS. Available: <http://www.mkeever.com/>

Barlett, D. L. & Steele, J. B. (1996). America: Who Stole the Dream? Kansas City, MO: Andrews and McMell.

Barlett, D. L. & Steele, J. B. (1996). America: Who Pays the taxes? Kansas City, MO: Andrews and McMell.

Barlett, D. L. & Steele, J. B. (1996). America: What went wrong? Kansas City, MO: Andrews and McMell.

Berliner, D. C. & Biddle, B. J. (1995). The manufactured crisis : Myths, Frauds, and the Attack on America's public Schools Reading, MA: Addison-Wesley.

Bettis, P. J. (1996 Apr). Urban students, liminality, and the postindustrial context Sociology of Education V69.2 p105-131.

Brower, S. (1998). Sharing the pie: A citizen's guide to wealth and power in America. New York, NY: Henry Holt and Company.

Card D. & Krueger, A. B. (1995 May). Time-Series Minimum-Wage Studies: A Meta-analysis American Economic Review 85.2 238-243.

Center for Occupational Research and Development. (1994, July). Final METE report: A study of the vocational and technical education and training system (Industrial Schools Project Loan 236-TU). Waco, TX: Author.

Chang, W. & Katayama, S. (1995). Imperfect competition in international trade. Boston, MA: Kluwer Academic Publishers.

Chomsky, N. (1996 Winter). Rollback: The Return of Predatory Capitalism Alternative Press Review.

De Long, J. B. & Lang, K. (1992, Dec.). Are All Economic Hypotheses False? Journal of Political Economy 100.6 1257-72. (From Card D. & Krueger, A. B. (1995 May) Time-Series Minimum-Wage Studies: A Meta-analysis American Economic Review 85.2 238-243.)

Elias J. L. & Merriame, S. B. (1995). Philosophical foundations of adult education. 2nd ed. Malabar, FL: Krieger Publishing Company.

Emory, W. C. (1991). Business Research Methods - 4th ed. Homewood, IL: Irwin.

Fagerber, J. (1997). Technology and international trade. Brookfield, VT: Edward Elgar Publishing.

Gaul, G. M. & Borowski, N. A. (1993). Free ride: The tax-exempt economy. Kansas City, MO: Andrews and McMeel.

Gee, J. P., Hull, G. & Lankshear, C. (1996). The new work order: behind the language of the new capitalism Boulder, CO: Westview Press.

Ghatak, S. (1987). (Gemmell, N. ed.) Agriculture and economic development Surveys in Economic Development Oxford, UK: Blackwell Chapt.10.

Gordon, D. M. (1996). Fat and mean: The corporate squeeze of working Americans and the myth of managerial "downsizing." New York, NY: Free Press/Simon & Schuster.

Grant, J. (1996). The trouble with prosperity: A contrarian's tale of boom, bust and speculation. New York, NY: Free Press/Simon & Schuster.

JTEC/WTEC Annual Report and Program Summary, 1993/94 (1994 March) Geoffrey M.

Herrnstein, R. J. (1994). The bell curve : intelligence and class structure in American life New York, NY : Free Press

Horwitz, M. (1992). The transformation of American law New York, NY: Oxford University Press.

Indicators of Education Systems: Public Expectations of the Final Stage of Compulsory Education (1995) Paris, France: Organization for Economic Cooperation and Development.

Jackall, R. (1988). Moral mazes : the world of corporate managers New York, NY : Oxford University Press.



Kanter, R. M. (1977). Men and women of the corporation New York, NY : Basic Books.

Kincheloe, Joe L. (1999). How do we tell the workers? The socioeconomic foundations of work and vocational education Boulder, CO: Westview Press.

Korten, D. (1995). When corporations rule the world West Hartford, CT: Kumarian Press. ISBN 1-887208-00-3 Call Number: 322.3K85w.

Lakes, R. D. & Bettis, P. J. (1995). Advancing Critical Vocational Education Research Journal of Vocational Education Research v20.3 p5-28.

Martin, H.P. & Schumann, H. (1997). The Global trap: Globalization and the assault on prosperity and democracy. New York, NY: St Martin's Press, Inc.

Merriam, S. B. & Caffarella, R. S. (1991). Learning in adulthood : A comprehensive guide San Francisco, CA: Jossey-Bass Publishers.

Microsoft Bookshelf 94. The American Heritage Dictionary of the English Language, Third Edition [CD-ROM].

Miller, M. D. (1985) Principles and a Philosophy for Vocational Education Columbus, OH: National Center for Research in Vocational Education.

Perkins, G. W. (1908) The Currency Problem and the Present Financial Situation p.155-170 Available: <http://www.sewance.edu/amstudies/perkins.htm>

Phillips, K. (1993). Boiling Point: Democrats, Republicans, and the decline of middle-class prosperity. New York, NY: Random House.

Ping-ti Ho (1959) Studies on the Population of China 1368-1953 Cambridge, MA.

Postman, N. (1992). Technopoly: the surrender of culture to technology. New York, NY: Knopf.

Rifkin, J. (1995) The End of Work -- the Decline of the Global Labor Force and the Dawn of the Post-Market Era New York, NY: G. Putnam. ISBN 0-87477-779-8.

Rostow, W. W. (1971a) Politics and the Stages of Growth New York, NY: Cambridge University Press.

Rostow, W. W. (1971b) The Stages of Economic Growth: A Non-Communist Manifesto New York, NY: Cambridge University Press.

- Rostow, W. W. (1978) The World Economy: History & Prospect Austin, TX: University of Texas Press.
- Rousseau, J. J. (1995, ed.) The Social Contract and Other Writings New York, NY: Barnes and Nobel.
- Schaefer, A. W. (1981) Women's Reality: An Emerging Female system in the White Male Society Minneapolis, MN: Winston Press.
- Todaro, M. P. (1996) Economic Development (6th ed.) Reading, MA: Addison.
- Tussing, D. (1997 Fall) ECN 358 / WSP 358 Economics of U. S. Poverty and Discrimination. [On-line]. Syracuse University: Available: <http://www.maxwell.syr.edu/maxpages/classes/ECN358/>
- Understanding American Economic Decline (1994) Bernstein, M. A. and Adler, D. E. ed. New York, NY: Cambridge University Press.
- Wirth, A. G. (1980) Education in the technological society: The vocational-liberal studies controversy in the early twentieth century Lanham, MD: University Press of America.
- Wolman, W. & Colamosca, A. (1997). The Judas economy: the triumph of capital and the betrayal of work. New York, NY: Addison-Wesley.
- World Development Report 1997: The State in a Changing World. (1997). The International Bank for Reconstruction and Development. New York, NY: Oxford Press.
- Wright, K. (1998 March). Empires in the Dust Discover v19.3 p 94-99.
- Wright, M. C. (1957) The Last Stand of Chinese Conservatism Stanford. Rostow, W. W. (1971a) Politics and the Stages of Growth New York, NY: Cambridge University Press.
- Wilson, W. J. (1996 ). When work disappears: the world of the new urban poor New York, NY : Knopf : Distributed by Random House Call Number: 362.50973 W754w.
- Yin, R. K. (1993). Applications of case study research. (Applied Social Research Methods Series Volume 34). Thousand Oaks, CA: Sage Publications.
- Yin, R. K. (1994). Case study research: Design and methods (2nd ed.). (Applied Social Research Methods Series Volume 5). Thousand Oaks, CA: Sage Publications.
- Zoll, D. (1996 May 22) [On-line]. Global Warning. Available: <http://conch.aa.msen.com:70/0/vendor/a-albionic/conspiracy/a-albionic/up-date/072796/>



**APPENDIXES**

**APPENDIX A**

**ECONOMIC MODELS**

### **The linear and accretion models of economic evolution**

As indicated in the introduction, this researcher feels that the context in which vocational education and its literature is embedded is vital to interpreting and internalizing the meaning. While a number of schema can be used to organize and systematize this material, it was decided to arrange this material in the context of how the culture / society is predominantly organized for economic activity. This was primarily done because it appears that economic organization tends to drive or control the other factors such as culture and politics. It should be noted that this not simply how the majority of the people live. If this was the criteria, simple subsistence farming would have been the dominant mode well into the modern era. Rather, what is intended is the type and organization of economic activity which appears to lead (or have led) the group [leaders] to reach critical decisions in a certain way and to engage in certain activities most of the time.

Admittedly, this is an ambiguous criteria and is highly subjective. Additionally, if it is expanded, it can be seen to be somewhat circular. However, post-modern “analysis” posits that all criteria are ultimately ambiguous, subjective and circular if examined at sufficient depth, and this is intended to be, at least in part, a post-modern study.

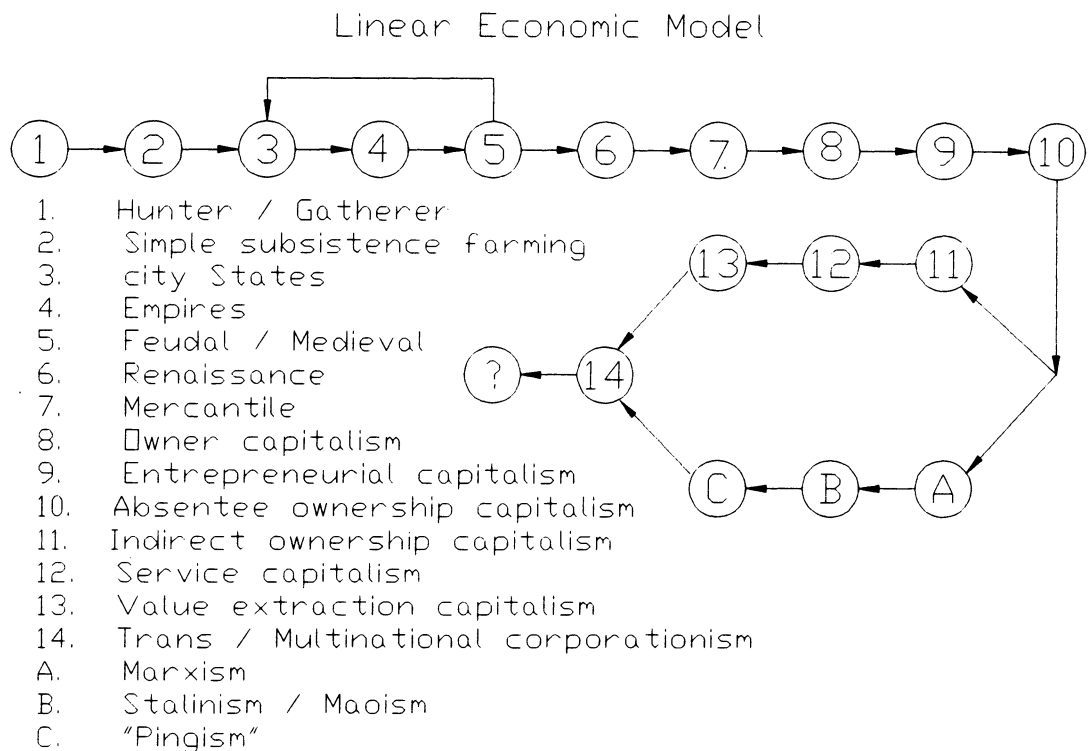
The (apparent) stages or phases and sequences / relationships of social, cultural and economic development have been discussed by many writers. The most recent, and the one with the most current impact seems to have been Walt Whitman Rostow who published a series of books and articles on these topics, which appear to have formed the basis of much of the foreign aid policy of the United States in the 1950’s and early 1960’s. Much of Rostow’s work was overtly intended to refute the earlier works of Marx and the

resulting ideology of communism and as such concentrated on the sequence of stages 7 through 10 or 11 below. The latter stages (numbers 10 through 14) were added to the sequence from less academic but more current works such as Barlett and Steele. The economic stages used in this study to organize or contextualize the literature are:

1. Hunter / Gatherer
2. Simple subsistence farming and animal husbandry
3. City States
4. Empires
5. Feudal / Medieval
6. Renaissance
7. Mercantile
8. Owner capitalism
9. Entrepreneurial capitalism
10. Absentee ownership capitalism
11. Indirect ownership capitalism
12. Service capitalism
13. Value extraction capitalism, and in parallel with and  
as alternatives to stages 11-13
  1. Marx-Leninism
  2. Stalinism-Maoism
  3. "Pingism"
14. Trans-national corporationism

This schema is highly linear, and in the literature has been presented as a linear stage model. A diagram of this sequence or progression is presented as the chart titled "Linear Economic Model."

While this model is extensively used, its validity is examined and critiqued in a later



sub-section and a more complex but, to the investigator, more useful "accretion"

alternative is discussed. It is somewhat ironic that such a linear and determinist model will be used as a basis for post-modern analysis, however it is the stages which refracts the data and allows the resolution of the problematics.

Linear stage models, as developed, popularized and used by Piaget and many others, imply:

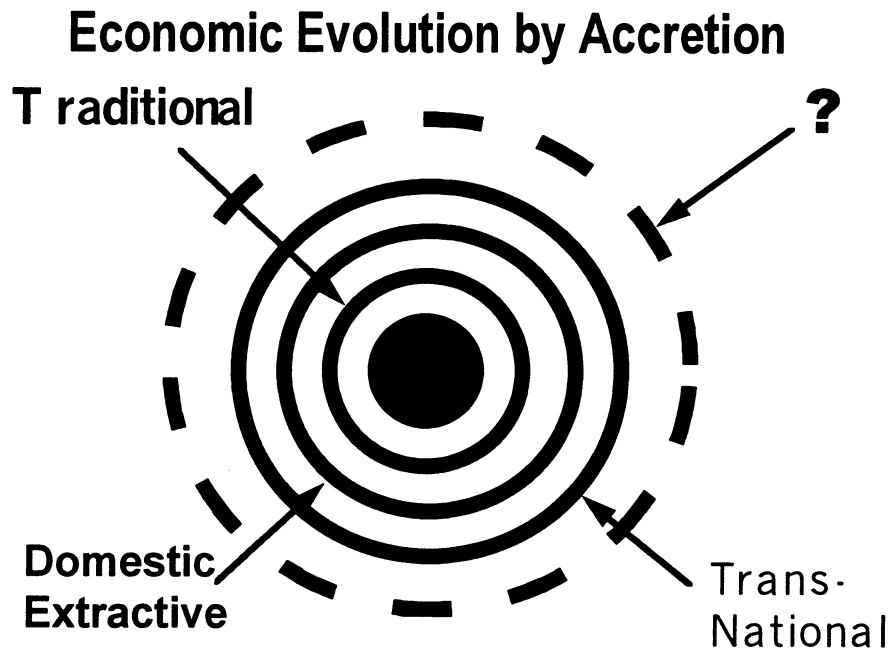
1. Before moving to the next stage, the current stage must be completed;
2. No stage can be skipped; and
3. Return to a previous stage is not possible.

An item of perhaps critical importance, which is expanded in a latter discussion. is that it appears existing economic stages are not so much "replaced" as "overlaid" or buried by succeeding stages in much the same way that a pearl is created by the addition of layer after layer, with the "previous" layers continuing to exist for different groups and segments within the economy / culture. This model is mentioned out of sequence at this point so that the reader may be aware of this alternative model as well as the accepted linear model as these stages are described and reviewed. This alternative model will be discussed in greater detail later in this section.

This layer or "accretion" model has several features which make it attractive for analysis of VOTE. Two of these are:

1. Possibilities exist for individuals and groups to shift between existing stages; and
2. The existence of stresses and incompatibilities between layers which may result, in engineering terms a catastrophic failure of society such as the Chinese, French or Russian revolutions, an "implosion" of the society / economy such as occurred in the USSR, or a series of (relatively) lesser disturbances such as booms, panics and depressions.





An extensive analysis of stages 1 through 5 will not be done and these are included for completeness, however it should be noted that stage 2, simple subsistence farming and animal husbandry, while not currently of major importance in the industrialized countries, appears to be a highly significant factor in the economic organization and activity of the less developed [LDC] and low income [LIC] countries and questions of land tenure continue to be a major destabilizing factor in newly industrialized countries [NIC] such as Brazil and Mexico. Indeed, several writers have suggested that many of the foreign aid and / or economic growth / development effort disasters and debacles of the 1950's and 1960's were at least partially caused by neglect of, and frequently by overt efforts to eliminate, traditional subsistence agriculture in order to concentrate on, and insure an adequate (low cost) labor supply for industrialization

[Mellor, Ghatak and Timmer] This frequently had the effect of converting an area which had minimal international trade and industrial capabilities but which was self-sufficient in food into an area with slightly greater international trade and industrial capabilities, but which was now dependent on international trade for their food supply or one in which large segments of their population experienced malnutrition or famine. [Todaro 295-334]

The absolutely vital economic role of traditional subsistence agriculture in the LICs and LDCs, and the social / cultural role of traditional subsistence agriculture in NICs should never be forgotten by VOTE practitioners and policy makers who may engage in international practice.

### ***Stage I -- Hunter / Gatherer***

Minimal specialization exists (other than between genders) and any thing produced is for immediate consumption. Major activities are hunting and gathering. The group has no fixed location but tends to move with the seasons, tracking prey and gathering seasonal vegetation. Artifacts produced are generally utilitarian such as spear points and digging sticks. A rich [oral] culture may exist. Training / education while informal and generally observation and imitation is extremely important. For example, what plants are safe to eat, how to find water, the safe way to hunt large game, how to make weapons, and so forth.

As an observation, such groups are very disturbing to later stages. They are both difficult to control and to tax. If any attempt is made to control them they simply move to a new area and they have little or nothing of commercial value to the later stages. Because of a lack of the concepts of wealth and personal property they frequently come

into difficulty with groups in the later stages because they tend to regard the crops, domesticated animals, and other assets of the later stages as "free goods." Even their use of traditional migration routes and access to water may prove to be problematic to later stages. Indeed, access to public areas such as the beach or zone between high and low tide, which by ancient practice and common law is public land in the United States, is still an item of disagreement when the developers or land owners adjacent to this area attempt to prohibit traverse of their property by the public to the public's land.

It should not be assumed that the absolute numbers of humans in this stage are necessarily decreasing. If groups, which exhibit many of the same attitudes, behaviors and activities such as the homeless in many large cities are included, this group is increasing in absolute numbers. It can be argued that the "homeless" are not a distinct ethnic or cultural group, nor is membership generally a result of being born within that group, but rather in many cases are due to mental or drug related problems.

### ***Stage II -- Simple subsistence farming and animal husbandry***

There is not an abrupt shift between stage 1 and stage 2. This stage can perhaps be characterized by a fixed location for the group. Because of the fixed location, production and storage of goods for later consumption, that is mainly food, becomes more important. Specialization becomes more common, but generally anyone can do anything that anyone else can, although perhaps not as well. Barter increases. As a transitional stage the group may begin to domesticate animals but move with them rather than settling a fixed location. The Lapps, Mongols, and the nomads of the middle-east still practice this life style. Specialists in the mystic arts such as medicine, magic and religion

appear and may concentrate on these activities.

In the latter phases of Stage II "technology" begins to develop. Specialization increases to the point that some members of the group can accomplish things that other members cannot usefully accomplish. Typical skills are pottery, weaving, leather work, and, in the latter stages of development, metal smithing. Bartering becomes common and specialists tend to perform only their specialty, that the weaver only weaves and the potter only makes pots. The food that they require is obtained by trading their cloth and pots. The cloth and pots the farmer requires is obtained by trading their food. Controversies begin to arise about what is a fair exchange. Distribution of desirable merchandise and food tend to become more unequal and thereby need to be protected. Socio-political organization is limited to relatively small, generally related groups. Possibly writing and written numbers begin to be developed.

VOTE is generally limited to the traditional methods of observation, imitation and guided practice. Career guidance is very simple; the child is expected to follow the trade or occupation of the same gender parent who in almost all cases will be their instructor and mentor.

VOTE information from these stages is rare, however some advice has been handed down in oral tradition in religious material. This advises the worker to be worthy of their hire, to obey their master / parents / elders, and to follow the ethical code of the group.

It should be noted that when the majority or bulk of the people are considered, the entire world, including western Europe, remained for the most part at this stage up to at least the mid 1750's. We tend to see only the economic, political and economic elite as

these are the ones who write or make history and ignore the bulk of the common people. Worldwide this remains an extremely important stage because a significant fraction of the Latin American, Sub-Saharan African and South-East Asian (that is world) population is at this stage, although it is not currently important domestically in the United States and other industrialized countries. This is of critical importance for economic growth and development in these areas and should be an item of major concern for practitioners in the VOTE field who may engage in international activities.

### ***Stage III -- City States***

Stage 3 is characterized more by changes in the size or extent of the area of social-political hegemony than any changes in technology. Specialization becomes more extreme. Developments in socio-political structures and communications (writing) allow and thus encourage the formation of much larger groups. Two new and highly significant areas of full-time specialization are administration / governance and military science. The number of "trade secrets" and guilds begin to rise. Written language and numbers become common among select groups, although these may be regarded as "trade secrets." Progress in technology is slow but steady and is based on the gradual accumulation of pragmatic procedures developed through trial and error. There tends to be a marked separation between the "thinking" and the "doing" classes. Typically, considerable progress is made in areas such as philosophy, logic, mathematics, literature and astronomy, but because of the separation between "thinking" and "doing" these advances tend to have little effect on the vast majority of people. Major differences between the "haves" and "have nots" begins to appear and differences in perceptions of

the world by the various economic groups begins to become significant. (Post-modern feminist analysts would point out that this separate perception of the world had long existed along gender lines, and that what was now happening was the separation of perception of the world for the male gender groups / classes.) Career Counseling and VOTE generally continued to follow the simple rule that the child enter the same occupation as their same gender parent.

### ***Stage IV -- Empires***

There is no sharp dividing line between a large city state and an empire, however it can be posited that when a city state begins to impose its rule on other linguistic and ethnic groups, especially if it imposes taxes for this "service," it has become an empire. This stage tends to produce large entities<sup>1</sup> such as the Akkadian, Assyrian, Babylonian, Egyptian, Roman and Chinese, possibly because of the existence of well-trained and efficient specialists in governance / administration and military science. It appears that the policy makers of a stage 4 society tended to engage in and promote activities which cause their society to become too centralized, too specialized and too highly concentrated to be sustainable.

Generally considerable technical progress is made in the pragmatic sense. That is that while certain procedures were known to produce certain effects, these are regarded more as magic spells or procedures than as a cause-effect relationship which can be systematized or integrated. Examples of this are the conversion of iron into steel and the

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<sup>1</sup> A small empire is an oxymoron.

tempering of the steel to provide sharp, durable weapons. A major contributing factor to the decline and destruction of a specific empire may have been the tendency to regard any technical knowledge as a family or guild "trade secret" which was to be protected to maximize profit. Thus while a family or guild knowledge of pragmatic procedures may allow the production of complex and sophisticated products, it also tended to restrict the diffusion of such procedures and products into other areas and thus limit the rate of change and improvement.

It is unfortunate that in many cases moral and ethical considerations have been introduced into this discussion as these tend to produce considerably more heat than light. (For example Rousseau 1712-1778 and Gibbons 1737-1794 )

What seems to be the general case is that all cultures are subject to random stresses. These stresses can be an invasion, an internal revolution, a famine, a plague, a new social theory, a new religion, etc. Cumulative environmental effects also appear to be important. For example, some writers have posited that a major contributor to the decline in some stage III societies was the depletion of available natural resources such as arable land for food and timber for building ships and fortifications. The less developed transportation systems and technologies would have caused societies in this stage to be more vulnerable than would societies in the later stages. There appears to have been little realization of the importance of using sustainable agricultural techniques, reforestation and the productivity of and thus the need for the protection of wetlands. Indeed, some of the major "public works" of antiquity and the medieval period was specifically the draining of swamps and marshes. Long term climatic changes could also have a similar

decisive effect.[Wright, K.] Additionally, geographic changes such as the shifting of the course of a river or the silting of a harbor are also known to have caused the abrupt economic decline if not collapse of ancient city-states.

It also seems apparent that the more perfectly an organism, and by extension a society or culture, is adapted to one set of conditions the less well it will be adapted to a new or changed set of circumstances, and it is observed that the older an organization the less "flexible" it is. A further consideration is that most societies in stage III historically tend to engage in behaviors which cause extensive amounts of animosity and resentment. These animosities include but are not limited to envy of their flaunted wealth, hatred of their affectation of political and intellectual superiority or simply a desire for revenge for military defeat.

While the historical record is not completely clear on this point, it appears that most stage IV societies succumb, not to a single factor but rather a combination of simultaneous factors. That is to say that while an empire may have successfully coped with famines, plagues, invasions and internal revolutions in the past, they are unable to cope with all of these at the same time. This is especially true if their nominal allies and vassals have been biding their time for the proper moment to obtain revenge.

Each of the characteristics that helped create an empire then becomes a characteristic that assists in its downfall. The concentration of governance and military science into the hands of a few, albeit highly talented, specialists means that if these few people can be isolated or incapacitated then the entire society is paralyzed. The specialization by large numbers of the population in specific trades means that they are extremely vulnerable if



the demand for their specific knowledge/skill no longer exists as they no longer have the means or knowledge to feed themselves and their families in the sense of subsistence agriculture or hunting. Economic devastation of large numbers of people, what ever the cause, generally results in revolution. Responsible or not, the existing social structure and leaders are held answerable for the disaster. The concentration of people into large cities, while promoting trade and generally improving the perceived quality of life means that to control the city, all that must be done is to control the food (or water) supply and as there is no need to breach the fortifications, advanced technologies such as siege engines and catapults are not required for their capture. This means that a stage IV society or economy is vulnerable to organized and warlike peoples such as the Huns, Goths and Mongols even though they may lack "technology" or "culture." The separation between the "thinking" and "doing" classes tended to grow more pronounced over time. In most empires slave holding tended to become more pronounced, thus further debasing the status of labor, gainful employment and useful physical (other than military and sports) activity. Another factor may also be that the specialization of occupations has resulted in the development of a large mass of people with no more military capability or "will to resist" than a flock of sheep. Slaves, almost by definition, are forbidden to own arms or even learn the "arts of war<sup>2</sup>," thus making this segment of the population useless in the military sense. This means that as soon as the "professional"

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<sup>2</sup> Janassaries, slaves personally owned by the Sultan were an exception. Janissaries were elite corps of war captives and Christian youths in the service of the Ottoman Empire(Turkey). Converted to Islam and trained under the strictest discipline, they eventually became powerful enough to make and unmake sultans. By the 17th cent. membership was largely hereditary. Their power came to an abrupt end in 1826 when Sultan Mahmud II had them massacred in their barracks.

military segment of the culture is no longer available, for what ever reason, the culture is instantly vulnerable to even small para-military groups, even if these are not particularly well armed, trained, or led.

### ***Stage V -- Feudal / Medieval***

In the west at least, this stage was a more or less complete break with the classical (Roman) era, while in the east, that is China and India, this stage seems to have been more of a breakdown in central authority, which occurred several times and was later "corrected." (It should be noted that the Byzantine "Empire of the East" founded by Rome and located in Constantinople survived until the end of the medieval period in the west.) The Chinese name for these periods is "The time of the contending states." In India these stages are referred to as "The time of the fishes, when the strong devoured the weak and are devoured in turn by the stronger still." It is not known if stage V as perceived in the west is an actual stage which should be expected in the normal course of development or is simply an anomaly. The very limited amounts of data suggests that it is an expected outcome of stage IV, although not all known stage IV societies completely passed through stage V. Rostow (1971a) includes material from other authors using non-western data and concepts that suggest and even posit that rather than a linear sequence typical to western thought, a less evolutionary and more naturalistic or holistic, that is cyclic, process could be at work based on at least seven cycles in China.

Indeed, because of the interference by (or imposition of) the mass-consumption stage with all other stages, there may be an abrupt jump (or shove) to the mass-consumption stage and because of the "new world order" with stage XIV economic structures [trans-

national corporations], an abrupt end to separate and independent development.

Some authors have suggested that the frequently used term "The Dark Ages" is unduly pejorative and suggests that "The Age of Faith" may be more appropriate. Another term that could be used to describe this stage is the age of simplicity and introspection. It can be seen as a reaction to the perceived failure of stage IV, and its distinguishing characteristics, that is specialization, centralization, concentration and emphasis on individual advancement / attainment. Three characteristics seem to be common to these periods. (1) Extreme, and in some cases excessive, piety and faith, (2) Extravagant respect for the role of the warrior, and (3) an almost total lack of concern for what are currently termed human rights. [This characterization admittedly represents a value judgment based on currently accepted standards, however as a person cannot hang in the air and must stand somewhere, currently accepted standards seem as good a place to stand as any.]

While specialists in praying and preying (fighting) did exist, the vast majority of the population appear to have been generalist subsistence farmers who required little training beyond the traditional observation and imitation. It is worthwhile to note that if only the "average" or "typical" person is considered, little had actually changed from stage II. The majority of people remained what they had always been, that is simple pre-literate subsistence farmers or peasants. Our impression of vast changes and upheavals across these stages may be due to the fact that the only people who left written records were those who could write, and by definition these would be the people most effected by the changes described.

The glorification of the warrior class however tended to result in social characteristics and activities which cause the evolution of a stage V society into a stage VI society. Specifically these are the impetus for better weapons and fortifications and the impetus for bigger, better led and better trained, that is more professional (standing), armies. Both of these cause an evolution in technology, specifically metallurgy and fabrication techniques / design for better swords and armor and architecture for better fortifications, and improvements (or at least innovations) in social and political organization / administration in order to better arm, feed, and otherwise support large professional (standing) armies. Social groups that do not, will not or cannot improve their capabilities in these overlapping areas are rapidly absorbed by those that do, once a critical level of advantage is reached. There is also the possibility that contact with an existing stage IV culture such as medieval Europe with the Byzantine empire which still maintained highly centralized control, which still possessed highly trained professional military forces, and which invested heavily in military fortifications and innovations such as "Greek Fire."

The typical economic organization was manorialism, whereby the only thing of value (in the economic sense), that is land, is held by the king (or kinglet). In the west at least, a very large number of small, independent, leaders with claims to land existed, and a large amount of warfare was caused by grants of the same parcels of land by two or more of these independent rulers to different nobles. Because of the need to maintain a professional fighting class in a largely non-cash economy, land tenancy was traded for military service. The holders of direct grants of land from the king would frequently make sub grants to lower status nobility to obtain their military support. The ultimate

tillers of the soil, the serfs, could not “own” land but did have the right to farm it in return for part of the harvest and other labor service. This “right” was also heritable, but this in turn bound the serf to the land.

As a point of interest, the right of "serfdom" was not abolished in Europe until 1781 (the Hapsburg monarchy), 1781 (France by revolution) , and (1861) (Russia by ukase of Alexander III). Legal slavery was not abolished in the United States until Congress passed a Civil Rights Act on April 9, 1866 over President Johnson's veto to secure for former slaves all the rights of citizenship intended by the 13th Amendment to the U. S. constitution. [MicroSoft Bookshelf 94]

Note that as part of the "accretion model" that this aspect of economic organization (manoralism) still has some importance in the United States even in the closing years of the 20th century. "Share cropping" is still practiced in many of the southern states, and because of the tendency for the tenant farmer to maintain a continuing (or revolving) debt to the land owner, the tenant is effectively bound to the land. Land ownership and the political, cultural and economic status which derives from its ownership is still highly important in Latin America and to a somewhat lesser degree in South-East Asia. [Todaro 295-329] To the degree that VOTE is attempting to educate / train the tenant farmer and / or their offspring simply to be better farmers (as opposed to better business persons), it is effectively attempting to maintain this aspect of feudalism.

### ***Stage VI --Renaissance***

The literature suggests a large numbers of reasons or causes for the Renaissance, but

these tend to be contradictory. One of the more interesting "explanations" was the theory that the renaissance was caused in large part by the black death or bubonic plague which killed between one-fourth and two-thirds of the various populations of Europe. The reasoning was that this removed mounting population pressures, caused a shortage of labor and thus an increase in its wages, benefits, status and rights, and eliminated much of the old secular and religious ruling classes who had both an interest in and the knowledge of how to maintain the status quo. It is interesting to speculate that this was one of the first examples of the effectiveness and efficiency of both down-sizing and restructuring. This and much of the following information is available at <http://www.jefferson.village.virginia.edu>  
<http://www.teleport.com/~blake/index.html>  
<http://pondorosa-pine.uorgon.edu/students/Janis/impact.html>, and  
<http://www.teleport.com/~arden/brown.html>

The latter developments of stage V merge into the beginnings of stage VI, with no sharp division, however some of the distinguishing characteristics are:

1. The re-centralization of power;
2. The development of a "national conscience";
3. The revival of the use of money; and
4. The beginnings of what Rostow refers to as "Newtonian" science.

Of particular interest is the development of a "national conscience" by large numbers of people with a resulting replacement of loyalty to a small kinship group with a larger loyalty to an abstract organization or a state personified by a King. To a degree this was promoted by increased individual mobility. This development was bitterly resisted by the

nobility and clergy who thereby lost much of their independence, power and wealth.

The reference to Newtonian science by Rostow needs some explanation as this appears to be what largely differentiates between the atypical western "progress" to a stage 6 and the typical "recycling" into a stage IV economy / culture. By this Rostow means that the concepts of cause-and-effect are replacing those of magic and other supernatural forces. This process is by no means complete and bitter debates on exactly this and similar topics such as "free will" and "nature vs. nurture" continue. Indeed, the [more] qualitative and post-modern / structuralism sections of this study critique the seeming current over-reliance on the many elegant mathematical and logical models of reality [economics] and the consequent confusion between these models and "reality."

The importance of the wide acceptance of the cause-effect model which dispenses with any need for divine or supernatural intervention and knowledge in technical and manufacturing processes should not be underestimated. It appears that this may have been the single most important factor which caused the progression into a stage VII mercantile culture rather than the typical loop back into the city-state (stage III) / empire (stage IV) sequence. Other critical factors included the development (c.1436) of movable type, such that it became possible to publish books in large quantities and to disseminate knowledge more quickly and widely, which both increased the rate of change and greatly reduced the loss of knowledge once gained.

The Renaissance of humanistic literature developed most strongly and noticeably in Italy during the 14th and 15th centuries, with Petrarch and, in the Netherlands, with Desiderius Erasmus as major representatives. Essays such as *The Prince*, by Nicolo

Machiavelli, *The Courtier* (1516), by Baldassare Castiglione, and Erasmus's *The Education of a Christian Prince* (1516), plus the writings of Francois Rabelis and Michel de Montaigne, urged new patterns of education. Humanistic schools for the aristocracy were founded in Italy, France, and England at this time. In Germany, the Gymnasium was set up. Some schools were also established for children of non-aristocratic families.

The Protestant Reformation, led by Martin Luther and John Calvin, occurred in the 16th century. Both believed that it was important for all Christians to read the Bible. They urged the state to help establish an educational system. Followers of Calvin sought to maintain primary schools so that everyone could learn to read. Luther's friend Philipp Melanchthon was influential in advocating new national patterns of schooling.

At this time a reformation (usually called the Counter-Reformation) was also taking place within Roman Catholicism. One of its leaders was Ignatius Loyola, who started the Society of Jesus in 1534. The Jesuits established schools and colleges throughout Europe. John Amos Comenius, caught in the cross-fire between the Reformation and Counter-Reformation forces, first advocated the need for free, universal education in the modern sense. In the 17th century John Baptist De La Salle established the Christian Brothers, who maintained an extensive system of Catholic schools for the poor. At Reims, they established a teacher-training institution.

### ***Stage VII -- Mercantile***

The following "stages" are not as neatly characterized as the previous ones, and many of the current national states or economies seem to either have never advanced beyond the mercantile stage (stage VII) or have returned to a similar stage which can be called



"technological mercantilism." If the simultaneous existence of major economies and cultures at different "stages" is correct and the accretion model applies, this could explain the very considerable stresses observed. Stress typically results in self-defeating pathological behavior. In the Fall of 1997, countries in South East Asia such as Thailand, Malaysia and Korea all had severe economic disturbances apparently largely resulting from self imposed conditions historically known to promote problems such as over-valued currencies and lack of internal controls on economic and financial development.

Several closely related "systems" are popularly (and incorrectly) included with mercantilism. A short essay "Balanced Trade: Toward the Future of Economics" provided these concise definitions or characterizations:

**AUTARCHY:** No trade. Autarchic governments attempt to eliminate all imports and exports, forcing their subjects to live with whatever the local economy can provide. These governments apparently believe that all other cultures are so evil or corrupt that any contact will harm their people. No responsible government engages in this practice today because the benefits of trade are so apparent. Recently, North Korea and Albania came close.

**PROTECTIONISM:** Protectionists restrict or tax imports to benefit domestic manufacturers and keep as many jobs at home as possible.

Protectionists believe that the benefits from keeping jobs at home outweigh any loss of consumer surplus resulting from higher prices after tariffs.

Exports are ignored by protectionist governments as are imports for which there is no domestic competition. Although rarely used as a stand alone

policy, protectionism is frequently used as an accusation by those promoting free trade access to foreign markets for their own companies.

[This is closely related to although not identical with a currently unpopular strategy for economic growth and development called "Import Substitution."]

**STRATEGIC TRADE:** This policy requires or encourages domestic companies to make goods needed by the military instead of relying on foreign companies for strategic goods. Also, this policy seeks industries that will grow in the future and provides protection and encouragement to companies in those industries in the home market. For example, some argue that the United States' space program is a method of helping the aerospace industry by providing government funded R & D for new products.

**MERCANTILISM:** Trade for national advantage. Mercantilists believe that the world has a finite store of wealth; therefore, when one country gets more, other countries have less. Mercantilists restrict imports and encourage or subsidize exports as a conscious policy to make their citizens better off. Some Asian countries use this policy to good effect in expanding their wealth by expanding exports and curtailing imports. Japan is an example of a country that has taken this policy too far - now its export surplus has raised the value of its currency so high that much of its labor is priced out of the world market. Many developing countries use this

practice to secure good markets for their exports while protecting their market from foreign imports.

A variation of this is "Technical Mercantilism". Technological Mercantilism was described by the JTEC/WTEC Annual Report [Holdridge] and Program Summary as:

... Second, foreign governments have identified certain technologies and/or applications as critical to their future, therefore deserving of direct or indirect government support. The debate in the United States over industrial policy must therefore be influenced greatly by the extent to which other governments around the world have already distorted the "free market" forces that would otherwise shape the development and deployment of new technologies and products. The illusion of a free market is further undermined by the behavior of large oligopolistic or monopolistic private corporations and/or consortia overseas. For example, there is no doubt that, due to differing cultural and institution frameworks, Japanese corporations behave very differently from U.S. corporations, especially with respect to long-term investments in R&D. In other words, if governments and large corporations and consortia overseas are practicing technological mercantilism by subsidizing or otherwise fostering the development of civilian high technology industry, the U. S. Government cannot possibly gain from conducting a laissez faire free trade policy in isolation. JTEC and WTEC studies can provide key information

concerning the mechanisms for corporate and government R&D support abroad to facilitate informed debate on this issue in the United States.

The phrase "national advantage" is of great importance to understanding this stage. At this stage, the growth of any particular company or corporation is intended to increase the power and prestige of the national state and by extension the power and prestige of every member of that state, although probably not to the same degree. Quite frequently this stage is associated with the active promotion of jingoistic or chauvinistic attitudes of (exaggerated) nationalism. The identifying characteristic of this stage seems to be the perception that trade is a zero sum game, and therefore it is almost as beneficial to your country to cause a direct and proximate rival a large loss as it is to achieve a large gain. The concept of a "win-win" situation between two rivals (other than one resulting from equivalent third part loss) does not seem to be possible to nations / societies at this stage. Indeed, it is precisely the perception that it is possible to create rather than simply redistribute wealth that is the rationale and justification for the (frequently grudging) acceptance and development of "capitalism," which, as examined in the following sections, means different things to different people. Indeed, one of the many problems appears to be that it frequently means different things to the same people based on the Red Queen's prerogative of "a word means what I want it to mean."

At this time, Career Counseling and VOTE began to become more complicated because of the rapid increase in new occupations (for example printing) and the elimination of old ones (scribes), thus preventing in many cases the tradition of the family trade for increasing numbers of people.

### ***Two major phases of Capitalism***

Stages VIII through XII are characterized by wealth acquisition and accumulation through value creation. Stage XIII is characterized by wealth acquisition and accumulation through value extraction. In other words, stages VIII through XII, assume that by creating a bigger pie, they can have additional pie to eat, while stage XIII has decided that it is easier to grab more of the existing pie from other people than it is to create a bigger pie which in most cases must be shared. Far from being merely a semantic difference, this differentiation has major implications.

### ***Stage VIII -- Owner Capitalism***

This is the 1776 capitalism of Adam Smith, where the "invisible hand of the market" is most clearly seen and is most effective. Owner Capitalism is the direct descendent or heir of the master of the medieval guild with the exception that excessive capital requirements or other barriers to establishing a competing store or service are minimal. It is this lack of "other" barriers which differentiates between Owner Capitalism and the guild "Master." Owner Capitalism is characterized by small enterprises, in small towns with at most a few workers or employees, who are generally not trainees but wage laborers. The owner knows most or all of their customers, their workers and their families. Typically the business is organized as a sole proprietorship. Personal integrity, honesty, and product quality are maintained by the social forces of the community. Simply stated people will not deal with an individual they know to lack integrity, to be dishonest, or who produces inferior products. Generally the owner is the most highly skilled individual in their

organization and can perform any operation better than any of their employees. Owner Capitalism dates from at least the end of the Medieval period, traditionally dated as 1453 marked by the fall of Constantinople to the Turks, although not placed on a theoretical basis until 1776 by Adam Smith. This is an enduring stage, and one which is highly stressed and perhaps overemphasized in much of the vocational education literature.

### ***Stage IX --Entrepreneurial capitalism***

Characterized by larger enterprises in large towns. The owner(s) no longer knows their individual workers or their families, but still runs their own business. Partnerships, either from inheritance or infusion of capital become common.

### ***Stage X --Absentee ownership capitalism***

Massive enterprises in big cities. Absentee individual ownership of the business with hired “professional” managers. Professional, occupational and trade specialties still recognized. Partnership, possibly limited and silent, is still dominant method of ownership. As indicated in other sections, it is at this point that the classical Adam Smith - David Ricardo capitalism begins to break down. Primarily this is due to the specialization of production equipment and the long term nature of investment. That is the physical plant cannot be easily liquidated and the capital re-allocated to other more profitable uses, nor can it efficiently produce a different product. Additionally there tends to be a very high ratio of fixed to variable costs such that not operating the plant costs almost as much as, and in some cases more than, operation does. This is the case for most

older iron foundries and steel mills because the furnaces crack and must be rebuilt if they are not kept hot.

### ***Stage XI --Indirect ownership capitalism***

Massive enterprises in big cities, railroads, and other large operations characterized by indirect stockholder ownership with hired, highly specialized professional managers. Anonymous workers are treated as a cost and commodity. Work simplification and rationalization is a conscious policy to eliminate the need for skilled and independent workers. Mass production of standardized products emphasized to take advantage of the economy of scale. The age of the mass market with national brands and markets.

Corporations are a complex phenomena of their own with an interesting and important history and a close connection to VOTE. A separate section on corporations is included in the appendix. This material is not included here because it is lengthy.

### ***Stage XII -- Service capitalism***

A shift occurs in that emphasis on the generation of wealth by manufacturing or processing concrete products becomes an emphasis on the creation of wealth through the providing of services such as shipping, insurance, merchant banking, and brokering. However these services still are connected with concrete products, these are useful if overpriced in many cases, and do add to the value of a product. For example, coffee is worth more (or at least costs more) in large northern urban areas than in the small tropical countries where it is grown, so by the act of transporting a pound of coffee from where it is produced to where it is consumed, its "value" is increased. The principal effect on

vocational education is that far fewer people are needed to “process” the same amount of material, no matter how it is measured, than when concrete products are manufactured and processed. There is also the tendency to “cannibalize” existing domestic production in order to feed the demand for the service oriented segments of the economy. For example, advanced technology, machines and expertise may be exported to areas which are currently importers of domestically produced products because of the large immediate gains to the organizations that manufacture the machines, provide the training, provide the financing, shipping and insurance. Later, because of the lower labor costs and newer machines in the formerly importing area, products can be produced at lower cost and possibly of better quality. This creates a profit potential for export back to the original exporting country and also provides the organizations that supply services such as financing, shipping and insurance with continued and increasing income.

### ***Stage XIII -- Value extraction capitalism (the dark side of the force?)***

The last apparent stage in capitalism appears to be the transformation of large segments of the risk capital sector from making money by providing needed concrete goods or services into a market which appears to deal in totally abstract “items” of no apparent intrinsic value or utility and thus to a totally extractive function. The reason that this appears to be the last stage is that the new stage of trans-national corporations and one world economy appear to be such a quantum jump that it is a new stage and not just a development of this one. Indeed, the emphasis can be said to have changed from the generation of wealth by the creation and efficient operation of economic organizations to the generation of wealth by the liquidation and dismemberment of economic



organizations. This process of liquidation, while it makes a few individuals extremely wealthy such as Frank Lorenzo (Eastern Airlines) causes great hardship for large numbers of people. This includes not only the employees of the liquidated organization but also the direct creditors such as the suppliers and bond holders and the indirect stakeholders such as the communities in which the organizations were located. Thus the concept of the market and the “invisible hand” of Adam Smith which served the western economies so well for two hundred years no longer seems to apply. Indeed, because there is no intention to maintain the enterprise as a “going concern” the good name and reputation of the organization is frequently seen as just another asset to be “liquidated” for the highest possible profit thus minimizing or eliminating the control of informal social forces.

An item of interest is the large growth of new financial debt instruments such as derivative contracts. It is interesting to note that even banks with known serious financial problems such as Credit Lyonnais and Credit Indosuez are major participants in this process. In 1994 the top twenty participants issued or held a total of \$23.5 trillion dollars worth of these instruments. During the same time period, the total world Gross Domestic Product, that is the total value of all goods and services produced in the entire world was about 27 trillion US dollars. While some rationale appears to exist for derivatives, it is doubtful that an amount equal to approximately 85% of the entire world's production of goods and services is required or even beneficial. Indeed, the record seems to indicate that the existence of such synthetic and artificial debt instruments has contributed to market volatility and the bankruptcy of financial institutions and governments such as Bearing's Bank, Long Term Capital Management, and Orange County California. It

would appear that the introduction of these new instruments overlap stage XII and stage XIII. In the beginning, and still to some extent, these novel financial instruments provide a way to balance risk and profit, however the highly synthetic and artificial (virtual) nature of these instruments, which is to say they can be created out of and return to nothing, places the majority of them firmly in stage XIII -- the extraction of value. A Nobel prize was recently awarded for the creation or invention of a procedure to assign an economic or dollar value to derivatives. What is unusual about this new procedure is that it is overtly probabilistic and involves the estimation of several critical parameters. It is interesting that **even the most determinist fields such as accounting are being invaded by post-modern concepts such as negotiated reality**. However in point of fact, the concept of economic or dollar value has always been subjective and frequently defined as whatever a willing buyer and a willing seller agree that it is. A dedicated post-modernist would point out that this is not something new, but rather the realization of how subjective, arbitrary, ambiguous and circular the concepts of “utility,” “asset,” and “value” are.

### ***Totalitarianism: An attempted return to certainty***<sup>3</sup>

Poverty in itself does not make men into a rabble; a rabble is created only when there is joined to poverty a disposition of mind, an inner indignation against the rich, against society, against the government. *Georg Hegel (1770–1831), German philosopher. The Philosophy of Right, “The State,” Addition 149 (1821; tr. 1942).*

Man is more disposed to domination than freedom; and a structure of

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<sup>3</sup> Material in this section is almost entirely from The New Grolier Multimedia Encyclopedia Version 6 CD-ROM. While minor emendation and reordering has been done to maintain continuity much of the material is quoted verbatim.

dominion not only gladdens the eye of the master who rears and protects it, but even its servants are uplifted by the thought that they are members of a whole, which rises high above the life and strength of single generations. *Karl Wilhelm Von Humboldt (1767–1835), German statesman, philologist. The Limits of State Action, ch. 16 (written 1792; published 1854; tr. and ed. by J. W. Burrow, 1969).*

The true courage of civilized nations is readiness for sacrifice in the service of the state, so that the individual counts as only one amongst many. The important thing here is not personal mettle but aligning oneself with the universal. *Georg Hegel (1770–1831), German philosopher. The Philosophy of Right, “The State,” addition 189 (1821; tr. 1942).*

As high as mind stands above nature, so high does the state stand above physical life. Man must therefore venerate the state as a secular deity. . . . The march of God in the world, that is what the State is. *Georg Hegel (1770–1831), German philosopher. The Philosophy of Right, “The State,” addition 164 (1821; tr. 1942).*

The only successful revolution of this century is totalitarianism. *Bernard-henri Levy (b. 1948), French philosopher. Time (New York, 12 Sep. 1977).*

There is a totalitarian regime inside every one of us. We are ruled by a ruthless politburo which sets our norms and drives us from one five-year plan to another. The autonomous individual who has to justify his existence by his own efforts is in eternal bondage to himself. *Eric Hoffer (1902–83), U.S. philosopher. The Passionate State of Mind, aph. 28 (1955).*

Totalitarianism is a form of government in which all societal resources are monopolized by the state in an effort to penetrate and control all aspects of public and private life. This control is facilitated by propaganda and by advances in technology.

Both in theory and practice, totalitarianism is of relatively recent origin. First used to describe the organizational principles of the National Socialist (Nazi) party in Germany, the term gained currency in political analysis after World War II. Older concepts, such as “dictatorship” and “despotism,” were deemed inadequate by many Western social

scientists to describe this modern phenomenon. Totalitarian regimes are characterized by distinctive types of ideology and organization. Totalitarian ideologies reject existing society as corrupt, immoral, and beyond reform, project an alternative society in which these wrongs are to be redressed, provide and implement plans and programs for realizing the alternative order. These ideologies, supported by propaganda campaigns, demand total conformity on the part of the people. Totalitarian forms of organization enforce this demand for conformity. Totalitarian societies are rigid hierarchies dominated by one political party and usually by a single leader. The party penetrates the entire country through regional, provincial, local, and "primary" (party-cell) organization. Youth, professional, cultural, and sports groups supplement the party's political control. A paramilitary secret police ensures compliance. Information and ideas are effectively organized through the control of television, radio, the press, and education at all levels. In short, totalitarian regimes seek to dominate all aspects of national life. In this respect totalitarianism differs from older concepts of dictatorship or tyranny, which seek limited--typically political--control. In addition, totalitarian regimes mobilize and make use of mass political participation, whereas dictatorships seek only pacified and submissive populations. Finally, totalitarian regimes seek the complete reconstruction of the individual and society; dictatorships attempt simply to rule over the individual and society. Two types of totalitarianism may be distinguished: National Socialism and Fascism on the right and Communism on the left. While sharing the ideological and organizational features discussed above, the two differ in important respects. Right totalitarian movements, such as the Nazi party in Germany and the Fascists in Italy, have drawn their

popular support mainly from middle classes seeking to maintain the status quo and advance their own social position. Left totalitarianism, such as that of the former USSR, relies instead on a lower or working class seeking to eliminate, not preserve, class distinctions. Right totalitarianism has been outspokenly racist and elitist, whereas, in theory, left totalitarianism has not. Right totalitarianism, unlike its leftist counterpart, rests on a cult of the hero, although in practice the cults of Joseph Stalin and Mao Zedong were as pronounced as those of Adolf Hitler and Benito Mussolini. Moreover, right totalitarianism has supported and enforced the private ownership of industrial wealth. A distinguishing feature of Soviet communism, by contrast, was the collective ownership of such capital. It should be noted that “ownership” mattered little because control of what and how much was to be produced was largely determined by the state.

A final difference lies in the role of terror and violence in the two types of totalitarian societies. Left totalitarianism has arisen in relatively undeveloped countries through the unleashing of massive revolutionary violence and terror and the elimination of all opponents--political, social, military, economic--in short order. Terror and violence tended to level off or decline after these regimes consolidated their power. By contrast, right totalitarian regimes (particularly the Nazis), arising in relatively advanced societies, have relied on the support of traditional elites to attain power. The old elites, coexisting in a subordinate role with the new, have continued to pose a challenge and threat. Escalating levels of terror and violence resulting from such struggles contributed to the eventual collapse of the two major right totalitarian regimes, Nazi Germany and Fascist Italy. The Communist governments in Eastern Europe and the former USSR, by contrast, endured

periodic reforms leading to democratic transformation

### **National Socialism**

Hitler's rise to power paralleled the unstable course of the Weimar Republic, which replaced the fallen Hohenzollern monarchy at the end of World War One. The abortive Communist revolution in Germany and the dictated Peace of Versailles determined Hitler's decision to enter politics. In 1919 he joined a small political faction in Munich and within the next year formed the National Socialist German Workers' party (NSDAP). He directed the organization with an iron hand and used its meetings to deliver forceful rhetorical assaults on Germany's "enemies." In 1923 he led the party into the ill-fated Munich Putsch. This action resulted in his imprisonment. While in prison at Landsberg, Hitler wrote *Mein Kampf*, which became the standard work of Nazi political philosophy. He defined the enemy as world Jewry, international communism, effete liberalism, and decadent capitalism. Hitler offered instead pure Aryan blood and the renewal of German nationalism under a fighting elite. Germany would once more become the leading power on the Continent and gain its living space (*Lebensraum*) in central Europe and Russia. The Great Depression opened the way for Hitler's success. Mass unemployment, Communist insurgency, and an alliance between the Nazis and the industrialist Alfred Hugenberg's Nationalist party all contributed to the NSDAP's electoral breakthrough in September 1930. Having won a commanding lead in the last free elections, held in March, Hitler proceeded to dismantle all parties except the NSDAP. All federal and state institutions and organizations were "coordinated," purged of Jewish influence, and brought under party control. Germany's economic recovery reinforced the widespread

support Hitler enjoyed throughout the Reich during in the 1930s.

## **Communism**

Originally, the term communism signified an ideal society in which property would be owned in common and the necessities of life shared by members of the community according to their needs. Communism in this sense dates back to classical antiquity. Plato proposed a kind of aristocratic communism in his Republic. Some of the early Christian groups held property in common. The idea of common ownership figured in Sir Thomas More's Utopia (1516), and was espoused by such religious groups as the Anabapists in 16th-century Germany. It inspired numerous religious and social reformers of the 19th century, including Etienne Cabet, Charles Fourier, Robert Owen, Pierre Joseph Proudhon, and the comte de Saint-Simon. Their theories contributed to the 19th-century socialist movement aimed at replacing the system of private property with one in which property would be owned by society as a whole. Stronger revolutionary socialist theories were expressed by Francois Babeuf during the French Revolution and by Louis Blanc and Auguste Blanqui later in France. In their Communist Manifesto (1848), Karl Marx and Friedrich Engels applied the term communism to a final stage of socialism in which all class differences would disappear and humankind would live in harmony. Marx and Engels claimed to have discovered a scientific approach to socialism based on the laws of history. They declared that the course of history was determined by the clash of opposing forces rooted in the economic system and the ownership of property. Just as the feudal system had given way to Capitalism, so in time capitalism would give way to socialism. The class struggle of the future would be between the bourgeoisie, or capitalist employers,

and the proletariat, or workers. The struggle would end, according to Marx, in the socialist revolution and the attainment of full communism.

Marxism became the dominant body of thought in European socialism in the 19th century. Socialist parties grew rapidly and, despite their revolutionary theories, began to elect representatives to national legislatures. Much controversy raged within the parties between those who felt the need for a revolutionary overthrow of capitalism and those who held that socialism might be achieved through gradual reforms. European Marxists were strongly international in their outlook. They proclaimed their opposition to imperialism and militarism and declared that the workers had no fatherland. However, the outbreak of World War I in 1914 demonstrated that nationalism had a much stronger grip on the socialist parties than their theorists had realized. Except for a few radicals such as Karl Liebknecht and Rosa Luxemburg in Germany and Lenin in Russia, the party leaders and most members supported the war policies of their governments. The Russian Revolutions of 1917, which enabled Lenin and his followers to seize power, divided world socialism into competing groups of parties--those which opted for the Russian path and those which kept to the democratic tradition. Two Russian revolutions took place in 1917. The first, in February (O.S.; March, N.S.), brought the collapse of the tsarist regime and its replacement by a weak provisional government. A jostling for power began among various parties and groups, including two factions, called Bolsheviks and Mensheviks, of the Russian Social Democratic Workers' party, a Marxist party founded in 1898. The Mensheviks, led by, among others, the party's founder, Georgy Plekhanov, believed that "feudal" Russia would have to pass through the capitalist phase under a



bourgeois democratic regime before it would be ripe for socialism. The Bolsheviks, led by Lenin, called for the overthrow of the provisional government in favor of immediate rule by the workers and peasants, and did so in October of that year.

### **Stage A -- Marx-Leninism**

Lenin made important additions to the theory of Marxism and created a doctrine for professional revolutionists that gained considerable influence in the economically backward areas of the world. In his pamphlet *What Is to Be Done?* (1902) he called for an elitist, disciplined party of professional revolutionists to lead the working class toward communism. The principles of "the leading role of the party" and "democratic centralism"--meaning an almost military organizational discipline within the party--were supposed to be practiced by all Communist parties. Lenin also preached flexibility in strategy and tactics, by which he meant a willingness to adapt party programs so as to enlist the support of the peasantry and oppressed national minorities without giving up the goal of communism. Lenin's forceful insistence on his own point of view caused the Russian socialists to divide into the Bolshevik and Menshevik factions in 1903.

In October (O.S.; November, N.S.) 1917, Lenin led the Bolsheviks in a successful coup d'etat against the provisional government. The initial period of Lenin's Soviet government (1917-21) was characterized by trial and error in the midst of economic dislocation, social chaos, domestic civil war, and foreign intervention. Lenin soon abandoned the notion that the government could function as a "democratic dictatorship of workers and peasants." He dissolved the Constituent Assembly that had been elected after the Bolsheviks seizure of power because the Bolsheviks did not control it. Soon all other

parties were outlawed, and the internal discipline of the ruling Bolshevik, or Communist party became even stricter. Lenin also laid the basis for the domination of other Communist parties by the USSR. He insisted that foreign parties break with the existing Second (Socialist) International and form a Third, or Communist, International, which came to be known as the Comintern. Every party was required to impose Leninist discipline on its members and on the world Communist movement as a whole. As a result the Comintern, with its headquarters in Moscow, eventually became little more than an instrument of Soviet foreign policy.

A second phase began in 1921, when Lenin recognized that priority must be given to economic reconstruction. The New Economic Policy [NEP] legalized private trade, encouraged small-scale private enterprise, and loosened the state's grip on agricultural production, all in sharp contrast to the radical social and economic experimentation of the preceding period. The NEP, however, was no more than a strategic retreat. The party took the offensive again in 1928 by introducing centralized economic planning through the First Five-Year Plan, which called for forced-draft industrialization and the collectivization of agriculture. By means of these programs, implemented at terrible human cost, the Communist party attempted to create the kind of industrial system that already existed in the capitalist countries of the West, but with state ownership of the means of production.

### **Stage B -- Stalinism-Maoism and the “cult of personality”**

Following Lenin's death in 1924, Stalin skillfully used his position as general secretary of the Communist party to obtain a monopoly of power. He overcame the opposition of Leon Trotsky, who had been Lenin's chief lieutenant during the revolution. Lenin and

Trotsky had justified their seizure of power as being only the beginning of international revolution that would soon overthrow capitalism in advanced industrial countries such as Germany. They had believed that they would have to wait for the revolution to happen elsewhere before they could begin to build socialism in Russia. Stalin, however, enunciated the doctrine of "socialism in one country," maintaining that the USSR could build socialism by itself. He also believed that unless the USSR became an industrial power it would be destroyed by the stronger capitalist nations of the West. Stalin ruthlessly carried out the policies of industrialization and collectivization and did not hesitate to root out and destroy anyone he thought might someday turn against him. Between 1936 and 1940, most of the Old Bolsheviks (the leaders of the 1917 revolution) were executed. At the same time, Stalin systematically eliminated most of the officer corps of the Red Army, purged government bureaucracy, and unleashed indiscriminate mass terror against the population as a whole. Under Stalin the party strove to control every aspect of Soviet life, including the activities of workers, peasants, artists, writers, and athletes. A cult of praise that amounted almost to deification developed around Stalin as supreme leader. His policy decisions, made arbitrarily, were enforced as much by the secret police as by the party. The pervasive controls were relaxed somewhat during World War II, in order to gain popular support for the war effort against the invading Germans, but at the end of the war they were quickly reestablished. Stalin believed that the struggle with the capitalist West called for the strictest ideological and political discipline. The Soviet population was once again forced to endure economic privation in the interest of reconstructing and expanding the domestic base of heavy industry needed to

establish the USSR as a world power. Stalin died in 1953.

### Maoism

In 1949 a Communist movement won power in China under the leadership of Mao Zedong (Mao Tse-tung). Founded in 1921, the Chinese Communist party allied with the Kuomintang (Nationalists) in 1923, under orders from the Comintern. By 1927, however, the Nationalists had turned on the Communists, and a long civil war began, during which the Communists received little aid from Moscow. Forced to retreat into the interior (the Long March of 1934-35), the Chinese Communists built their party on peasant support. During the Second Sino-Japanese War, which began in 1937 and eventually became part of World War II, the party provided more effective resistance to the Japanese than did the Kuomintang, and by the end (1945) of the war controlled large areas. Within four years it had defeated the discredited Kuomintang and established control over the entire country. Although the Chinese Communist party gave lip service to the doctrines of Lenin and Stalin, its Marxism was shaped by its own unique experience and blended with the ideas of Mao. Mao saw humans as engaged in a permanent struggle against nature. Society was riven by contradictions between classes (antagonistic contradictions) and between groups (nonantagonistic contradictions). The antagonistic contradictions could be solved by revolution, but after the revolution it was necessary to work out the nonantagonistic contradictions that existed among the people and even within the party. Mao also believed that the revolution did not end when the Communists came to power; it had to be waged continually against vestiges of the old culture and against bureaucratic habits. Under Mao, China was subjected to startling shifts in policy that began with the elite and

were carried downward through all parts of society.

### **The state withers away**

The decay of Soviet authority over other Communist governments could be seen as early as 1948. Yugoslavia had been the first to take a different road after 1948, giving up the attempt to collectivize agriculture and turning over industrial enterprises to workers' councils. Its leaders held to this path after Tito's death, in 1980. In 1968 economic and political liberalization led by Alexander Dubcek threatened to undermine the Communist party's monolithic control of Czechoslovakia and possibly set off repercussions in other East European countries. Moscow denounced the trend as "creeping counterrevolution." In August 1968, Czechoslovakia was invaded by armies of the Warsaw Treaty Organization. The country was speedily "normalized" and orthodox leadership reinstated. To justify its intervention in Czechoslovakia, the USSR asserted the right and duty of Communist countries to render "fraternal assistance against counterrevolution," which was known in the West as the Brezhnev Doctrine. In 1979 the doctrine was exercised in Afghanistan, which was occupied by Soviet troops to prop up the pro-Soviet regime there. In 1980 a wave of strikes in Poland led to the legalization of an independent trade union movement, Solidarity, and the promise of further liberalization. In December 1981, however, the Polish government, pressured by Moscow, declared a "state of war" against its own society and suppressed Solidarity. Although martial law was officially lifted in 1983, the Polish Communist regime under Gen. Wojciech Jaruzelski ruled with a heavy hand. This did little to ameliorate Poland's deteriorating economic situation and made it difficult to rally popular support. In 1989, with the tacit endorsement of the Gorbachev

regime in Moscow, new negotiations with Solidarity led to Poland's first partially free elections in 40 years and produced a major defeat for the Polish Communist party.

Jaruzelski then called on a Solidarity leader to head a coalition government that included both Communists and anti-Communists--a previously unthinkable eventuality. The new Solidarity-led government soon introduced a package of sweeping economic reforms designed to replace Poland's defunct command economy with the free market.

Throughout Eastern Europe, 1989-90 was a time of major upheaval. East Germany, amid widespread popular protests, changed its leadership, and in November 1989 it opened its border with West Germany for the first time in decades. In March 1990 free elections in East Germany produced a non-Communist government. This marked the beginning of the end of a separate East German state, which in a rapid succession of moves merged with West Germany. Demands for reform supported by Moscow toppled the Czechoslovak regime in November 1989, leading quickly to a freely elected non-Communist government there. In 1990, Hungary also held free elections. Hungary's reformist Communist party had reconstituted itself and campaigned under a new name; nonetheless, it was voted out of office. In December 1989 the Romanians overthrew the brutally repressive dictatorship of Nicolae Ceausescu. Romania's new leaders renounced Marxism, but many of them were former Communists, and they used strong-arm methods in dealing with dissidents. Bulgaria also underwent a change in top leadership, but its first steps toward democracy were hesitant. In Yugoslavia the authority of the Communist party crumbled as the country experienced a revival of separatism and ethnic strife. Even Albania, long a bastion of rigid orthodoxy, began to change.

### **Stage C -- "Pingism" or converging Chinese corporatism**

A struggle continued in China between those who wanted to follow the Soviet approach to industrialization and those who thought of the Soviets as another bourgeois society and regarded technicians and bureaucrats as enemies of the revolution. Mao himself declared that the Soviet Communists had betrayed the revolution. In 1966, Mao launched the Cultural Revolution, in which millions of young Communists, organized as Red Guards, went through the country denouncing senior officials and establishing revolutionary committees in place of local government bodies. The Cultural Revolution ended in 1969, and the leaders set about rebuilding new party and state organs. The power struggle finally ended after Mao's death in 1976 with the moderates in control, led by Deng Xiaoping (Teng Hsiao-p'ing). China then embarked on a program of technological modernization. China established diplomatic relations with the United States in 1979 and subsequently encouraged increased interaction with Western nations.

Deng's initial, ideologically ambiguous call for the "four modernizations" developed into a concerted program for economic reform, featuring various market incentives and the establishment of special economic zones with considerable latitude for private enterprise. As indicated in other sections, considerable western investment has resulted in a convergence of communism and trans-national capitalism in their attitudes and methods of operation. Both the government of the PRC and most trans-national corporations share the characteristics of extensive bureaucracy because of their enormous size and complexity, amorality, ruthlessness in attaining their goals and objectives, lack of responsibility to their citizens [employees] and only nominal limitations on their actions by

law and custom. This common ground has resulted in extensive cooperation in not only the expected mass production of western consumer items such as clothing, shoes, electronics, and toys, but unexpectedly in high-technology areas with serious national security aspects such satellite communications technology, rocket [inertial] guidance systems and wide body commercial aircraft production.

Opponents of the party's dictatorship asked for more, a "fifth modernization"--that is, the renunciation of the party's leading role and the introduction of democracy. This was rejected by most of China's aging Communist elite. Deng and his entourage wanted economic reform without political change. They were determined to crush their critics by force, if necessary, and did so in the June 1989 massacre of students and others in Beijing's Tiananmen Square where up to one million pro-democracy protesters had gathered for weeks on end.

#### ***Stage XIV -- Trans-national corporationism***

Stage XIV is still developing but can be called the age of the trans-national corporation. This is the most difficult stage to evaluate and describe. Not only is it still developing and thus lacks historical perspective, the observers are "inside" the stage, interacting with it, thereby making objective observation and recording difficult. It is highly ironic that one of Karl Marx's predictions, that the "state" would wither away, now appears to be occurring as a direct result of the collapse of the USSR, which eliminated the (perceived) need for strong central governments to provide massive armed forces to protect the property of the multinational corporations. Strong central governments have now become an expensive nuisance to many trans-nationals which are now attempting to



eliminate many of the problems such governments cause such as the regulation of trade and currency controls. In turn many of the people with a stake in maintaining the existing central governments are attempting to create the perception of sufficient external threats to justify their continued existence and as possible expansion.

Adam Smith's tenet in his work "The Wealth of Nations" that "*the economic order should be as independent as possible from the political order*" seems to have been inverted, perverted and compromised. There is massive interference with the political order by the economic order, while the economic order has raised non-interference by the political order in their operations to the status of a religious tenet or article of faith.

Smith's rationale for the "free market" and the "invisible hand" based on the two assumptions (a) no person or combination of persons can control the marketplace, which means that power is diffuse and cannot be monopolized by a party or a clique; (b) the market system tends to reward efficiency with profits and to punish inefficiency with losses. It appears that these two requirements are no longer operative for these organizations.

A major characteristic of this new period is the "escape" of trans-national businesses from any effective governmental control. The new organizations no longer appear to have any loyalty or feel any sense of obligation to their country of incorporation or their employees. At one time Charles Wilson, Secretary of Defense under Eisenhower and former Chairman of GM, could say without irony or sarcasm and with a great deal of truth "*What is good for General Motors is good for America, and what is good for America is good for General Motors.*" Recently, many major corporations such as

DuPont, Hewlett-Packard, 3M and General Motors have gone to great lengths to emphasize that while their home offices may be located in, and they may be chartered in the United States of American, they are **not** American corporations. Indeed, they boast that over one-half of their income is derived from markets other than the United States. Similar statements have been issued by major Japanese and European trans-national organizations.

It is unclear what the relationships between people, governments and these organizations, which are bigger and more powerful than all but a few governments (see Table IIB), will or should be. These new organizations have no borders to protect nor natural constituencies to support them or which they need defend. Indeed, given the new reliance on electronic communications and funds transfer, it is difficult even to say where these organizations are located or who owns them.

An interesting and insightful comment was made by a reviewer of this study when they remarked that these trans-national corporations reminded them of the maritime use of "flags of convenience" for merchant ships. An example of this is where a group of American investors own the stock of a corporation chartered in the Bahamas which owns a ship. The ship is registered in and flies the flag of Liberia. The ships officers are from and licensed by Taiwan and the crew is Senegalese. In Al Gore's famous phrase who is the "controlling legal authority" when something goes wrong?

The above points are so important to the following analysis that these are examined in greater detail below. Of particular importance is the apparent fallacy of the widespread and popular American assumption that "small businesses" are the source for the majority

of new jobs and technical developments. The current definition by the American government that a business is small if it employs less than 500 people does not appear to be useful in this context. In any but the largest metropolitan areas, a company employing 499 people, although classified by this definition as small would be a, if not the, major employer in the area. The widespread acceptance of the small-business fallacy seems to result in policy and curriculum decisions for VOTE which do not necessarily result in optimum returns to and benefits for the stakeholders.

The following information is compiled from the World Bank Data Book and Fortune magazine. What is compared is the cumulative total Gross Domestic Product by nation arranged in increasing size of the national GDP as table IIA and the cumulative totals of the gross revenues of the world's 500 largest corporations arranged in decreasing order in table IIB. Some reservation has been expressed by reviewers about the use of corporate gross rather than net revenues, however the calculations of national GDP do not make allowance for profit and loss, that is the GDP is simply the total value of all goods and services produced. Admittedly there are some problems with this data, for example, not all of the organizations and countries involved have a standard accounting year from 1 January through 31 December and all data are converted to 1995 US dollars so that exchange rate fluctuations may introduce a certain error. Nevertheless, this compilation is extremely informative, and should have major significance for policy makers. Most of the following observations are directly taken from the rightmost columns of Table IIA.

1. The top two corporations in the world when ranked by gross revenue are “American.” (General Motors and Ford)

2. Three of the top 4 corporations while indicated as primarily producers of motor vehicles have significant service components such as finance[GMAC] and insurance[GMIC] .
3. When the gross revenues of the largest global corporation (GMC) is compared with the listing of 128 nations on which the World Bank supplies data, its gross revenue is larger than the cumulative total Gross Domestic Product of the first 55 nations (43% of the world's nations) which have 7.87% of the world population.
4. The combined gross revenues of the top ten global corporations is greater than the combined GDP of the first 96 nations (75% of the world's nations) which contain 24.76% of the worlds population.
5. The gross revenues of these 500 corporations directly account for 42 per cent of the entire world's production of goods and services. While it cannot be accurately estimated, these corporations control or greatly affect an even higher portion of the world's production of goods and services because of the position of many of the remaining organizations as suppliers and sub-contractors to them.

A frequent observation by less “academic” reviewers of this section of the study is that this seems to "prove" the existence of some sort of conspiracy or plot for world domination by a small select group. While there is great popular appeal in a conspiratorial view of history, it does not appear to this investigator that this is the case. While "absence of proof is not proof of absence" no credible information discovered supports the existence of any such cabal, plot or group. However, what appears to be the most likely explanation to this investigator may be even more disturbing to many people. This is that

these large economic organizations may have taken on a life of their own and are evolving, although to what extent this means anything with abstract and non-organic organizations is unclear. To some people this implies that they are evolving to something or that there is a goal or an end. This is by no means a settled philosophical point. More traditional groups hold that evolution or change is to something better or higher while the more recent schools of philosophy hold that evolution is simply a process of change in response to changing circumstances and conditions with no other goal than survival.

Although “reverse engineering” in the sense of identifying “causes” by observing “effects” through the application of logic is always a risky undertaking, recent trans-national behavior seems to indicate the following:

1. A lack of any obvious viable social / political / economic alternative (that is threat) which would require moderation or modification of corporate behavior.
2. An oversupply of qualified employees indicated by a falling real wages and benefits in almost all categories. (See the section on “Skills Premium”)
3. An oversupply of capital indicated by low and sometimes negative (effective) interest rates (see the section on corporate bond yields in Chapter Four).
4. A reluctance of national governments to require the trans-national corporations to pay a proportionate share of the costs to operate the governments, that is taxes.

This is shown by the continually decreasing fraction of net income paid by these organizations, which in many cases in the United States is proportionally less than that paid by a person employed full-time at minimum wage. Indeed, records indicate that in the period 1950-1970, American corporations paid about 46% of

local property taxes, which are the primary source of primary and secondary school funding. Currently they are only paying about 16%. [Barlett & Steele, 1993 p35]

5. Commitments by national governments to prevent global corporate business failures as indicated by repeated bailouts using taxpayer money by the IMF / World Bank on the international level such as Mexico and Korea, and by American rescues such as Chrysler, Lockheed, Long Term Capital Management, and the savings and loans thus circumventing the market forces which are supposed to guarantee maximum efficiency. [Phillips 186]

### ***Evaluation of the applicability of the linear model as stage theory model***

This appealing model presents an orderly and structured sequence of economic, social and political development as may have been presented in Economics 101 or World History 101. A sequence which in these classes flows smoothly from one to the next, much as a frog egg becomes first a tadpole and then a frog. Walt Whitman Rostow in many of his popular economic works stressed the stage theory model of economic development.

While useful for instructional purposes and micro analysis, stage theory in the Piaget sense has several items which indicate that it is not applicable in this context. Specifically:

1. It appears possible for a person or group to shift backwards and forwards between stages, sometimes repeatedly.
2. It appears possible to skip stages.
3. Alternative stages appear to exist.
4. Within a larger group, sub-groups appear to exist at different stages.

### ***The accretion model as an alternative to the linear model***

The problem with this is that while these stages do seem to exist, a close reading of history shows the transitions between them is anything but smooth, and indeed there may be no or little transition in the sense of a metamorphosis or evolution but rather an accretion or coating of the existing socio-political-economic structure(s) with yet another newer, more “efficient” and more “aggressive” layer. While physical analogies to abstract concepts have been extensively misused to “prove” an idea, it is nevertheless useful to consider what would occur in an equivalent physical system. We can start with a small primal nugget which is a stage 1 group and can accrete each of the layers from 2 to 14 on top of each other, with occasional inclusions such as Stage A-C communism. If the conditions were static, there may be no interaction or “problems,” however as soon as any change takes place a cascade of effects can occur. There may not necessarily have been a complete accretion so that as stresses occur between each of the layers, the most malleable layer or the layer under of the most stress could be squeezed out. It is documented in history that small and large migrations of people often occurred as a result of stress, from the migration of the Indians into the New World across the Bering Strait to the Long March of Chairman Mao & Company. A major problem results when such displacement cannot occur even though extensive stress exists. An other consideration is that the layers may not be compatible in the same way that some materials are not compatible and result in the rapid corrosion of the more susceptible material if these come into contact. An example of this is the effect that tin plating has on iron or steel. As long as there no hole in the tin plating it will protect the underlying iron or steel but as soon as there is the

slightest pin hole or scratch the tin will cause much more rapid corrosion of the iron or steel than if the tin plate was not present. This analogy can be extended in that some materials cannot be coated over other materials by any known process. This can be extended to the accretion model. For example, it is impossible to impose a mercantile or capitalistic system directly onto a stage 1 or 2 society because neither the physical items such as gold, silver (other than as pretty rocks) or the concept of money as medium of exchange and store of value exists. Indeed, one of the first tasks of most European imperial powers in their new African and Asian colonies was to transform the existing stage I and stage II societies / cultures into a money economy so that these could be taxed. It is also possible that one layer of accretion can be symbiotic with or parasitic on a preceding layer. This appears to be the situation of communism (stages A-C) and stage 10 through 12 capitalism or Stage XII "cannibalistic" capitalism on Stage XI "mass production" capitalism. As soon as the "threat" (or alternative) of Marx-Leninism was removed, the need for protection against Marx-Leninism, that is a powerful central government to coordinate and control stage 10 - 12 capitalism and the military-industrial complex, also disappeared. Indeed, the existence of strong, central and activist governments appear to be seen by stage 13 capitalism not as an asset such as umpires and referees who maintain conditions which promote fair, honest, and constructive competition but rather as a liability which impedes efficient operation of the market.

The problems this accretion causes should not be underestimated. At best this results in the actions and decisions made by people and organizations operating in one layer being seen as totally irrational and self-defeating by people and organizations operating in other



layers. Unfortunately, the typical response is to perceive these actions and decisions as resulting from hidden and ulterior motives, personal animosity and rancor, cheating, or just plain stupidity.

### ***Typical American time frames for the stages***

As earlier indicated stages I through IV have limited applicability to mainstream American economic development. The indigenous peoples, were of course at or in Stage I and II, and it can be argued that the 13 separate colonies were in fact "city-states." However it is now agreed by many historians, who use an economic view of history, that, while certainly not the only cause, one of the major causes of the American War for Independence was the wide adoption in the colonies of "domestic" mercantilism and Owner Capitalism in direct opposition to the more traditional stages of Feudalism, Renaissance Centralization, and Imperial Mercantilism common in the United Kingdom of the period.

A major exception to this, and one which most Americans would just as soon forget, is the existence, not of serfdom, but of actual slavery in the southern states which was the economic foundation or basis of the large plantations. Many of the traditions of the feudal (V) and renaissance (VI) stages were followed by those who could afford to do so, apparently because of both the tendency of the British Crown to make large land grants to favored individuals in their southern colonies and the later self imposed exile of many of the "Cavaliers" (King James loyalists) from the U.K. after the victory of Cromwell and the imposition of the Commonwealth. The combination of very large land holdings and the strict application of a (minimum size) real property ownership requirement to the franchise

meant that many southern counties had only a few qualified voters, and the required offices of magistrate, sheriff, et cetera, would be rotated among an elite electorate of perhaps 5 to 10 individuals. Indeed, strict property qualifications for the franchise (vote) were common in most areas of the early United States, and began to be relaxed only about the time of the founding of the Democratic party and the Presidency of Andrew Jackson. The last traces of property qualification were eliminated only in the late 1950's and early 1960's through a series of United States Supreme Court decisions known collectively as "One Man -- One Vote." Prior to these decisions it was common in many states to maintain two lists of registered voters, and to limit participation in elections which would affect property tax rates, such as bond issues, to property owners only.

It was only after the American Civil war that slavery was legally abolished in the United States and the large but under productive southern plantations broken up. While this was partially due to formal efforts at land redistribution such as that performed by the "Freedman Bureaus," it now appears that much of this land redistribution was largely the result of the increased taxes imposed by reconstructionist governments, much of the land being taxed at fair market value for the first time, and the existence of other more profitable investments such as railroads. De Facto slavery and restrictions on citizenship, while decreasing over time, continued at least into the 1960's. While much improved, this continues to be a serious source of political and social instability on into the 21st century.

Some vestiges or traces of the typical Feudal economic structure still exist in the United States. This is the practice of share cropping. Typically, the owner of the land provides the land, a place to live and frequently (on credit) the seeds, fertilizer, equipment and

minimal living expenses while the share cropper provides the labor. The proceeds of the crop are to be divided in some fixed ratio, and any credit advanced is to be repaid from the sharecropper's portion of the "profits."

Thus it can be seen that Stage V feudal / medieval had and continued to have a significant influence, at least in the southern states from the establishment of the United States until at least the 1960's. Among the beliefs / perceptions / attitudes common in a stage V economy, which appear to continue to cause significant difficulties in or to later stages, are:

1. Some groups of people are entitled by heredity to economic, political, social dominance.
2. Possession of wealth (land) indicates membership in one of these groups, and the more the wealth possessed the more firmly membership is established.
3. Persons of wealth, simply by virtue of their wealth, know better what is good for society, and the more wealth the individual has, the surer and more extensive their knowledge.
4. Persons of wealth are exempt from many of the legal rules and social / cultural conventions that other people are expected to follow.

It is important for practitioners who may engage in international activities to remember that feudal perceptions of land ownership still play an important role in many areas. This is particularly true in Latin America, South East Asia, and to a lesser extent in sub-Saharan Africa. Todaro suggests [295-329] land owning in these areas, while economically important, does not appear to be primarily driven by economic factors but

rather by the social and political prestige and power that land ownership confers. A factor which strongly supports this view is the relatively low productivity of most of the large land holdings in comparison to the smaller holdings which are more intensively and aggressively farmed and which have much higher per acre yields. To use the Spanish term, the continued existence of the *Latifundios* or large estates and the political, social and economic concentrations of power perceived to coexist with their ownership is the apparent cause of much continuing social and political instability. A major complicating factor is that the simple solution of dissolution or expropriation of these large estates and redistribution of the land does not appear to offer any advance in most cases to a stage VIII owner-capitalist (American) style of innovative, aggressive, and intensive high productivity (cash crop) farming but rather a return to a stage II subsistence farming. Stage VIII owner-capitalist (American) style of innovative and intensive high productivity farming appears to require several pre-conditions. These include but are not limited to:

1. Knowledge of the techniques of successful advanced high productivity agriculture. The days of being "just a farmer" in high productivity agriculture are long gone. A successful farmer requires a fair knowledge of chemistry, biology, botany, mechanics, economics, and business as well as how to "poke seeds in the ground."
2. Continuing availability of affordable<sup>4</sup> capital to purchase the high yield seeds, fertilizer, insecticides, and mechanical equipment required for advanced high productivity agriculture.

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<sup>4</sup> Although a value judgment by this investigator, an interest rate so high as to eliminate or preempt any significant benefit for the farmer using these new techniques and materials is excessive. An interest rate this high effectively transfers all the gains to the provider of capital, eliminating all but negative incentives (and the risk) for the farmer.

3. Continuing existence of markets to provide an outlet for the materials produced which yield a fair market return.
4. The ownership or long term control of sufficient (contiguous) areas of land to justify investment in the education and equipment necessary for high yield agriculture.

From examination of these requirements it should be evident that the traditional land reform and redistribution following the post-civil war American pattern of "40 acres and a mule" to each eligible applicant is very unlikely to have long term positive results in the 'third world' LDC/LICs as all of the pre-conditions are lacking.

Any intervention should be done with extreme caution as the "Law of Unintended Consequences" seems to be very efficient in this area. Two examples of this are: First the extensive reappearance of vitamin deficiency diseases such as pellagra and beriberi because of the replacement of native or locally grown high-vitamin high-fiber products with minimal processing with completely pre-processed and packaged foods common in the industrialized countries. Second, the reappearance of wide spread famine in areas such Ethiopia and Somalia. It can and has been argued that these famines are the result of wars in these areas, but it appears just a likely that the wars are a result of the famines. A particularly tragic case is that of China during their "Great Leap Forward" when traditional agriculture was "improved." The resulting famine is estimated to have killed tens of millions and certainly resulted in developmental difficulties for millions of the children of that period which will affect China for their lifetimes. Indeed, when other efforts such as Stalin's Ukrainian efforts are included, "improving" traditional or existing

agriculture to support modernization appears, in total, to be about as efficient a way to reduce the world's population as deliberate efforts at genocide such as in Turkey (Armenians), Germany (Jews/Gypsies) and Rwanda (Tutsi).

SOURCE: FORTUNE MAGAZINE AUG 3, 1998 ISSUE PAGES F-1 THROUGH F11							
World GDP est (World Bank 1998) millions of US \$		27,684,197\$					
						(from World Bank Data)	
Organization	Country	Revenues Mil US\$	Cum Revenues	% World GDP	Cum % World GDP	Number of nations to equal	Per Cent of world's Population
General Motors	US	178,174.0	178,174.0	0.644%	0.644%	55	7.87%
Ford Motor	US	153,627.0	331,801.0	0.555%	1.199%	70	9.93%
MIITSUI	JA	142,688.3	474,489.3	0.515%	1.714%	77	12.15%
MIITSUBISHI	JA	128,922.3	603,411.6	0.466%	2.180%	82	17.12%
ROYAL DUTCH SHELL	UK	128,141.7	731,553.3	0.463%	2.642%	85	17.88%
ITOCHEM	JA	126,631.9	858,185.2	0.457%	3.100%	88	19.44%
EXXON	US	122,379.0	980,564.2	0.442%	3.542%	90	19.56%
WAL-MART STORE	US	119,299.0	1,099,863.2	0.431%	3.973%	92	20.23%
MARUBENI	JA	111,121.2	1,210,984.4	0.401%	4.374%	94	22.91%
SUMITOMO	JA	102,395.2	1,313,379.6	0.370%	4.744%	96	24.76%
TOYOTA MOTORS	JA	95,137.0	1,408,516.6	0.344%	5.088%	97	25.12%
GENERAL ELECTRIC	US	90,840.0	1,499,356.6	0.328%	5.416%	98	25.17%
HISKO IWAJ	JA	81,893.8	1,581,250.4	0.296%	5.712%	99	26.08%
IBM	US	78,508.0	1,659,758.4	0.284%	5.995%	100	26.26%
NIPPON TELEGRAPH	JA	76,983.7	1,736,742.1	0.278%	6.273%		
AXA	FR	76,874.4	1,813,616.5	0.278%	6.551%		
DAIMLER-BENZ	GE	71,561.4	1,885,177.9	0.258%	6.810%		
DAEWOO	SK	71,525.8	1,956,703.7	0.258%	7.068%		
NIPOON LIFE	JA	71,388.2	2,028,091.9	0.258%	7.326%		
BRITISH PETROLEUM	UK	71,103.5	2,099,195.4	0.257%	7.583%		
HITACHI	JA	68,567.0	2,167,762.4	0.248%	7.830%		
VOLKSWAGEN	GE	65,328.2	2,233,090.6	0.236%	8.066%		
MATSUSHITA	JA	64,280.6	2,297,371.2	0.232%	8.298%		
SIEMENS	GE	63,754.6	2,361,125.8	0.230%	8.529%		
CHRYSLER	US	61,147.0	2,422,272.8	0.221%	8.750%		
MOBIL	US	59,978.0	2,482,250.8	0.217%	8.966%		
US POSTAL SERVICE	US	58,216.0	2,540,466.8	0.210%	9.177%		
ALLIANZ	GER	56,785.3	2,597,252.1	0.205%	9.382%		
PHILLIP MORRIS	US	56,114.0	2,653,366.1	0.203%	9.584%		
SONY	JA	55,033.0	2,708,399.1	0.199%	9.783%		
NISSAN MOTORS	JA	53,478.2	2,761,877.3	0.193%	9.976%		
AT&T	US	53,261.0	2,815,138.3	0.192%	10.169%		
FIAT	IT	52,568.7	2,867,707.0	0.190%	10.359%		
HONDA MOTOR	JA	48,876.3	2,916,583.3	0.177%	10.535%	110	29.68%
UNILEVER	UK	48,760.8	2,965,344.1	0.176%	10.711%		
NESTLE	SWITZ	48,253.8	3,013,597.9	0.174%	10.886%	111	30.75%
CREDIT SUISSE	SWITZ	48,242.1	3,061,840.0	0.174%	11.060%		
DAI-ICHI MUTUAL	JA	47,441.8	3,109,281.8	0.171%	11.231%		
BOEING	US	45,809.0	3,155,090.8	0.165%	11.397%		
TEXACO	US	45,187.0	3,200,277.8	0.163%	11.560%		
TOSHIBA	JA	44,467.2	3,244,745.0	0.161%	11.721%		
STATE FARM	US	43,957.0	3,288,702.0	0.159%	11.879%	112	34.16%
VEBA GROUP	GE	43,881.2	3,332,583.2	0.159%	12.038%		
ELF AQUITAINE	FR	43,572.0	3,376,155.2	0.157%	12.195%		
TOMEN	JA	43,399.7	3,419,554.9	0.157%	12.352%		
TOKYO ELECTRIC	JA	42,996.9	3,462,551.8	0.155%	12.507%	113	34.32%
HEWLETT-PACKARD	US	42,895.0	3,505,446.8	0.155%	12.662%		
SUITSUMO LIFE	JA	42,278.6	3,547,725.4	0.153%	12.815%		
DU PONT	US	41,304.0	3,589,029.4	0.149%	12.964%		
SEARS	US	41,296.0	3,630,325.4	0.149%	13.113%		
DEUTSCHE BANK	GE	40,792.0	3,671,117.4	0.147%	13.261%		
FUJITSU	JA	40,613.0	3,711,730.4	0.147%	13.407%	114	34.46%
RWE GROUP	GE	40,232.6	3,751,963.0	0.145%	13.553%		
NEC	JA	39,926.5	3,791,889.5	0.144%	13.697%		

Organization	Country	Revenues Mil US\$	Cum Revenues	% World GDP	Cum % World GDP	Number of nations to equal	Per Cent of world's Population
ROYAL PHILLIPS	NE	39.184.4	3.831.073.9	0.142%	13.838%		
DEUTSCH TELECOM	GE	38.969.1	3.870.043.0	0.141%	13.979%		
ING GROUP	NE	38.673.8	3.908.716.8	0.140%	14.119%		
TRAVELERS	US	37.608.0	3.946.324.8	0.136%	14.255%		
HSBC HOLDINGS	UK	37.474.0	3.983.798.8	0.135%	14.390%	115	34.66%
PRUDENTIAL INS	US	37.073.0	4.020.871.8	0.134%	14.524%		
ENI	IT	36.961.0	4.057.832.8	0.134%	14.658%		
ELECTRICITE DE FRAN	FR	36.672.9	4.094.505.7	0.132%	14.790%		
CHEVRON	US	36.376.0	4.130.881.7	0.131%	14.921%		
PROCTOR & GAMBLE	US	35.764.0	4.166.645.7	0.129%	15.051%		
RENAULT	FR	35.623.8	4.202.269.5	0.129%	15.179%		
PDVSA	VE	34.801.0	4.237.070.5	0.126%	15.305%	116	35.25%
BANK OF TOKYO-MITS	JA	34.749.8	4.271.820.3	0.126%	15.431%		
CITICORY	US	34.697.0	4.306.517.3	0.125%	15.556%		
BMW	GE	34.691.5	4.341.208.8	0.125%	15.681%		
CREDIT AGRICOLE	FR	34.014.9	4.375.223.7	0.123%	15.804%		
SK	SK	33.815.9	4.409.039.6	0.122%	15.926%		
AMOCO	US	32.836.0	4.441.875.6	0.119%	16.045%		
METRO	GE	32.789.6	4.474.665.2	0.118%	16.163%	117	35.37%
TOTAL	FR	32.740.6	4.507.405.8	0.118%	16.282%		
SUEZ LYONNAISE DE I	FR	32.626.7	4.540.032.5	0.118%	16.399%		
KMART	US	32.183.0	4.572.215.5	0.116%	16.516%		
BASF	GE	32.178.1	4.604.393.6	0.116%	16.632%		
PEUGOT	FR	32.003.9	4.636.397.5	0.116%	16.747%		
ALCATEL ALSTHOM G	FR	31.846.8	4.668.244.3	0.115%	16.862%		
BAYER	GE	31.731.0	4.699.975.3	0.115%	16.977%		
MERRILL LYNCH	US	31.731.0	4.731.706.3	0.115%	17.092%		
NICHIMEN	JA	31.362.1	4.763.068.4	0.113%	17.205%		
ABB ASEA BROWN BO	SWITZ	31.265.0	4.794.333.4	0.113%	17.318%		
MEIJI LIFE	JA	31.047.3	4.825.380.7	0.112%	17.430%		
MITSUBISHI ELECTRIC	JA	30.967.3	4.856.348.0	0.112%	17.542%	118	36.99%
ASSICURAZIONI GENE	IT	30.816.0	4.887.164.0	0.111%	17.653%		
J. C. PENNY	US	30.546.0	4.917.710.0	0.110%	17.764%		
AMERICAN INTERNAT	US	30.519.5	4.948.229.5	0.110%	17.874%		
MITSUBISHI MOTORS	JA	30.428.7	4.978.658.2	0.110%	17.984%		
CHASE MANHATTAN	US	30.381.0	5.009.039.2	0.110%	18.093%		
BELL ATLANTIC	US	30.193.9	5.039.233.1	0.109%	18.203%		
HOECHST	GE	30.055.2	5.069.288.3	0.109%	18.311%		
MOTOROLA	US	29.794.0	5.099.082.3	0.108%	18.419%		
TIAA-CREF	US	29.348.4	5.128.430.7	0.106%	18.525%		
PEPSICO	US	29.292.0	5.157.722.7	0.106%	18.631%	119	53.37%
CARREFOUR	FR	29.002.7	5.186.725.4	0.105%	18.735%		
ABN AMRO HOLDINGS	NE	28.945.5	5.215.670.9	0.105%	18.840%		
GAN	FR	28.936.7	5.244.607.6	0.105%	18.944%		
SOCIETE GENERAL	FR	28.724.9	5.273.332.5	0.104%	19.048%		
VIVENDI	FR	28.633.7	5.301.966.2	0.103%	19.152%		
VIAG	GE	28.581.4	5.330.547.6	0.103%	19.255%	119	53.37%
PEMEX	MEX	28.565.5	5.359.113.1	0.103%	19.358%		
LOCKHEED-MARTIN	US	28.069.0	5.387.182.1	0.101%	19.459%		
PRUDENTIAL	UK	27.905.7	5.415.087.8	0.101%	19.560%		
HYUNDI	SK	27.838.0	5.442.925.8	0.101%	19.661%		
FANNIE MAE	US	27.776.9	5.470.702.7	0.100%	19.761%		
DAYTON HUDSON	US	27.757.9	5.498.460.6	0.100%	19.861%	120	55.99%
MORGAN STANLEY	US	27.132.8	5.525.593.4	0.098%	19.959%		
ROBERT BOSCH	GE	27.072.6	5.552.666.0	0.098%	20.057%		
TESCO	UK	26.938.2	5.579.604.2	0.097%	20.154%		
INDUSTRIAL BANK OF	JA	26.917.8	5.606.522.0	0.097%	20.252%		
FRANCE TELECOM	FR	26.854.4	5.633.376.4	0.097%	20.349%		
BAT INDUSTRIES	UK	26.801.6	5.660.178.0	0.097%	20.446%		



Organization	Country	Revenues Mil \$US	Cum Revenues	% World GDP	Cum % World GDP	Number of nations to equal	Per Cent of world's Population
KROGER	US	26.567.3	5.686.745.3	0.096%	20.541%		
KANEMATSU	JA	26.506.3	5.713.251.6	0.096%	20.637%		
ZURICH INSURANCE	SWITZ	26.469.0	5.739.720.6	0.096%	20.733%		
LU'CENT TECHNOLOG	US	26.360.0	5.766.080.6	0.095%	20.828%		
BT	UK	26.293.6	5.792.374.2	0.095%	20.923%		
KOMINKLIJKE AHOLD	NE	25.920.5	5.818.294.7	0.094%	21.017%		
DIAEI	JA	25.882.2	5.844.176.9	0.093%	21.110%	121	56.30%
SAMSUNG	SK	25.803.8	5.869.980.7	0.093%	21.203%		
ITO-YOKADO	JA	25.606.7	5.895.587.4	0.092%	21.296%		
MITSU'BISHI HEAVY IN	JA	25.222.2	5.920.809.6	0.091%	21.387%		
TELECOM ITALIA	IT	25.129.9	5.945.939.5	0.091%	21.478%		
INTEL	US	25.070.0	5.971.009.5	0.091%	21.568%		
NIPPON STEEL	JA	25.062.7	5.996.072.2	0.091%	21.659%		
ALLSTATE	US	24.949.0	6.021.021.2	0.090%	21.749%		
SBS COMMUNICATION	US	24.856.0	6.045.877.2	0.090%	21.839%		
CNP ASSURANCES	FR	24.813.5	6.070.690.7	0.090%	21.928%		
UNITED TECHNOLOGI	US	24.713.0	6.095.403.7	0.089%	22.018%		
MUNCHENER RUCK	GE	24.609.2	6.120.012.9	0.089%	22.107%		
COMPAQ COMPUTERS	US	24.584.0	6.144.596.9	0.089%	22.195%		
METROPOLITIAN LIFE	US	24.374.0	6.168.970.9	0.088%	22.283%		
BANQUE NATIONAL D	FR	24.343.8	6.193.314.7	0.088%	22.371%	122	56.59%
THYSSEN	GE	24.298.3	6.217.613.0	0.088%	22.459%		
HOME DEPOT	US	24.155.7	6.241.768.7	0.087%	22.546%		
VOLVO	SWED	24.035.1	6.265.803.8	0.087%	22.633%		
CONAGRA	US	24.002.1	6.289.805.9	0.087%	22.720%		
BCE	CAN	23.973.8	6.313.779.7	0.087%	22.806%		
RAO GAZPROM	RU	23.947.7	6.337.727.4	0.087%	22.893%		
J SANSBURY	UK	23.810.7	6.361.538.1	0.086%	22.979%		
SAMSUNG ELECTRON	SK	23.809.9	6.385.348.0	0.086%	23.065%		
FORTIS	NETH	23.796.5	6.409.144.5	0.086%	23.151%		
MERK	US	23.636.9	6.432.781.4	0.085%	23.236%		
BANKAMERICA	US	23.585.0	6.456.366.4	0.085%	23.321%		
GTE	US	23.260.0	6.479.626.4	0.084%	23.406%		
FUJI BANK	JA	22.912.0	6.502.538.4	0.083%	23.488%		
CANON	JA	22.812.7	6.525.351.1	0.082%	23.571%		
SANWA BANK	JA	22.805.5	6.548.156.6	0.082%	23.653%		
JOHNSON AND JOHNS	US	22.629.0	6.570.785.6	0.082%	23.735%		
MANNESMANN	GE	22.553.5	6.593.339.1	0.081%	23.816%		
SAFEWAY	US	22.483.8	6.615.822.9	0.081%	23.897%	123	57.37%
W.A.L.T DESNEY	US	22.473.0	6.638.295.9	0.081%	23.979%		
UNITED PARCEL SERV	US	22.458.0	6.660.753.9	0.081%	24.060%		
CREDIT LYONNAIS	FR	22.420.5	6.683.174.4	0.081%	24.141%		
LLOYDS TSB GROUP	UK	22.313.1	6.705.487.5	0.081%	24.221%		
IRI	IT	22.231.6	6.727.719.1	0.080%	24.302%		
ENEL	IT	22.180.8	6.749.899.9	0.080%	24.382%		
ERICSSON	SWED	21.955.8	6.771.855.7	0.079%	24.461%		
COSTCO	US	21.874.4	6.793.730.1	0.079%	24.540%		
WESTDEUTSCHE LAN	GE	21.859.3	6.815.589.4	0.079%	24.619%		
ROYAL & SUN ALLIAN	UK	21.844.6	6.837.434.0	0.079%	24.698%		
NATIONSBANK CORP	US	21.734.0	6.859.168.0	0.079%	24.776%		
ASAHI MUT'AL LIFE	JA	21.678.2	6.880.846.2	0.078%	24.855%		
KANSAI ELECTRIC PO	JA	21.565.5	6.902.411.7	0.078%	24.933%		
DRESDNER BANK	GE	21.533.6	6.923.945.3	0.078%	25.010%		
NOVARTIS	SWIT	21.484.2	6.945.429.5	0.078%	25.088%		
SAKURA BANK	JA	21.292.3	6.966.721.8	0.077%	25.165%		
NATIONAL WESTMINS	UK	21.154.9	6.987.876.7	0.076%	25.241%		
BARCLAYS BANKUSX	UK	21.128.7	7.009.005.4	0.076%	25.318%		
USX	US	21.057.0	7.030.062.4	0.076%	25.394%		
SUMTOMO BANK	JA	21.007.9	7.051.070.3	0.076%	25.470%		

Organization	Country	Revenues Mil SUS	Cum Revenues	% World GDP	Cum % World GDP	Number of nations to equal	Per Cent of world's Population
BANK OF CHINA	PRC	20.927.4	7.071.997.7	0.076%	25.545%		
MSKESON	US	20.857.3	7.092.855.0	0.075%	25.621%		
JAPAN POSTAL SERVICE	JA	20.741.0	7.113.596.0	0.075%	25.696%		
BELI SOUTH	US	20.561.0	7.134.157.0	0.074%	25.770%		
EAST JAPAN RAILWAY	JA	20.486.6	7.154.643.6	0.074%	25.844%	124	58.06%
BANCO DO BRASIL	BR	20.310.2	7.174.953.8	0.073%	25.917%		
ENRON	US	20.273.0	7.195.226.8	0.073%	25.990%		
SAMSUNG LIFE INSUR	SK	20.269.1	7.215.495.9	0.073%	26.064%		
DIAGEO	UK	20.217.3	7.235.713.2	0.073%	26.137%		
INTERNATIONAL PAPER	US	20.096.0	7.255.809.2	0.073%	26.209%		
CIGNA	US	20.038.0	7.275.847.2	0.072%	26.282%		
DOW CHEMICAL	US	20.018.0	7.295.865.2	0.072%	26.354%		
SARA LEE	US	19.734.0	7.315.599.2	0.071%	26.425%		
DAI-ICHI KANGYO BANK	JA	19.712.7	7.335.311.9	0.071%	26.496%		
MIC COMMUNICATIONS	US	19.653.0	7.354.964.9	0.071%	26.567%		
LOEWS	US	19.647.8	7.374.612.7	0.071%	26.638%		
COMMERCIAL UNION	UK	19.590.5	7.394.203.2	0.071%	26.709%		
UNION BANK OF SWITZERLAND	SWIT	19.445.5	7.413.648.7	0.070%	26.779%		
MITSUMI MUTUAL LIFE	JA	19.433.4	7.433.082.1	0.070%	26.850%		
ATLANTIC RICHFIELD	US	19.272.0	7.452.354.1	0.070%	26.919%		
COMMERZBANK	GE	19.253.8	7.471.607.9	0.070%	26.989%		
JUSCO	JA	19.147.4	7.490.755.3	0.069%	27.058%		
AMERICAN STORES	US	19.138.9	7.509.894.2	0.069%	27.127%		
TOHO MUTUAL LIFE	JA	19.107.3	7.529.001.5	0.069%	27.196%		
PROMODES	FR	18.961.6	7.547.963.1	0.068%	27.265%		
CATERPILLAR	US	18.925.0	7.566.888.1	0.068%	27.333%		
NEW YORK LIFE	US	18.899.3	7.585.787.4	0.068%	27.401%		
YASUDA MUTUAL LIFE	JA	18.884.7	7.604.672.1	0.068%	27.469%		
COCA-COLA	US	18.868.0	7.623.540.1	0.068%	27.538%		
CHIYODA MUTUAL LIFE	JA	18.849.8	7.642.389.9	0.068%	27.606%		
COLUMBIA HCA	US	18.819.0	7.661.208.9	0.068%	27.674%		
AMR	US	18.570.0	7.679.778.9	0.067%	27.741%		
AETNA	US	18.540.2	7.698.319.1	0.067%	27.808%		
SAINT-GOBAIN	FR	18.386.8	7.716.705.9	0.066%	27.874%		
CHUBU ELECTRIC	JA	18.310.7	7.735.016.6	0.066%	27.940%	125	59.59%
GROUPE AUCHAN	FR	18.217.9	7.753.234.5	0.066%	28.006%		
XEROX	US	18.166.0	7.771.400.5	0.066%	28.072%		
IMPERICAL CHEMICAL	UK	18.121.1	7.789.521.6	0.065%	28.137%		
PERTOBRAS	BR	18.050.5	7.807.572.1	0.065%	28.202%		
BRIDGESTONE	JA	17.936.0	7.825.508.1	0.065%	28.267%		
SINOCEM	PRC	17.852.7	7.843.360.8	0.064%	28.332%		
AMERICAN EXPRESS	US	17.760.0	7.861.120.8	0.064%	28.396%		
TOKIO MARINE & FIRE	JA	17.747.4	7.878.868.2	0.064%	28.460%		
J. P. MORGAN & CO	US	17.701.0	7.896.569.2	0.064%	28.524%		
STATOIL	NOR	17.019.2	7.913.588.4	0.061%	28.585%		
DEUTSCHE BAHN	GE	17.575.1	7.931.163.5	0.063%	28.649%		
BROKEN HILL PROPERTIES	AU	17.539.9	7.948.703.4	0.063%	28.712%		
UAL	US	17.378.0	7.966.081.4	0.063%	28.775%		
ASSURANCES GENERALES	FR	17.249.2	7.983.330.6	0.062%	28.837%		
SUPERVALU	US	17.201.4	8.000.532.0	0.062%	28.899%		
NIPPON OIL	JA	17.116.5	8.017.648.5	0.062%	28.961%		
REPSOL	SP	17.074.6	8.034.723.1	0.062%	29.023%		
RJR NEBISCO	US	17.057.0	8.051.780.1	0.062%	29.084%		
FRANZ HANIEL	GE	16.907.1	8.068.687.2	0.061%	29.145%		
BAYERISCHE VEREINSBANK	GE	16.891.5	8.085.578.7	0.061%	29.206%		
LEHMAN BROTHERS FIDELITY	US	16.883.0	8.102.461.7	0.061%	29.267%		
PREUSSAG	GE	16.806.3	8.119.268.0	0.061%	29.328%		
BRISTOL-MEYERS	US	16.701.2	8.135.969.2	0.060%	29.388%		
SNCF	FR	16.653.3	8.152.622.5	0.060%	29.449%		

Organization	Country	Revenues Mil US\$	Cum Revenues	% World GDP	Cum % World GDP	Number of nations to equal	Per Cent of world's Population
MAZADA MOTORS	JA	16.630.3	8.169.252.8	0.060%	29.509%		
INGRAM MICRO	US	16.581.5	8.185.834.3	0.060%	29.569%		
SWILL BANK CORP	SWIT	16.431.6	8.202.265.9	0.059%	29.628%		
BOYGUES	FR	16.406.0	8.218.671.9	0.059%	29.687%		
LG INTERNATIONAL	SK	16.358.7	8.235.030.6	0.059%	29.746%		
DUKE ENERGY	US	16.308.9	8.251.339.5	0.059%	29.805%		
TOYOTA TSUHO	JA	16.297.3	8.267.636.8	0.059%	29.864%		
TELEFONICA DE ESPA	SPAIN	16.138.8	8.283.775.6	0.058%	29.922%		
AEGON	NETH	16.048.4	8.299.824.0	0.058%	29.980%		
AMERTICH	US	15.998.0	8.315.822.0	0.058%	30.038%	126	61.39%
COLES MYER	AUSL	15.897.5	8.331.719.5	0.057%	30.096%		
KAJIMA	JA	15.795.3	8.347.514.8	0.057%	30.153%		
NKK	JA	15.758.1	8.363.272.9	0.057%	30.210%		
SANYO ELECTRIC	JA	15.679.2	8.378.952.1	0.057%	30.266%		
FEDERATED DEPARTM	US	15.668.3	8.394.620.4	0.057%	30.323%		
DEUTSCHE POST	GE	15.054.1	8.409.674.5	0.054%	30.377%		
RIBOBANK	NETH	15.634.8	8.425.309.3	0.056%	30.434%		
LA POSTE	FR	15.535.0	8.440.844.3	0.056%	30.490%		
ROYAL KPN	NETH	15.514.3	8.456.358.6	0.056%	30.546%		
PHILLIPS PETROLEUM	US	15.424.0	8.471.782.6	0.056%	30.602%		
RHONE-POULENC	FR	15.413.0	8.487.195.6	0.056%	30.657%		
PG&E	US	15.399.9	8.502.595.5	0.056%	30.713%		
FLEMING	US	15.372.7	8.517.968.2	0.056%	30.768%		
US WEST	US	15.352.0	8.533.320.2	0.055%	30.824%		
GROUPE PINAULT-PRF	FR	15.280.0	8.548.600.2	0.055%	30.879%		
ELECTRONIC DATA SY	US	15.235.8	8.563.836.0	0.055%	30.934%		
GENERAL ACCIDENT	UK	15.231.4	8.579.067.4	0.055%	30.989%		
CIE FINANCIER DE PAI	FR	15.223.3	8.594.290.7	0.055%	31.044%		
GROUPE DANOME	FR	15.159.5	8.609.450.2	0.055%	31.099%		
MINNESOTA MINING	US	15.070.0	8.624.520.2	0.054%	31.153%		
MYCAL	JA	15.005.8	8.639.526.0	0.054%	31.207%		
SWILL LIFE INSURANC	SWITZ	14.933.7	8.654.459.7	0.054%	31.261%		
TASEI	JA	14.912.8	8.669.372.5	0.054%	31.315%		
SANTANDER GROUP	SPAIN	14.886.0	8.684.258.5	0.054%	31.369%		
SPRINT	US	14.873.9	8.699.132.4	0.054%	31.423%		
SWISS REINSURANCE	SWITZ	14.837.1	8.713.969.5	0.054%	31.476%		
ELECTROLUX	SWED	14.790.8	8.728.760.3	0.053%	31.530%		
EASTMAN KODAK	US	14.713.0	8.743.473.3	0.053%	31.583%		
LG ELECTRONICS	SK	14.699.6	8.758.172.9	0.053%	31.636%		
ALBERTSON'S	US	14.689.5	8.772.862.4	0.053%	31.689%		
TELEBRAS	BR	14.666.1	8.787.528.5	0.053%	31.742%		
ISUZU MOTORS	JA	14.660.3	8.802.188.8	0.053%	31.795%		
SHARP	JA	14.586.5	8.816.775.3	0.053%	31.848%		
NORINCHUNKIN BANF	JA	14.582.6	8.831.357.9	0.053%	31.900%		
STANDARD LIFE ASSU	UK	14.519.9	8.845.877.8	0.052%	31.953%		
NIPPON EXPRESS	JA	14.512.5	8.860.390.3	0.052%	32.005%		
KRUPP AG	GE	14.477.8	8.874.868.1	0.052%	32.058%		
ALLIED SIGNA	US	14.472.0	8.889.340.1	0.052%	32.110%		
DELHAIZE LE LION	BEL	14.466.2	8.903.806.3	0.052%	32.162%		
SYSCO	US	14.454.6	8.918.260.9	0.052%	32.214%		
RAG	GE	14.402.8	8.932.663.7	0.052%	32.266%		
FEDERAL HOME LOAN	US	14.399.0	8.947.062.7	0.052%	32.318%		
FIRST UNION	US	14.329.0	8.961.391.7	0.052%	32.370%		
SHIMIZU	JA	14.312.4	8.975.704.1	0.052%	32.422%		
FLUOR	US	14.298.5	8.990.002.6	0.052%	32.473%		
INDIAN OIL	INDIA	14.249.2	9.004.251.8	0.051%	32.525%		
HYPO-BANK	GE	14.230.3	9.018.482.1	0.051%	32.576%		
AMERICAN HOME PRG	US	14.196.0	9.032.678.1	0.051%	32.628%		
BRITISH AIRWAYS	UK	14.191.2	9.046.869.3	0.051%	32.679%	127	82.54%

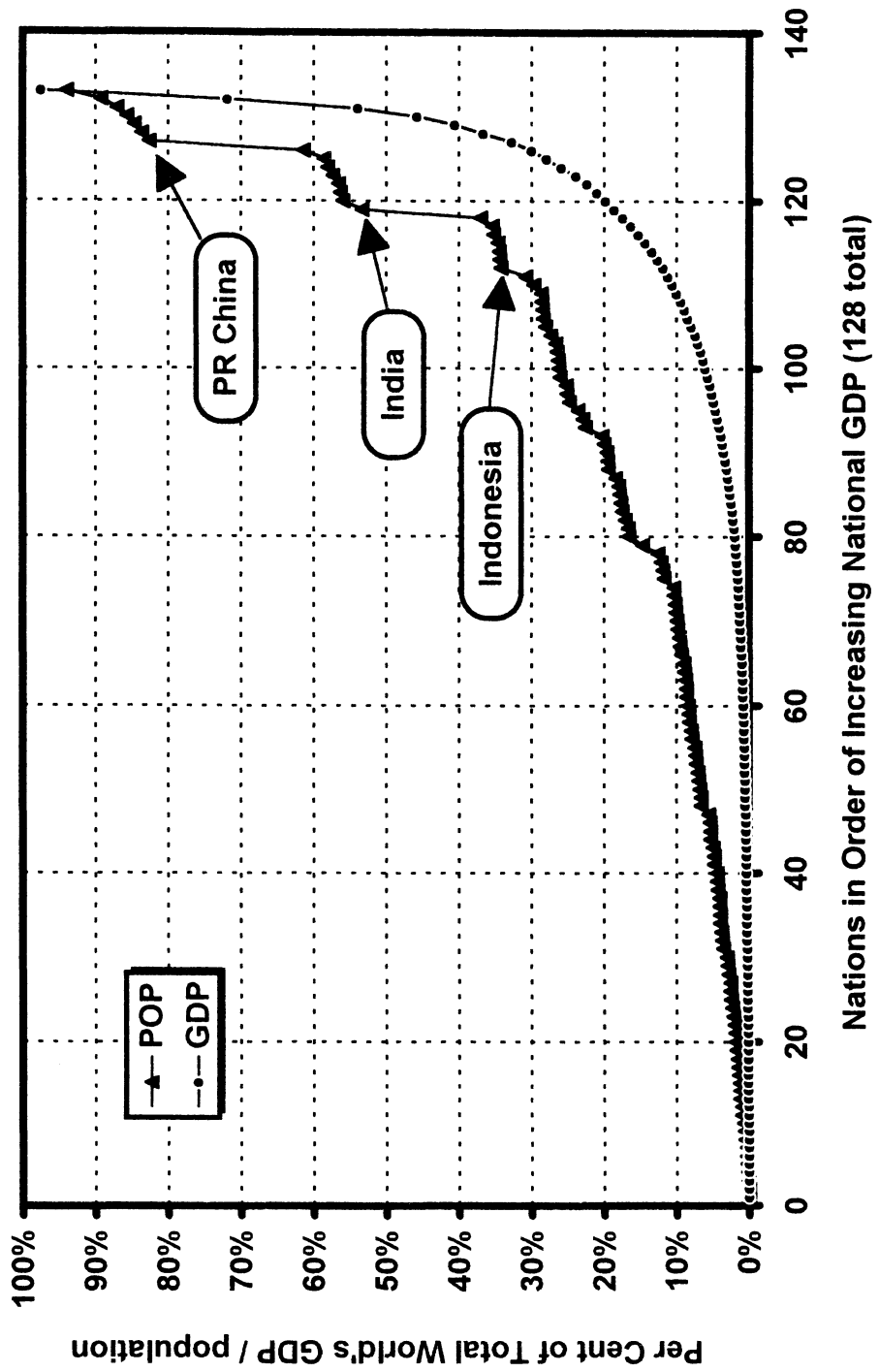
Organization	Country	Revenues Mil US\$	Cum Revenues	% World GDP	Cum % World GDP	Number of nations to equal	Per Cent of world's Population
ABBEEY NATIONAL	UK	14.171.5	9.061.040.8	0.051%	32.730%		
JAPAN TOCACCO	JA	14.124.8	9.075.165.6	0.051%	32.781%		
MITSUBISHI CHEMICAL	JA	14.121.8	9.089.287.4	0.051%	32.832%		
KOREA ELECTRIC POWER	SK	14.064.3	9.103.351.7	0.051%	32.883%		
BERTELSMANN	GE	14.006.2	9.117.357.9	0.051%	32.933%		
MONTEDISON	IT	13.897.2	9.131.255.1	0.050%	32.984%		
ARCHER DANIELS MIDDLEBURY	US	13.853.3	9.145.108.4	0.050%	33.034%		
PERTOFINA	BEL	13.820.9	9.158.929.3	0.050%	33.084%		
GROUPS CAISSE D'EPARGNE	FR	13.765.2	9.172.694.5	0.050%	33.133%		
KARSTADT	GE	13.720.4	9.186.414.9	0.050%	33.183%		
RATHEON	US	13.673.5	9.200.088.4	0.049%	33.232%		
MICHELIN	FR	13.654.5	9.213.742.9	0.049%	33.282%		
TAIYO MUTUAL LIFE	JA	13.606.7	9.227.349.6	0.049%	33.331%		
DELTA AIR LINES	US	13.590.0	9.240.939.6	0.049%	33.380%		
NORSK HYDRO	NOR	13.585.1	9.254.524.7	0.049%	33.429%		
DENSO	JA	13.582.6	9.268.107.3	0.049%	33.478%		
ASHLAND	US	13.567.0	9.281.674.3	0.049%	33.527%		
MARKS AND SPENCER	UK	13.536.5	9.295.210.8	0.049%	33.576%		
COFCO	PRC	13.526.0	9.308.736.8	0.049%	33.625%		
VIACOM	US	13.504.5	9.322.241.3	0.049%	33.674%		
ALCOA	US	13.481.7	9.335.723.0	0.049%	33.722%		
NORTHWESTERN MUTUAL	US	13.429.9	9.349.152.9	0.049%	33.771%		
NGC	US	13.387.4	9.362.540.3	0.048%	33.819%		
WALGREEN	US	13.363.0	9.375.903.3	0.048%	33.867%		
LUFTHANSA GROUP	GE	13.353.9	9.389.257.2	0.048%	33.916%		
MAN	GE	13.343.9	9.402.601.1	0.048%	33.964%		
HARTFORD FINANCIAL SERVICES	US	13.305.0	9.415.906.1	0.048%	34.012%		
TIME WARNER	US	13.294.0	9.429.200.1	0.048%	34.060%		
TOSCO	US	13.281.9	9.442.482.0	0.048%	34.108%		
IBP	US	13.288.8	9.455.770.8	0.048%	34.156%		
BTR	UK	13.254.2	9.469.025.0	0.048%	34.204%		
BAYERISCHE LANDESBANK	GE	13.252.3	9.482.277.3	0.048%	34.252%		
BANC ONE CORP	US	13.219.1	9.495.496.4	0.048%	34.299%		
WINN-DIXIE	US	13.218.7	9.508.715.1	0.048%	34.347%		
GOODYEAR	US	13.155.1	9.521.870.2	0.048%	34.395%		
JAPAN ENERGY	JA	13.106.3	9.534.976.5	0.047%	34.442%		
GEORGIA-PACIFIC	US	13.094.0	9.548.070.5	0.047%	34.489%		
CVS	US	13.094.0	9.561.164.5	0.047%	34.537%		
GLAXO-WELCOME	UK	13.072.3	9.574.236.8	0.047%	34.584%		
GROUPE CASINO	FR	13.065.9	9.587.302.7	0.047%	34.631%		
DIGITAL EQUIPMENT	US	13.046.8	9.600.349.5	0.047%	34.678%		
IDENMITSU KOSAN	JA	13.021.5	9.613.371.0	0.047%	34.725%		
TOHOKU ELECTRIC	JA	13.017.0	9.626.388.0	0.047%	34.772%		
ROCHE HOLDINGS	SWITZ	12.937.2	9.639.325.2	0.047%	34.819%		
JAPAN AIRLINES	JA	12.884.0	9.652.209.2	0.047%	34.865%		
CENTRICA	UK	12.846.3	9.665.055.5	0.046%	34.912%		
ROYAL BANK OF CANADA	CAN	12.810.2	9.677.865.7	0.046%	34.958%		
HALIFAX	UK	12.803.3	9.690.669.0	0.046%	35.004%		
DEERE	US	12.791.4	9.703.460.4	0.046%	35.051%		
DENTSU	JA	12.777.9	9.716.238.3	0.046%	35.097%		
SMITHKLINE BEECHAM	UK	12.769.3	9.729.007.6	0.046%	35.143%		
JAPAN TRAVEL	JA	12.757.5	9.741.765.1	0.046%	35.189%		
AACHENER & MUNCHING	GE	12.745.1	9.754.510.2	0.046%	35.235%		
MAY DEPARTEMENT STORES	US	12.685.0	9.767.195.2	0.046%	35.281%		
DANCO DRADESCO	BR	12.666.4	9.779.861.6	0.046%	35.327%		
TAKENAKA	JA	12.662.5	9.792.524.1	0.046%	35.372%		
NATIONWIDE INSURANCE	US	12.644.4	9.805.168.5	0.046%	35.418%		
SOUTHERN	US	12.611.0	9.817.779.5	0.046%	35.463%		
BANCO BILBAO VIZCAYA	SPAIN	12.589.2	9.830.368.7	0.045%	35.509%		

Organization	Country	Revenues Mil \$US	Cum Revenues	% World GDP	Cum % World GDP	Number of nations to equal	Per Cent of world's Population
SEAGRAM	CAN	12.560.0	9.842.928.7	0.045%	35.554%		
KIMBERLY-CLARK	US	12.546.6	9.855.475.3	0.045%	35.600%		
KYOEI LIFE	JA	12.546.2	9.868.021.5	0.045%	35.645%		
KOBE STEEL	JA	12.506.1	9.880.527.6	0.045%	35.690%		
PFIZER	US	12.504.0	9.893.031.6	0.045%	35.735%		
DEUTSCHE GENOSSEN	GE	12.453.0	9.905.484.6	0.045%	35.780%		
NATIONAL AUSTRAL	AUSTRA	12.443.9	9.917.928.5	0.045%	35.825%		
WOOLWORTH	AUSTRA	12.443.5	9.930.372.0	0.045%	35.870%		
BANKGESELLSCHAFT	GE	13.429.0	9.943.801.0	0.049%	35.919%		
HYUNDAI MOTOR	SK	12.391.6	9.956.192.6	0.045%	35.963%		
OTTO VERSAND	GE	12.382.7	9.968.575.3	0.045%	36.008%		
USINOR	FR	12.336.7	9.980.912.0	0.045%	36.053%		
AKSO NOBEL	HETH	12.328.6	9.993.240.6	0.045%	36.097%		
DELL COMPUTER	US	12.327.0	10.005.567.6	0.045%	36.142%		
EMERSON ELECTRIC	US	12.298.6	10.017.866.2	0.044%	36.186%		
CANADIAN IMPERIAL	CA	12.298.4	10.030.164.6	0.044%	36.231%		
BANKERS TRUST	US	12.176.0	10.042.340.6	0.044%	36.275%		
PECHINEY	FR	12.133.5	10.054.474.1	0.044%	36.318%		
SUZUKI MOTORS	JA	12.128.3	10.066.602.4	0.044%	36.362%		
OBAYASHI	JA	12.117.7	10.078.720.1	0.044%	36.406%		
TOKAI BANK	JA	12.103.8	10.090.823.9	0.044%	36.450%		
POHANG IRON & STEE	SK	12.090.8	10.102.914.7	0.044%	36.493%		
ITAUSA-INVESTMENT	BR	12.045.7	10.114.960.4	0.044%	36.537%		
MARRIOTT INTERNAT	US	12.034.0	10.126.994.4	0.043%	36.580%		
SUMITOMO METAL IN	JA	11.970.5	10.138.964.9	0.043%	36.624%		
SEKISUI HOUSE	JA	11.949.9	10.150.914.8	0.043%	36.667%	128	83.55%
BRITISH AEROSPACE	BR	11.904.3	10.162.819.1	0.043%	36.710%		
MIGROS	SWITZ	11.894.2	10.174.713.3	0.043%	36.753%		
TELSTRA	AUSTRA	11.880.6	10.186.593.9	0.043%	36.796%		
ABBOT LABORATORII	US	11.883.5	10.198.477.4	0.043%	36.839%		
ISTITUTO BANC	IT	11.876.9	10.210.354.3	0.043%	36.882%		
L'OREAL	FR	11.843.2	10.222.197.5	0.043%	36.924%		
UNITED HEALTHCARE	US	11.794.0	10.233.991.5	0.043%	36.967%		
KYUSHU ELECTRIC	JA	11.764.0	10.245.755.5	0.042%	37.009%		
ROCKWELL INTERNA	US	11.759.0	10.257.514.5	0.042%	37.052%		
LIBERTY MUTUAL	US	11.670.0	10.269.184.5	0.042%	37.094%		
DAIDO LIFE INSURAN	JA	11.665.2	10.280.849.7	0.042%	37.136%		
BERGEN BRUNSWIG	US	11.660.5	10.292.510.2	0.042%	37.178%		
LAGARDERE GROUPE	FR	11.654.8	10.304.165.0	0.042%	37.220%		
YASUDA FIRE & MAR	JA	11.637.3	10.315.802.3	0.042%	37.262%		
HENKEL	GE	11.575.0	10.327.377.3	0.042%	37.304%		
JARDINE MATHESON	PRC	11.521.6	10.338.898.9	0.042%	37.346%		
FDX	US	11.519.8	10.350.418.7	0.042%	37.387%		
CABLE & WIRELESS	UK	11.496.5	10.361.915.2	0.042%	37.429%		
LONG-TERM CREDIT J	JA	11.486.9	10.373.402.1	0.041%	37.470%		
SAFWAY	UK	11.459.8	10.384.861.9	0.041%	37.512%		
RICHON	JA	11.432.2	10.396.294.1	0.041%	37.553%		
MCDONALDS	US	11.408.8	10.407.702.9	0.041%	37.594%		
BRITISH STEEL	UK	11.407.8	10.419.110.7	0.041%	37.636%		
JOHNSON CONTROLS	US	11.387.4	10.430.498.1	0.041%	37.677%		
MICROSOFT	US	11.358.0	10.441.856.1	0.041%	37.718%		
COCA-COLA	US	11.278.0	10.453.134.1	0.041%	37.758%		
NEWS CORP	AUSTL	11.262.3	10.464.396.4	0.041%	37.799%		
KAWASHO	JA	11.240.7	10.475.637.1	0.041%	37.840%		
FUJI PHOTO FILM	JA	11.226.2	10.486.863.3	0.041%	37.880%		
PUBLIX	US	11.224.4	10.498.087.7	0.041%	37.921%		
WEYERHAUESER	US	11.210.0	10.509.297.7	0.040%	37.961%		
ASDA GROUP	UK	11.096.1	10.520.393.8	0.040%	38.001%		
ANHEUSER-BUSCH	US	11.066.2	10.531.460.0	0.040%	38.041%		

Organization	Country	Revenues	Cum	% World	Cum %	Number	Per Cent
		Mil \$US	Revenues	GDP	World GDP	of nations to equal	of world's Population
OCCIDENTAL PETROL	US	11.061.0	10.542.521.0	0.040%	38.081%		
TOYS R US	US	11.037.8	10.553.558.8	0.040%	38.121%		
UNION PACIFIC	US	11.014.0	10.564.572.8	0.040%	38.161%		
PETRONAS	MAL	10.995.4	10.575.568.2	0.040%	38.201%		
OJI PAPER	JA	10.987.1	10.586.555.3	0.040%	38.240%		
ASAHI GLASS	JA	10.971.0	10.597.526.3	0.040%	38.280%		
CARDINAL HEALTH	US	10.968.0	10.608.494.3	0.040%	38.320%		
DAI NIPPON PRINTING	JA	10.888.5	10.619.382.8	0.039%	38.359%		
NIPPON DENTAL INSU	JA	10.851.7	10.630.234.5	0.039%	38.398%		
METALLGELLSCHAFT	GE	10.831.4	10.641.065.9	0.039%	38.437%		
TRW	US	10.831.3	10.651.897.2	0.039%	38.476%		
SWISS POST	SWITZ	10.830.5	10.662.727.7	0.039%	38.516%		
SCHLUMBERGER	NA	10.754.4	10.673.482.1	0.039%	38.554%		
CHINESE PETROLEUM	TAIWAN	10.729.1	10.684.211.2	0.039%	38.593%		
FUJI HEAVY INDUSTRI	JA	10.622.8	10.694.834.0	0.038%	38.632%		
CSX	US	10.621.0	10.705.455.0	0.038%	38.670%		
BANK OF MONTREAL	CA	10.573.2	10.716.028.2	0.038%	38.708%		
KAWASAKI HEAVY IN	JA	10.567.6	10.726.595.8	0.038%	38.746%		
SUMITOMO ELECTRIC	JA	10.566.6	10.737.162.4	0.038%	38.784%		
TEXAS INSTRUMENTS	US	10.562.0	10.747.724.4	0.038%	38.823%		
TEXTRON	US	10.544.0	10.758.268.4	0.038%	38.861%		
KINGFISHER	UK	10.486.6	10.768.755.0	0.038%	38.899%		
TAKASHIMAYA	JA	10.463.9	10.779.218.9	0.038%	38.936%		
TOPPAN PRINTING	JA	10.461.2	10.789.680.1	0.038%	38.974%		
COSMO OIL	JA	10.453.6	10.800.133.7	0.038%	39.012%		
ASAHI CHEMICAL IND	JA	10.441.0	10.810.574.7	0.038%	39.050%		
BERKSHIRE HATHAW	US	10.430.0	10.821.004.7	0.038%	39.087%		
CENTRAL JAPAN RAIL	JA	10.414.0	10.831.418.7	0.038%	39.125%		
GAZ DE FRANCE	FR	10.339.2	10.841.757.9	0.037%	39.162%		
MATSUSHITA ELECTR	JA	10.333.0	10.852.090.9	0.037%	39.200%		
GENERALE BANK	BEL	10.310.5	10.862.401.4	0.037%	39.237%		
REPUBLIC INDUSTRIE	US	10.305.6	10.872.707.0	0.037%	39.274%		
GENERAL ELECTRIC	BR	10.294.4	10.883.001.4	0.037%	39.311%		
TRASCANADA PIPELIN	CA	10.287.6	10.893.289.0	0.037%	39.348%		
A & P	US	10.262.2	10.903.551.2	0.037%	39.385%		
NORTHWEST AIRLINE	US	10.225.8	10.913.777.0	0.037%	39.422%		
UPM-KYMMENE	FIN	10.211.2	10.923.988.2	0.037%	39.459%		
AIR FRANCE GROUP	FE	10.185.7	10.934.173.9	0.037%	39.496%		
SNOW BRAND MILK	JA	10.159.3	10.944.333.2	0.037%	39.533%		
LOWES	US	10.136.9	10.954.470.1	0.037%	39.569%		
NOKIA	FIN	10.134.9	10.964.605.0	0.037%	39.606%		
KAWASAKI STEEL	JA	10.132.4	10.974.737.4	0.037%	39.643%		
BRITISH POST OFFICE	UK	10.106.4	10.984.843.8	0.037%	39.679%		
FIRST CHICAGO NBD	US	10.098.0	10.994.941.8	0.036%	39.716%		
SEIYU	JA	10.074.6	11.005.016.4	0.036%	39.752%		
GILLETTE	US	10.062.1	11.015.078.5	0.036%	39.788%		
GORGE WESTON	CA	10.055.1	11.025.133.6	0.036%	39.825%		
WEST JAPAN RAILWA	JA	10.013.1	11.035.146.7	0.036%	39.861%		
SKANDIA GROUP	SWED	10.011.5	11.045.158.2	0.036%	39.897%		
CARIPLO	IT	9.993.6	11.055.151.8	0.036%	39.933%		
SHOWA SHELL SEKIYU	JA	9.984.0	11.065.135.8	0.036%	39.969%		
GASUNIE	NETH	9.946.9	11.075.082.7	0.036%	40.005%		
MITSUBISHI TRUST &	JA	9.934.8	11.085.017.5	0.036%	40.041%		
BANCA COMMERCIAL	IT	9.921.5	11.094.939.0	0.036%	40.077%		
SEPI	SP	9.916.4	11.104.855.4	0.036%	40.113%		
BANCA DI ROMA	IT	9.913.7	11.114.769.1	0.036%	40.148%		
EDEKA ZENTRAL	GE	9.887.3	11.124.656.4	0.036%	40.184%		
KYOBE LIFE	SK	9.821.5	11.134.477.9	0.035%	40.220%		
BESTFOODS	US	9.818.4	11.144.296.3	0.035%	40.255%		

		Revenues	Cum	% World	Cum %	Number	Per Cent
Organization	Country	Mil US\$	Revenues	GDP	World GDP	of nations	of world's
						to equal	Population
AEROSPATIALE	FR	9.767.5	11,154.063.8	0.035%	40.290%		
MITSUBISHI MATERIA	JA	9.743.2	11,163.807.0	0.035%	40.326%		
INCHCAPE	BR	9.716.4	11,173.523.4	0.035%	40.361%		
CATHAY LIFE	TAI	9.695.7	11,183.219.1	0.035%	40.396%		
PENINSULAR & ORIEN	UK	9.693.8	11,192.912.9	0.035%	40.431%		
NORWEST CORP	US	9.659.7	11,202.572.6	0.035%	40.466%		
CBS	US	9.632.0	11,212.204.6	0.035%	40.500%		
WELLS-FARGO	US	9.608.0	11,221.812.6	0.035%	40.535%		
DDI	JA	9.599.3	11,231.411.9	0.035%	40.570%	129	84.58%
BANK OF NOVA SCOTIA	CAN	9.594.2	11,241.006.1	0.035%	40.604%		
ENTERGY	US	9.561.7	11,250.567.8	0.035%	40.639%		
MASSACHUSETTS MUT	US	9.551.2	11,260.119.0	0.035%	40.673%		
MONSANTO	US	9.457.0	11,269.576.0	0.034%	40.708%		
MITUSI FUDOSAN	JA	9.439.4	11,279.015.4	0.034%	40.742%		
COASTAL	US	9.398.6	11,288.414.0	0.034%	40.776%		
H. J. HEINZ	US	9.657.0	11,298.071.0	0.035%	40.811%		
NORWICH UNION	UK	9.285.0	11,307.356.0	0.034%	40.844%		
WASTE MANAGEMEN	US	9.273.4	11,316.629.4	0.033%	40.878%		
KUMAGAI GUMI	JA	9.240.6	11,325.870.0	0.033%	40.911%		
EDISON INTERNATIONAL	US	9.235.1	11,335.105.1	0.033%	40.944%		
BANCA NAZIONALE DI	IT	9.198.4	11,344.303.5	0.033%	40.978%		
LIMITED	US	9.188.8	11,353.492.3	0.033%	41.011%		
NIKE	US	9.186.5	11,362.678.8	0.033%	41.044%		
CEA-INDUSTRIE	FR	9.184.6	11,371.863.4	0.033%	41.077%		
NORTHROP GRUMMAN	US	9.153.0	11,381.016.4	0.033%	41.110%		
DEGUSSA	GE	9.148.2	11,390.164.6	0.033%	41.143%		
FARMLAND INDUSTRIE	US	9.147.5	11,399.312.1	0.033%	41.176%		
CREDITO ITALIANO	IT	9.130.6	11,408.442.7	0.033%	41.209%		
AUS & NZ BANKING	AUSL	9.115.7	11,417.558.4	0.033%	41.242%		
COLGATE-PALMOLIVE	US	9.056.7	11,426.615.1	0.033%	41.275%		
KOMATSU	JA	8,994.3	11,435.609.4	0.032%	41.307%		
PACIFICARE HEALTH	US	8,982.7	11,444.592.1	0.032%	41.340%		
SUN	US	8,968.0	11,453.560.1	0.032%	41.372%		

Cumulative Totals of World's Population and GDP in Per Cent  
 source: World Development Report 1997 (World Bank)



NATLGNP1.XLS



## Cumulative GDP Population Data

Source: The World Bank  
sorted in increasing total GNP order

World Bank order	count	Population (millions) mid-1995	Per Capita		total GNP (Millions)	Cum GNP Millions	Cum % World GDP	Cum Pop Millions	Cum % World Pop
			GNP Dollars	1995					
16	1	Guinea-Bissau	1.1	250	\$267.50	\$267.5	0.00%	1.1	0.02%
25	2	Gambia, The	1.1	320	\$356.16	\$623.7	0.00%	2.2	0.04%
8	3	Sierra Leone	4.2	180	\$755.10	\$1,378.8	0.00%	6.4	0.11%
23	4	Mongolia	2.5	310	\$762.91	\$2,141.7	0.01%	8.8	0.16%
4	5	Burundi	6.3	160	\$1,002.24	\$3,143.9	0.01%	15.1	0.27%
36	6	Mauritania	2.3	460	\$1,046.04	\$4,190.0	0.02%	17.4	0.31%
26	7	Central African Republ	3.3	340	\$1,113.50	\$5,303.5	0.02%	20.7	0.36%
7	8	Rwanda	6.4	180	\$1,152.00	\$6,455.5	0.02%	27.1	0.48%
6	9	Chad	6.4	180	\$1,160.64	\$7,616.1	0.03%	33.5	0.59%
24	10	Togo	4.1	310	\$1,266.35	\$8,882.4	0.03%	37.6	0.66%
1	11	Mozambique	16.2	80	\$1,293.44	\$10,175.9	0.04%	53.8	0.95%
50	12	Lesotho	2.0	770	\$1,524.60	\$11,700.5	0.04%	55.7	0.98%
5	13	Malawi	9.8	170	\$1,658.69	\$13,359.2	0.05%	65.5	1.15%
30	14	Nicaragua	4.4	380	\$1,662.50	\$15,021.7	0.05%	69.9	1.23%
28	15	Lao PDR	4.9	350	\$1,708.70	\$16,730.4	0.06%	74.7	1.32%
46	16	Congo	2.6	680	\$1,790.44	\$18,520.8	0.07%	77.4	1.36%
17	17	Haiti	7.2	250	\$1,792.00	\$20,312.8	0.07%	84.5	1.49%
53	18	Macedonia, FYR	2.1	860	\$1,822.34	\$22,135.2	0.08%	86.7	1.53%
10	19	Niger	9.0	220	\$1,986.16	\$24,121.3	0.09%	95.7	1.69%
29	20	Benin	5.5	370	\$2,025.75	\$26,147.1	0.09%	101.2	1.78%
45	21	Albania	3.3	670	\$2,184.20	\$28,331.3	0.10%	104.4	1.84%
34	22	Georgia <sup>1</sup>	5.4	440	\$2,376.00	\$30,707.3	0.11%	109.8	1.94%
11	23	Burkina Faso	10.4	230	\$2,386.71	\$33,094.0	0.12%	120.2	2.12%
18	24	Mali	9.8	250	\$2,447.00	\$35,541.0	0.13%	130.0	2.29%
21	25	Cambodia	10.0	270	\$2,706.48	\$38,247.5	0.14%	140.0	2.47%
49	26	Armenia <sup>1</sup>	3.8	730	\$2,744.80	\$40,992.3	0.15%	143.8	2.53%
76	27	Namibia	1.5	2,000	\$3,090.00	\$44,082.3	0.16%	145.3	2.56%
12	28	Madagascar	13.7	230	\$3,139.73	\$47,222.0	0.17%	159.0	2.80%
47	29	Kyrgyz Republic <sup>1</sup>	4.5	700	\$3,160.50	\$50,382.5	0.18%	163.5	2.88%
40	30	Honduras	5.9	600	\$3,554.40	\$53,936.9	0.19%	169.4	2.99%
3	31	Tanzania <sup>d</sup>	29.6	120	\$3,557.52	\$57,494.4	0.21%	199.1	3.51%
32	32	Zambia	9.0	400	\$3,591.20	\$61,085.6	0.22%	208.0	3.67%
37	33	Azerbaijan <sup>1</sup>	7.5	480	\$3,604.80	\$64,690.4	0.23%	215.5	3.80%
39	34	Guinea	6.6	550	\$3,625.05	\$68,315.5	0.25%	222.1	3.92%
95	35	Gabon	1.1	3,490	\$3,758.73	\$72,074.2	0.26%	223.2	3.93%
67	36	Jamaica	2.5	1,510	\$3,808.37	\$75,882.6	0.27%	225.7	3.98%
94	37	Mauritius	1.1	3,380	\$3,812.64	\$79,695.2	0.29%	226.9	4.00%
20	38	Yemen, Rep.	15.3	260	\$3,970.72	\$83,665.9	0.30%	242.1	4.27%
54	39	Moldova <sup>1</sup>	4.3	920	\$3,996.48	\$87,662.4	0.32%	246.5	4.34%
87	40	Estonia <sup>1</sup>	1.5	2,860	\$4,252.82	\$91,915.2	0.33%	248.0	4.37%
9	41	Nepal	21.5	200	\$4,291.20	\$96,206.4	0.35%	269.4	4.75%
89	42	Botswana	1.5	3,020	\$4,379.00	\$100,585.4	0.36%	270.9	4.77%
33	43	Angola	10.8	410	\$4,416.52	\$105,001.9	0.38%	281.6	4.96%
14	44	Uganda	19.2	240	\$4,600.32	\$109,602.3	0.40%	300.8	5.30%
97	45	Trinidad and Tobago	1.3	3,770	\$4,851.99	\$114,454.2	0.41%	302.1	5.33%
60	46	Papua New Guinea	4.3	1,160	\$4,990.32	\$119,444.6	0.43%	306.4	5.40%
41	47	Senegal	8.5	600	\$5,080.80	\$124,525.4	0.45%	314.9	5.55%
2	48	Ethiopia	56.4	100	\$5,640.40	\$130,165.8	0.47%	371.3	6.54%
79	49	Latvia <sup>1</sup>	2.5	2,270	\$5,711.32	\$135,877.1	0.49%	373.8	6.59%
52	50	Bolivia	7.4	800	\$5,931.20	\$141,808.3	0.51%	381.2	6.72%
38	51	Zimbabwe	11.0	540	\$5,945.94	\$147,754.2	0.53%	392.2	6.91%
68	52	Jordan	4.2	1,510	\$6,360.12	\$154,114.3	0.56%	396.4	6.99%
31	53	Ghana	17.1	390	\$6,659.25	\$160,773.6	0.58%	413.5	7.29%

## Cumulative GDP Population Data

74	54 Lithuania <sup>1</sup>	3.7	1,900	\$7,058.50	\$167,832.1	0.61%	417.2	7.35%
84	55 Panama	2.6	2,750	\$7,235.25	\$175,067.3	0.63%	419.9	7.40%
22	56 Kenya	26.7	280	\$7,472.64	\$182,540.0	0.66%	446.5	7.87%
72	57 Paraguay	4.8	1,690	\$8,159.32	\$190,699.3	0.69%	451.4	7.96%
43	58 Cameroon	13.3	650	\$8,637.20	\$199,336.5	0.72%	464.7	8.19%
81	59 Costa Rica	3.4	2,610	\$8,871.39	\$208,207.9	0.75%	468.1	8.25%
70	60 El Salvador	5.6	1,610	\$9,053.03	\$217,260.9	0.78%	473.7	8.35%
44	61 Côte d'Ivoire	14.0	660	\$9,225.48	\$226,486.4	0.82%	487.7	8.60%
102	62 Oman	2.2	4,820	\$10,584.72	\$237,071.1	0.86%	489.9	8.63%
82	63 Lebanon	4.0	2,660	\$10,653.30	\$247,724.4	0.89%	493.9	8.71%
61	64 Bulgaria	8.4	1,330	\$11,183.97	\$258,908.4	0.94%	502.3	8.85%
65	65 Dominican Republic	7.8	1,460	\$11,420.12	\$270,328.5	0.98%	510.1	8.99%
48	66 Sri Lanka	18.1	700	\$12,679.80	\$283,008.3	1.02%	528.2	9.31%
63	67 Guatemala	10.6	1,340	\$14,232.45	\$297,240.8	1.07%	538.8	9.50%
92	68 Croatia	4.8	3,250	\$15,528.50	\$312,769.3	1.13%	543.6	9.58%
59	69 Syrian Arab Republic	14.1	1,120	\$15,805.44	\$328,574.7	1.19%	557.7	9.83%
88	70 Slovak Republic	5.4	2,950	\$15,838.55	\$344,413.2	1.24%	563.1	9.93%
64	71 Ecuador	11.5	1,390	\$15,953.03	\$360,366.3	1.30%	574.6	10.13%
106	72 Slovenia	2.0	8,200	\$16,334.40	\$376,700.7	1.36%	576.5	10.16%
73	73 Tunisia	9.0	1,820	\$16,356.34	\$393,057.0	1.42%	585.5	10.32%
103	74 Uruguay	3.2	5,170	\$16,461.28	\$409,518.3	1.48%	588.7	10.38%
15	75 Vietnam	73.5	240	\$17,634.00	\$427,152.3	1.54%	662.2	11.67%
77	76 Belarus <sup>f</sup>	10.3	2,070	\$21,401.73	\$448,554.0	1.62%	672.5	11.86%
62	77 Kazakhstan <sup>1</sup>	16.6	1,330	\$22,085.98	\$470,640.0	1.70%	689.1	12.15%
55	78 Uzbekistan <sup>1</sup>	22.8	970	\$22,087.87	\$492,727.9	1.78%	711.9	12.55%
13	79 Bangladesh	119.8	240	\$28,744.32	\$521,472.2	1.88%	831.7	14.66%
19	80 Nigeria	111.3	260	\$28,930.98	\$550,403.2	1.99%	943.0	16.62%
114	81 Kuwait	1.7	17,390	\$28,936.96	\$579,340.1	2.09%	944.6	16.65%
58	82 Morocco	26.6	1,110	\$29,483.82	\$608,824.0	2.20%	971.2	17.12%
66	83 Romania	22.7	1,480	\$33,584.16	\$642,408.1	2.32%	993.9	17.52%
98	84 Czech Republic	10.3	3,870	\$39,984.84	\$682,393.0	2.46%	1004.2	17.70%
100	85 Hungary	10.2	4,120	\$42,143.48	\$724,536.4	2.62%	1014.4	17.88%
115	86 United Arab Emirates	2.5	17,400	\$42,804.00	\$767,340.4	2.77%	1016.9	17.93%
69	87 Algeria	28.0	1,600	\$44,734.40	\$812,074.8	2.93%	1044.9	18.42%
51	88 Egypt, Arab Rep.	57.8	790	\$45,662.00	\$857,736.8	3.10%	1102.7	19.44%
111	89 New Zealand	3.6	14,340	\$51,638.34	\$909,375.2	3.28%	1106.3	19.50%
112	90 Ireland	3.6	14,710	\$52,750.06	\$962,125.2	3.48%	1109.8	19.56%
80	91 Peru	23.8	2,310	\$55,021.89	\$1,017,147.1	3.67%	1133.7	19.98%
101	92 Chile	14.2	4,160	\$59,176.00	\$1,076,323.1	3.89%	1147.9	20.23%
35	93 Pakistan	129.9	460	\$59,756.30	\$1,136,079.4	4.10%	1277.8	22.52%
90	94 Venezuela	21.7	3,020	\$65,446.42	\$1,201,525.8	4.34%	1299.5	22.91%
75	95 Colombia	36.8	1,910	\$70,312.83	\$1,271,838.7	4.59%	1336.3	23.55%
57	96 Philippines	68.6	1,050	\$72,024.75	\$1,343,863.4	4.85%	1404.9	24.76%
99	97 Malaysia	20.1	3,890	\$78,344.60	\$1,422,208.0	5.14%	1425.0	25.12%
126	98 Singapore	3.0	26,730	\$79,829.15	\$1,502,037.2	5.43%	1428.0	25.17%
71	99 Ukraine <sup>1</sup>	51.6	1,630	\$84,026.50	\$1,586,063.7	5.73%	1479.5	26.08%
107	100 Greece	10.5	8,210	\$85,934.07	\$1,671,997.7	6.04%	1490.0	26.26%
113	101 Israel	5.5	15,920	\$87,894.32	\$1,759,892.1	6.36%	1495.5	26.36%
109	102 Portugal	9.9	9,740	\$96,688.98	\$1,856,581.0	6.71%	1505.5	26.54%
120	103 Finland	5.1	20,580	\$105,163.80	\$1,961,744.8	7.09%	1510.6	26.63%
86	104 Poland	38.6	2,790	\$107,727.48	\$2,069,472.3	7.48%	1549.2	27.31%
91	105 South Africa	41.5	3,160	\$131,004.12	\$2,200,476.4	7.95%	1590.6	28.04%
104	106 Saudi Arabia	19.0	7,040	\$133,612.16	\$2,334,088.6	8.43%	1609.6	28.37%
131	107 Norway	4.4	31,250	\$136,062.50	\$2,470,151.1	8.92%	1614.0	28.45%
121	108 Hong Kong	6.2	22,990	\$142,303.50	\$2,612,454.6	9.44%	1620.2	28.56%
130	109 Denmark	5.2	29,890	\$156,025.80	\$2,768,480.4	10.00%	1625.4	28.65%
83	110 Thailand	58.2	2,740	\$159,583.08	\$2,928,063.5	10.58%	1683.6	29.68%
85	111 Turkey	61.1	2,780	\$169,741.24	\$3,097,804.7	11.19%	1744.7	30.75%
56	112 Indonesia	193.3	980	\$189,411.45	\$3,287,216.2	11.87%	1938.0	34.16%

## Cumulative GDP Population Data

122	113	Sweden	8.8	23,750	\$209,712.50	\$3,496,928.7	12.63%	1946.8	34.32%
127	114	Austria	8.1	26,890	\$216,572.06	\$3,713,500.7	13.41%	1954.8	34.46%
124	115	Belgium	10.1	24,710	\$250,705.19	\$3,964,205.9	14.32%	1965.0	34.64%
105	116	Argentina	34.7	8,030	\$278,359.95	\$4,242,565.9	15.32%	1999.7	35.25%
133	117	Switzerland	7.0	40,630	\$285,994.57	\$4,528,560.4	16.36%	2006.7	35.37%
93	118	Mexico	91.8	3,320	\$304,878.92	\$4,833,439.4	17.46%	2098.5	36.99%
27	119	India	929.4	340	\$315,981.73	\$5,149,421.1	18.60%	3027.9	53.37%
78	120	Russian Federation <sup>1</sup>	148.2	2,240	\$331,956.82	\$5,481,377.9	19.80%	3176.1	55.99%
117	121	Australia	18.1	18,720	\$337,970.88	\$5,819,348.8	21.02%	3194.1	56.30%
123	122	Netherlands	15.5	24,000	\$371,040.00	\$6,190,388.8	22.36%	3209.6	56.58%
108	123	Korea, Rep.	44.9	9,700	\$435,054.70	\$6,625,443.5	23.93%	3254.4	57.37%
110	124	Spain	39.2	13,580	\$532,322.42	\$7,157,765.9	25.86%	3293.6	58.06%
119	125	Canada	29.6	19,380	\$573,764.28	\$7,731,530.2	27.93%	3323.2	58.58%
96	126	Brazil	159.2	3,640	\$579,568.08	\$8,311,098.3	30.02%	3482.5	61.39%
42	127	China	1,200.2	620	\$744,149.43	\$9,055,247.7	32.71%	4682.7	82.54%
118	128	Italy	57.2	19,020	\$1,088,020.08	\$10,143,267.8	36.64%	4739.9	83.55%
116	129	United Kingdom	58.5	18,700	\$1,094,567.10	\$11,237,834.9	40.59%	4798.4	84.58%
125	130	France	58.1	24,990	\$1,450,919.40	\$12,688,754.3	45.83%	4856.5	85.61%
129	131	Germany	81.9	27,510	\$2,252,216.19	\$14,940,970.5	53.97%	4938.4	87.05%
132	132	Japan	125.2	39,640	\$4,963,443.32	\$19,904,413.8	71.90%	5063.6	89.26%
128	133	United States	263.1	26,980	\$7,098,950.84	\$27,003,364.6	97.54%	5326.7	93.90%
World			5,673.0	4,880	\$27,684,197.39				

**APPENDIX B**

**CORPORATIONS**

## Corporations

Because of the considerable role that large economic organizations, which are almost always corporate in structure and organization, have played and the [apparently] larger role they will play in the economic and social, cultural, and political areas of Americans lives, a detailed examination of this entirely artificial and abstract entity is necessary. It should be noted that the "Mom and Pop" sub-chapter S type of corporation, which employs at most a few people is specifically excluded from this discussion, and the use of the word "corporation" in this context simply shows why an extensive discussion of the seemingly simple word "corporation" is necessary. The forms, meanings, contexts, and functions of "corporations" has so greatly changed over time that it is reasonable to suggest that the same word has been and is being used for several different things, which causes large amounts of confusion. These corporate stages are identified as Corporation I through Corporation VI in the headings.

The MicroSoft Bookshelf Columbia dictionary defines corporation as:

cor·po·ra·tion (kôr'pe-râ'shen) noun

Abbr. corp.

1. A body that is granted a charter legally recognizing it as a separate legal entity having its own rights, privileges, and liabilities distinct from those of its members.
2. Such a body created for purposes of government. Also called body corporate.
3. A group of people combined into or acting as one body.

This definition, while correct, is incomplete and therefore misleading.

## Corporation I

The earliest entities which can be characterized as "corporations" were those created by royal charter with certain specific objectives and many limitations. Generally one of the basic objectives was to limit the amount of financial exposure or liability that a member (or owner of the corporation) had to the amount invested in the corporation (and thus shift it to someone else such as a creditor of the corporation), although the officers and directors were frequently excluded from this limitation. The typical activities of these organizations were high potential profit but high risk so such limitation was very desirable. It is not generally realized but many of the thirteen original colonies were corporations with royal charters, so in this sense, it is possible to say that the corporation is older than the country. However the following points seem to indicate that these archetype corporations were very different than those we see today. The points include:

1. The corporation required a charter by the king or later by parliament, which was time consuming and expensive to obtain. (The people issuing the charter also got "a piece a of the action," effectively adding a highly mercantile aspect to this form of corporation.)
2. The charter was generally for a limited period of time and / or a limited range of activities in a limited geographic area.
3. It was very foolish to attempt to defraud the stockholders as these tended to include the King, Chancellor, Prime Minister, etc. who were able, even eager, to enforce a certain level of managerial accountability<sup>1</sup> even without an SEC.

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<sup>1</sup> See "Tower of London," "Rack," and "Draw and Quarter" for more information.

## Corporation II

The American revolution ended or expelled these corporations, chartered by King or Parliament, and the individual states were very careful to limit the powers and number of corporations under their control, as abuse of power and privilege by the royal chartered corporations had been a major contributing factor to the revolution. A few corporate charters were issued for projects larger than could be undertaken by a partnership, such as canals and railroads, however these tended to combine the features of both a franchise which allows or specifies a particular activity and the permission to create a separate entity to conduct this activity. Additionally, the duration of many charters was limited to a few years and most contained specific language which allowed the legislature to revoke the charter in cases of behavior contrary to accepted public policy. Indeed, several writers [Grossman available:[http://gladstone.uoregone.edu/~twilson/corp\\_cha.htm](http://gladstone.uoregone.edu/~twilson/corp_cha.htm)] have suggested that such revocations were not unusual. However, too much should not be read into these limitations. At this time real property ownership requirements were common (male) franchise requirements, women did not have the vote, and slavery was still legal (and common) in the south. Still it is interesting to speculate about the effect on current corporate behavior if the state legislatures had retained their power to dissolve or liquidate a corporation by revoking its charter when its actions and activities were found to be contrary to public policy and the common good<sup>2</sup>.

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<sup>2</sup> For example corporate hog and chicken farms in Oklahoma.

### **Corporation III**

Beginning about 1820, partially due to the continuing efforts of promoters and financiers and partially due to the forgetfulness (or death) of the electorate, corporate privileges were gradually allowed to increase. A perhaps unintended consequence of the requirement of the United States Constitution that any state must recognize the validity of the acts of any other state was that as soon as one state (New Jersey) began to issue corporate charters without an act of the legislature, without fixed terms, without specific franchise limitations, and for a fixed fee, most of the other states also rushed to do so because of the large income derived by New Jersey from the incorporation fees.

[Chomsky, N. 45]

The industrial and infrastructure boom prior to and during the American Civil War resulted in the growth or creation of massive and highly profitable corporations. While this form of corporation provided a great deal of financial protection to and return for its stockholders, most were still not what is commonly perceived as the modern corporation because these were still largely driven by and assumed the persona of their major owners and executives, and indeed most were more in the nature of special proprietorships with limited liabilities for the major players (owners, officers and directors) for their actions done through the corporation. The number of stockholders remained limited and necessarily confined to the "moneyed class." Still this allowed considerable abuses such as "watered stock" and speculators such as Drew, Vanderbilt, Fisk and Gould were able to derive huge fortunes from marginally legal activities<sup>3</sup> at the expense of the investors.

### **Corporation IV**

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<sup>3</sup> Such as the attempt to corner the gold market in 1869 which resulted in the panic of "Black Friday"



The corporate structure was changing before 1886, when the Supreme Court in *Santa Clara vs. Southern Pacific Railroad* held that a corporation was a person under the fourteenth Amendment and was entitled to full Constitutional protection and rights. [Horwitz, M. 66] After this decision corporate change was greatly accelerated. Even today, the reasoning that produced this ruling is at best murky, and at that time property ownership requirements and poll taxes were still commonly used to restrict the (male) franchise, women still did not have the right to vote or own property, and blacks were systematically excluded from full economic and political participation in most states, which the fourteenth Amendment was specifically enacted to redress. It is difficult to "prove" that this decision caused the very great increase in the number and size of corporations that then occurred, but such an increase did occur. Corporate trusts grew rapidly in the U.S. from 1880 to 1905, by which time Pres. Theodore Roosevelt had launched his famous "trust-busting" campaigns. [The Concise Columbia Encyclopedia] This was accompanied by basic changes in corporate ownership and ultimately corporate governance.

Perkins in his book "The Currency Problem and the Present Financial Situation" printed in 1908, excusing the apparent role of corporations in the then current financial panic<sup>4</sup> and attempting to blunt the drive to enact additional antitrust

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<sup>4</sup> Noted historical panics include the Mississippi Bubble of 1720 in France, the South Sea Bubble of 1720 in England, and in the United States, the panics of 1819, 1837, 1857, 1869 (Black Friday) 1873, 1893, and 1907. A financial panic is a widespread public fear that banks and other monetary institutions are in imminent danger of collapse. It is usually preceded by a period of feverish speculation in securities markets in which prices are driven to insupportably high levels. The history of financial panics, however, is complex. In many earlier periods, their effect was largely limited to the financial sector without serious consequences to the average consumer (who was generally a subsistence farmer and substantially independent of the money economy) or capital goods industries.

legislation<sup>5</sup>, wrote:

During the past few months, when the campaign against corporations was most intense, and when our country was in a turmoil of business perplexity and doubt, the people who, we are told, have so suffered because of the trusts and are so bitterly opposes to their existence have been investing in these very securities to an unprecedented extent. To illustrate: during the past year the stockholders of the Great Northern Railroad have increased in number from 2800 to over 11,000. The stockholders of the New York Central have increased from 40,000 to 57,000. During the same period the number of stockholders in the Steel Corporation increased by over 30,000: the total number of individuals holding stock in that corporation now exceeds 100,000, and the average holding of the \$868,000,000 of stock of the Steel Corporation is to-day about 98 shares per person. Can there, then, be any question that these great institutions have become semi-public, and when we contemplate the alternative of extermination or of regulating them, must we not realize that they are owned not by a few individuals, but by a vast number of people representing our thriftiest class? That these corporations have thus become not only vast business enterprises, but great and growing institutions for savings, surely imposes a new and more sacred responsibility, not only upon corporation managers, but upon legislators as well.

Mr. Perkins is an eloquent apologist, and his reasoning, although the language is somewhat dated, can be (and is) used today. Unfortunately, there are several exceptions and assumptions which cause this analysis to be somewhat suspect. Specifically there are implicit assumptions that:

1. All stockholders are equal. That is that a person experienced in finance and business operations who may hold 50% or more of the issued shares of a corporation and a novice than understands little about money, finance and

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<sup>5</sup> Legislation under which the U.S. government has acted to break up any large business combination alleged to be acting monopolistically to suppress competition. The first of these laws, which were based on the constitutional power of Congress to regulate interstate commerce, was the Sherman Antitrust Act (1890). It declared illegal every contract, combination, or conspiracy in restraint of interstate and foreign trade. It was supplemented (1914) by the Clayton Antitrust Act, which prohibited exclusive sales contracts, intercorporate stock holdings, and unfair price cutting to freeze out competitors. The last provision was strengthened under the terms of the Robinson-Patman Act of 1936.

- business operations who owns a few shares of stock are equal in that both are "owners" of the corporation;
2. The people who operate corporations, with only a very few exceptions, are honorable people. Mr. Perkins appears to have been an honorable individual, and a common human trait (error) is to assume that most everyone is like yourself;
  3. People who are able to purchase shares of stock are some how representative of (or at least more worthy of consideration than) the entire population; and
  4. Corporate activities, and more specifically corporate disasters, fiascoes, debacles and desolutions affect only the stockholders and their elected (corporate) officers.

Each of these assumptions was at least partially true in earlier times, but with the extensive increase in industrialization and urbanization, and the attendant inclusion of most of the population into the money economy by the turn of the century none of these was even partially correct in 1908.

The major modification or adaptation by corporations during this time seems to have been the beginnings of the "professionalization" of management and elimination of the "cult of personality" centered on the founder / director. These trends continue, but a "cult of personality" still tends to surround the founders. Examples of this are Ford, Walmart (Sam Walton), Hewlett-Packard, and MicroSoft (Bill Gates). However this "cult" generally disappears after the death of the founder unless the immediate family continues to be active in the management, as was the case with Ford, and the differences,

foibles and eccentricities which differentiated that corporation from other corporations begin to disappear. Thus corporations began to assume the form of:

1. Relative uniform organization (with the assumption that a good manager could manage anything) as stressed by the many B schools;
2. Organizations identified with or by their own corporate identity and not the personality of the officer(s);
3. Organizations over which the nominal owners (stockholders) had minimal influence because of their small (relative) size and inability to coordinate actions;<sup>6</sup>
4. Organizations with primary responsibilities only to themselves;
5. Organizations whose primary (and possibly only) objectives were their own survival and ever-increasing earnings, generally through growth; and
6. Organizations staffed with and directed by trained professionals which implies a reasonably uniform outlook, a high degree of interchangeability within their area of expertise, and a high degree of loyalty.

### **Corporation V**

These trends and characteristics continued into the 1970's with little change. Several events then occurred which had a profound impact on corporate behavior and activities. These included:

1. A very large increase in number and size of pension and mutual funds which created ownership of large enough blocks of stock to have significant impact on corporate decisions;

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<sup>6</sup> Which in many cases was (and is) forbidden by law.

2. The revision of investment banking, insurance and financial regulations<sup>7</sup> in ways such as to not only allow but encourage hostile takeovers of large corporations;
3. The re-appearance of the "cult of personality" in some "high-profile" corporations which resulted in not only public adulation but enormous compensation packages, for example Asner at Disney, Allen at ATT and Iacoca at Chrysler;
4. The adoption by other corporations of a "stealth" strategy whereby the public awareness of the corporation and the extent of its holdings and subsidiaries was minimized, for example PepsiCo and ARA; and
5. A realization that the rate of return possible by the production of concrete goods such as food, clothing, consumer electronics, and automobiles could approach that which could be obtained by (speculative) financial activity only under exceptional circumstances, for example Nike. This resulted in an emphasis on the conversion or cannibalization of existing (production and manufacturing) assets into cash (for speculative financial activity) to improve quarterly performance even at the expense of long-term viability. A variation of this was the realization that it was far easier, cheaper, quicker and certain to increase market share and earning by acquisition than it was through competition in the market-place.

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<sup>7</sup> For example the purchase of "high yield securities"(junk bonds) by Savings and Loans or insurance companies which provided much of the capital for hostile takeover bids.

## Corporation VI

These trends continued into the 1980's and when combined with collapse of the USSR resulted in the apparent perceptions (admittedly ascribed by this investigator) by the corporate cadre and the major corporations collectively that:

1. Most managers, like the hourly workers before them, are no longer an intrinsic, vital and basic part or component of the corporation but are an expense and cost, to be minimized like any other, especially with the phasing out of most concrete (production) activities;
2. Any attachment to a particular country is simply a manifestation of mercantilism and chauvinism which are not only obsolete concepts but which interfere with the free operation of the market;
3. It is the duty of the corporation to buy at the minimum possible cost and sell at the highest possible cost in order to maximize profit;
4. Governments do not understand the market and the need to maximize profits and so should be avoided as much as possible in this context; and
5. Governments have a responsibility to control their citizens<sup>8</sup> and safeguard<sup>9</sup> corporate investments and assets in order to minimize risks and maximize profits.

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<sup>8</sup> For example by passing legislation forbidding farmers from planting seeds from their previous crops in order to insure that they must either buy new seed every year from (or pay royalties to) the multinational agribusiness corporations such as Cargill which "own" the plant line in accordance with the intellectual property rights provisions of the GATT now enforced by the WTO. [Zoll]

<sup>9</sup> For example the proposed Multilateral Agreement on Investment [MAI] or alternatively Multilateral Investment Agreement [MIA] through the World Trade Organization [WTO] which effectively strips national governments of any oversight and control of international investments. available: <http://www.webcon.com/bnp/multi.html>

While it may appear that this is attributing evil motives or objectives to corporations this is not the case. Rather the objective is to show that the corporation is an elemental force such as fire and therefore is neither good nor evil. The caution is that corporations have proven to be, like fire, both highly useful and highly dangerous thus requiring continuous oversight and careful control. The danger to representative democratic government that uncontrolled corporations represent is not theoretical. The public record shows that American corporations have overthrown at least three democratically elected and legitimate governments. Specifically the governments of Iran by a group of American oil companies (Mosaddeq 1953), Guatemala by the United Fruit Company (Arbenz 1954), and Chile by International Telephone and Telegraph [ITT] (Allende 1973)

The most immediate impact on American education and vocational education of these shifting corporate characteristics is the massive reduction in taxes paid by corporations at all levels of government. For example, in the 1950's corporations paid about 39% of all federal income taxes but by the mid 1980's this had been reduced to about 17%. More importantly, as most education is funded locally, corporations which had paid 45% of local taxes in 1957 paid only 16% in 1987. [Barlett & Steele p47] This 2/3s reduction in the share of local taxes paid by corporations was accompanied by increasing strident criticism of and demands by corporations for improvements in the amounts and types of education received by their employees. Examples of corporations using their economic "clout" to extort incentives from local and state government are not difficult to document. For example, in the February 27, 1998 issue of USA Today in the Across the USA section on page 11A it was reported that

MasterCard International had obtained \$44 million in state and local incentives to keep its “Global Technology and Operations Center” in St. Louis, Missouri. These are not high level jobs but are the information age equivalent of sweatshop employment. Currently the MasterCard International employs 1,100 people and “plans” to add 500 more. This is \$40,000 per current job and if the additional people are actually hired, \$27,500 per job. This appears to be a typical result. To be very explicit about it, it is not at all clear that equivalent (or even better) economic results could not be obtained if the governmental agencies would select 2,200 lucky citizens at random and give them \$20,000 dollars each with the requirement that they must spend the money locally within one year. The money is much more evenly distributed and (at least on the initial cycle) is spent within the local economy rather than being exported to the parent corporation as “profits.”

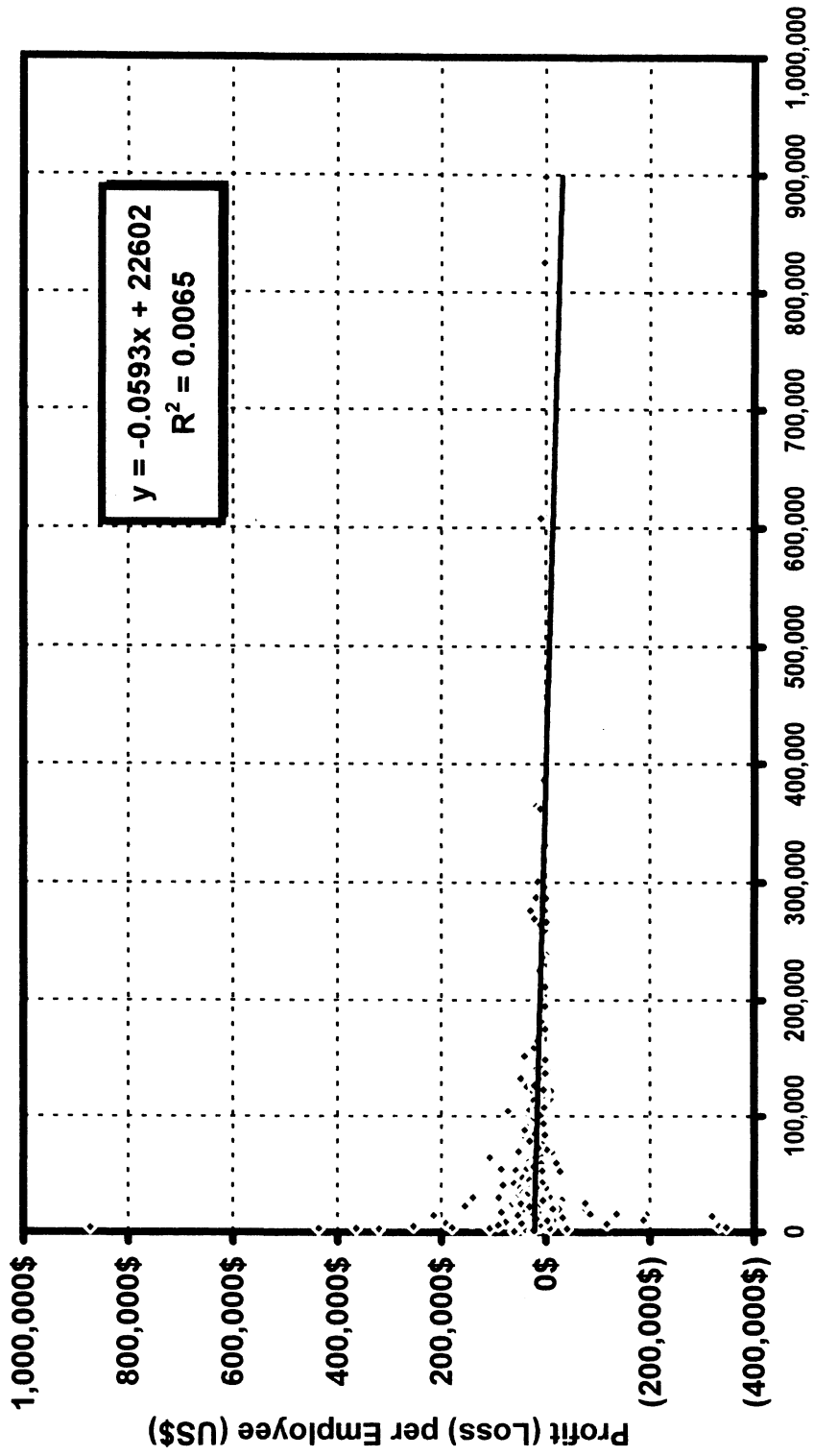
It does not appear possible to separate the evolution / development of the corporation from the economic stages in which these changes are embedded. That is it does not appear possible to determine if the changes in the corporations caused the changes in the economy, the changes in the economy caused the changes in the corporate structure, the economy and corporate structure co-evolved, or there was a third, independent causal factor.

Under the accretion model discussed in other sections of this study, it appears that corporations in various stages of evolution are simultaneously active in the American economy. Most likely these are limited to stages IV through VI, although it could be argued that closely regulated public utility type corporations remain, at least partially, in stage III, pending the effects of the latest de-regulation legislation. Where it seems appropriate and useful, the corporate stage will be considered in the analysis of Vocational



Education. It should be explicitly noted that stage V and VI corporations require minimal numbers of domestic skilled employees, generally in sales or information processing jobs, and in many cases only on a temporary basis. As part of the innate corporate drive to reduce costs to the maximum possible extent, off-shore sourcing and de-skilling of the remaining jobs will be a priority.

**Profit (Loss) per employee in US\$ vs. number of employees**  
**1998 Fortune Global 500**



**Number of Employees**  
Chart 16 - GLB500.XLS

**APPENDIX C**

**GENDER**

## **Changing gender roles in the American work place**

*One of the most basic items when considering gender roles or feminist / masculine perspectives is that it has absolutely nothing to with biological sex (or sexual preference).*

Indeed, it would have been better in hind sight if masculine and feminine had not been used but rather some neutral term such as type J and type K. It was observed by one [woman] writer “My sex was determined at the moment of my conception but I have spent a lifetime developing my gender.” Gender, in the sense that it will be used here, is how an individual perceives and reacts to life situations. Most of us have some feelings or opinions about appropriate ways to act and behave as humans, and more specifically as male / female humans. This is to say that the expected behavior, which is observable, and the attitudes, which must be attributed based on the behavior, differs in many cases considerably between males and females in exactly the same situation.

While it can be dismissed as stereotyping, in the past most jobs outside the home were held by males, and the conditions of labor were generally dangerous, dirty, noisy, messy, and involved heavy lifting. The more that a job was safe, clean, quiet, neat, and low exertion the more it was considered a feminine occupation. For several reasons the “male” occupations, that is the ones that are dangerous, dirty, noisy, messy, and involve heavy lifting, are rapidly disappearing from the American economy. Without any attempt to rank, some direct and overt causes include: (1) the loss to foreign countries, or elimination by automation, of many heavy industry and manufacturing jobs which tended to be “male”; (2) Legal pressure by OSHA and other health / safety agencies to force improvements; (3) Desire for cost avoidance by the employing organization, for example limiting the number and severity of on the job accidents, or hunting for “lost” tools and

fixtures; (4) Desire for profit improvements by the employing organization through the increased productivity which typically results from improvements in these areas, and; (5) a shift to service occupations which by their nature require a much more feminine response pattern because of the greatly increased interpersonal interactions required, especially those with the [paying] customers.

There are also less overt and more subtle causes. To examine these causes it would be useful to have some generally agreed on descriptors for masculine and feminine gender characteristics. Fortunately such a list has been developed and validated over many years of clinical use. Bem in the Bem Sex-Role Inventory has identified a number of descriptors. We need to consider only the most characteristic of these for this analysis so only the top 20 in each category are listed. These descriptors are listed in order of decreasing correlation coefficients. That is the most common or highest rated traits are “Has Leadership Abilities” for the masculine gender, and “Gentle” for the female gender. A more complete discussion of the statistical methodology used is contained in the Professional Manual for the “Bem Sex-Role Inventory.” *It should be noted that these descriptors were developed in the early to mid 1970s using typical American subjects of that time and this should be considered before using these descriptors in a critical situation, particularly if cross-cultural evaluation is required. Significant shifts in perception may also have occurred because of the “new” generations which were either coming of age or being born at the time this study was performed.*

It should be noted that almost all the English phrases used to identify these traits have a number of alternative constructions which can have laudatory / positive, neutral, or pejorative / negative connotations. It is instructive to note that a quick scan of the “top

20” indicates that while all the masculine descriptors or traits are laudatory /positive, a number of the feminine traits use the pejorative / negative form. For example, Feminine trait #15 “gullible” can also be expressed as “Willing to try new methods and procedures,” #16 “Yielding” can be expressed as “Flexible and Adaptable,” and #18 “Flatterable” can also be characterized as “Accepts and acts on praise.” [These phrases are taken directly from a salary exempt annual evaluation form (fitness report) used by a Fortune 500 corporation.] Arbitrarily selecting the same number masculine traits we have #15 “Ambitious” which can alternatively be characterized as “greedy and power-hungry,” #16 “Self-reliant” which pejoratively is “egocentric and selfish,” and #18 “Athletic” which can be negatively expressed as “Vain or excessively concerned about physical appearance” or even more pejoratively as “desires to physically intimidate.”

Extracts from table 9 and 10 [Bem 13]

<b>Masculine traits in rank order highest to lowest</b>	<b>Feminine traits in rank order</b>
Has leadership abilities	Gentle
Acts as a leader	Tender
Assertive	Compassionate
Dominant	Warm
Strong Personality	Sympathetic
Forceful	Sensitive to the needs of others
Aggressive	Eager to soothe hurt feelings
Willing to take a stand	Understanding
Independent	Affectionate
Defends own beliefs	Cheerful
Willing to take risks	Loves children
Individualistic	Does not use harsh language
Self-sufficient	Loyal
Makes decisions easily	Feminine
Ambitious	Gullible
Self-reliant	Yielding
Competitive	Soft-spoken
Athletic	Flatterable
Masculine	Child-like
Analytical	Shy

Previous table transliterated into a possible feminine version (by a male)

<b>Bem Feminine traits</b>	<b>A possible Feminine version of these Bem's Feminine traits</b>
Gentle	Promotes long term relationships and sustainable operations.
Tender	Avoids "tunnel vision" Considers needs of others and long term effects as well as the immediate organizational needs / mission.
Compassionate	Able to balance own and others' personal needs with those of the organization / group.
Warm	Able to act as a human being
Sympathetic	Makes an effort to see others' view points and perceptions
Sensitive to the needs of others	Sensitive to the needs of others
Eager to soothe hurt feelings	Promotes teamwork and loyalty
Understanding	Makes an effort to see the "big picture" -- takes a holistic view of situations
Affectionate	Forms "real" relationships with others
Cheerful	Emphasizes positive aspects
Loves children	Integrates all aspects of personality
Does not use harsh language	Avoids unnecessary friction / confrontations
Loyal	Dependable and honest
Feminine	Feminine
Gullible	Open to new experiences
Yielding	Flexible
Soft-spoken	Has good people skills
Flatterable	Responds to positive reinforcement
Child-like	Willing to take instructions and advice
Shy	Does not have to be the center of attention, makes sure others get their fair share of credit.



<b>Bem Masculine Trait</b>	<b>A possible Feminine version of these Masculine traits (by a male)</b>
Has leadership abilities	Manipulative
Acts as a leader	Likes to tell people what to do - bossy
Assertive	Loud and Abusive
Dominant	Authoritarian and Dictatorial
Strong Personality	Rude and Abrasive
Forceful	Bull in a china shop
Aggressive	Aggressive
Willing to take a stand	Stubborn
Independent	Cares more about own needs than those of the group / organization
Defends own beliefs	Trouble maker
Willing to take risks	Rash, dangerous to be around or work with
Individualistic	Self centered and egotistical
Self-sufficient	Isolated and standoffish
Makes decisions easily	Jumps to conclusions
Ambitious	Greedy and aggressive
Self-reliant	Unable to accept help even when needed, would rather fail on their own than succeed with the assistance of others, even at the expense of the group
Competitive	Always wants to be first, even when there is no need
Athletic	Macho-Jock
Masculine	Has problem with excess testosterone levels (Clinton/Kennedy syndrome)
Analytical	Unfeeling, calculating and machine-like

What has apparently not been extensively considered in the past is the extent to which *subordinates were expected to behave in and react in what would be described or considered to be typical feminine response patterns*. For example, in most large organizations, only the “leader” is “allowed” to display typical masculine attributes, such as domination and assertiveness while their subordinates are expected to exhibit characteristics such as “the ability to read between the lines,” “teamwork, that is sensitivity to the needs of others,” “loyalty,” and in the restated phrases “flexibility / adaptability,” and “willingness to try new things.” Both Jackall and Kantor have detailed the expected roles and persona in large organizations and have determined the display of “masculine” characteristics by a subordinate to be a cultural taboo, which causes the offending party to be labeled “not a team player.”

Examination of the above gender traits (and their “translations”) qua the “new” requirement [SCANS, Education 2000] for people making the school-to-work transition indicates an increasingly rapid feminization of much of the American workplace. Typical masculine traits such as assertive / aggressive behavior, competitiveness, “willingness to take a stand” and independence are all actively discouraged while typical feminine traits such as teamwork, sensitivity, openness to new experiences or ways of doing things, loyalty, and flexibility are actively encouraged.

## **So what is the significance of this for Vocational, Occupational and Technical Education [VOTE]?**

To a large degree this depends on exactly how VOTE is defined, and thus with which socio-economic strata VOTE interacts. In the following discussion VOTE will be assumed to be post-secondary education / training which is not intended to result in a baccalaureate degree. In turn this implies that primary direct interaction will be for the most part with students and parents from the lower socio-economic strata.

[As an editorial remark, this is unfortunate because many students from the higher socio-economic strata would most likely be much happier and more productive individuals as skilled and competent carpenters, plumbers, or mechanics than as marginal accountants, programmers or teachers. The reality is that if the parents are making several times the median family income, there will be not only considerable pressure from the peer groups of both the parents and [potential] students but also considerable institutional bias from their secondary institution in that high family income generally means up-scale housing which means up-scale schools with emphasis on college prep, not a broad range of leaving strategies. Indeed, the decision by a student not to pursue a baccalaureate degree may be regarded as equivalent to a decision to “drop out” with attendant hand wringing and cries of “what did we do wrong?” by both the parents and the teachers.]

The following observations are offered without attribution in the same way that the statement “when the winter comes the weather turns cold and the days get short” does not need to be documented.

1. Many children and young adults lack any “real” adult role models, other than teachers, on which to base their behavior. Most “adult” behavior that they do observe is that depicted in films and TV. Because of the expansion of the typical work week to include evenings and weekends, the need for both parents to work to maintain the desired standard of living, and the general separation of the parents at work from their children, there is almost no opportunity for the students to observe, evaluate, select and practice behaviors appropriate to the workplace, or indeed anyplace other than the schoolroom as a student.
2. Even if the opportunity to observe, evaluate, select and practice currently appropriate behaviors was somehow available, as indicated most likely these would not be appropriate by the time the student became integrated into the workplace.
3. Considerable dissonance or incongruence is sure to result when the student behaves in the way that their role model(s) behaved or in the way that they were told to behave and “success” [or the expected outcome, however that is defined,] does not occur. Continued dissonance or incongruence is almost certain to result in either or both intra-personal or inter-personal problems with considerable adverse impact on both macro and micro quality-of-life and productivity factors.
4. The typical VOTE practitioner, especially the male, is at a considerable disadvantage because typically they have attained their expertise and

position precisely because of the masculine traits such as initiative, leadership, assertiveness, dominance, independence, etc. that are now seen as more of a liability than an asset by most industries and businesses. This is a strong statement, but if you doubt this ask the personnel manager of any large company to check and see why the last 100 people were fired. Typically the (real) reasons include “not a team player,” “excessively independent,” “insensitive,” “unnecessarily aggressive,” “domineering,” “reckless,” and “disloyal.” Almost never will you see “excessively sympathetic,” “unable to reach a decision,” or “excessively suggestible,” given as a reason except at the very highest levels where, as indicated above, masculine attributes are still valued and expected. Conversation with (retired) high ranking military personnel who have served in monitor<sup>1</sup> positions indicates that this is becoming the norm, except in the most combat ready branches such as the Marine Corps, Naval Aviation and Ranger/Airborne units. This exception is preserved only with considerable effort and constant attention. That is personal appearance, an ability to “get along” and flexibility / adaptability are beginning to outweigh “obsolescent” characteristics such as mere competence, physical condition, initiative, hard work, loyalty and the ability to motivate and lead.

5. This results in a serious inconsistency or problem in that the traits apparently necessary for success in entry, low and mid-level (that is other

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<sup>1</sup> Navy and Marine Corps “shorthand” for the people responsible for selecting and assigning personnel to open positions. In this context, the most senior command and leadership (flag rank) positions are implied.

than independent “top” management) positions in large, increasingly service based, organizations are in direct opposition to accepted male socio-economic class norms and are possibly in direct opposition to innate male socio-biological tendencies.

### **What can /should the VOTE practitioner do?**

1. A most difficult but necessary first step is for the practitioner to examine their own perceptions and feelings about the gender descriptors / traits and how they feel these would have an impact on or affect the “success” of their students in their particular field and in the world-of-work in general. This is difficult, not only because it is intrinsically difficult, but also because the typical VOTE male practitioner is not inclined to introspection or (re)evaluation of long-held (pre)conceptions or standards of what’s right and proper. The typical female VOTE practitioner may have less difficulty as they have already demonstrated the ability to move between the male and female perspectives and by definition have had to select the attributes and traits necessary for “success.” A difficulty for many practitioners will be separation of “would” and “should.” As appealing as many of the masculine traits such as “willing to take risks,” “willing to take a stand,” “competitive,” and “makes decisions easily” may be (at least to the males) these must be evaluated as to their probable outcomes on “success” if internalized and practiced by the students qua their likely field of employment and probable extant conditions. This is especially true if their

selected occupation implies a high likelihood of employment in a large monolithically organization.

2. Unavoidably a problem which most practitioners would like to avoid becomes central at this point – that is ethics. One possible course of action is for the practitioner to describe in explicit detail what traits and characteristics appear to be necessary for, or are highly correlated with, “success” in a particular trade or occupation and allow the student to decide if they are willing to adapt, adopt and emphasize these traits. Most likely it should also be made explicit that certain characteristics which may be highly beneficial or vital to a self-employed contractor or entrepreneur may be totally inappropriate and self-defeating for an employee in a large organization. Conversely certain characteristics which may be highly beneficial or vital to the success and advancement of a long term employee of a large service based organization may be totally inappropriate for a self-employed contractor or entrepreneur. These traits may be, and most likely are, more important than technical competency above some minimally acceptable level. Jackall in his study of operations and interactions within large American organizations makes this point for middle and high level management positions, when he observes that technical competency is taken as a given. It seems reasonable to extend this to all but the lowest level operational and entry level positions. Indeed, with the increasing shift to service based organizations, “technical competency” is becoming increasingly difficult to define and quantify. This has resulted in

increasingly abstract measurement criteria. Clearly, in the traditional manufacturing context, if operator A produces twice as many acceptable (identical) parts as operator B does in the same amount of time, that operator A is most likely not only working harder than operator B but is also more technically qualified. It is much less clear if Customer Service Representative A processes twice calls as Customer Service Representative B that A is working any harder or has any more technical knowledge than B. It could be that B is resolving more complex problems and has a more extensive technical knowledge than A, for example B may be using multiple computer systems to correct a problem which A is unable to do.

3. The most important single item for the practitioner to remember is that the optimal mix of male/female traits for typical students, especially those that will be employed by large organizations, appears to be continually shifting to the female end of the spectrum. This is a statement of fact and not of (researcher) desirability.
4. Another item of importance is the rapidly converging median male and female incomes which are projected to be equal in 2004. After this time the median female income is projected to exceed the male median income. The social impact of this, which implies the primary bread-winner or income for the family unit is increasingly the female, is most likely significant. Both male and female learners should be made aware of this and some of the affects this may have on the typical working class male/



female relationship such as who makes the final decision and who moves to obtain a promotion.

**APPENDIX D**

**INDIVIDUAL/CASE MODEL VERSUS  
GENERIC/AGGREGATE MODEL**

**The Dichotomy of Individual / Case Model Versus the Generic / Aggregate Model of Economic Change.**

**Basic Assumptions**

Tussing in his course "Economics of U. S. Poverty and Discrimination" at Syracuse University identifies a triad of conditions that must exist (other than inherited wealth and compound interest) if an individual is to improve (indeed even to maintain) their socio-economic status:

- First, the individual must have the motivation and realization that their or their groups "standard-of-living" can and should be improved;
- Second, that the individual has the necessary skills, tools, and materials to do so; and
- Third, that the opportunity exists to apply those skills, tools, and materials.

This triad can perhaps be made more clear by using it to explore the famous adage frequently used to support vocational education, namely *if you give a man a fish you feed him for a day, but if you teach a man to fish you have fed him for a life time.*

Tussing's triad posits that three conditions are necessary for this aphorism to be correct and if any one is lacking, the statement while appealing on an aesthetic level is incorrect. When critically examined using Tussing's criteria this adage has the following implicit "assumptions.":

- First, the man must perceive a need to fish, that is he must experience (identify) hunger, and realize that fish are good to eat and will thus satisfy this need, that fish can be caught, and that he can catch fish.

- Second, the man must possess the necessary skills, knowledge, equipment, and so forth necessary to fish. Currently, this may include qualification for and possession of a fishing license.
- Third, the fish must exist, and exist in an area accessible to the man. No matter how motivated, how skilled and how well equipped a person may be to catch fish, if man is stranded in the middle of the Gobi desert 500 miles from any water, they will still be unable to feed themselves.
- Indeed, from a multi-cultural viewpoint, if fish are "taboo" to eat, it will make no difference even if all three conditions are satisfied, the man will still be hungry.

Thus one criterion is which element of the triad consisting of: (1) motive, (2) means, and (3) opportunity is a researcher addressing.

### **How this Implies a Dichotomy**

The literature indicates two implicit and sometimes explicit assumptions, which seems to drive most education. Namely, when an individual is poor (ignorant):

- First, they are either un- or under- employed because they lack motivation or appreciation of what education can do for them; and
- When this condition is "corrected" and if they are still poor, they lack the necessary skills, knowledge and attitude.

The third requirement, the availability of non-poverty/above-subsistence employment is seldom considered, and when it is, it is classified as an economic development problem, and thus currently not a proper concern for VOTE policy makers and practitioners.

Tussing (Causes of Poverty) used the triad of assumptions discussed in the previous section to compare and contrast two incompatible but widely used models for the existence of low-income or poverty. The case (individual) model which focuses on factors one and two, and the aggregate (generic) model which emphasizes the third factor.

- The individual or case model posits that low-income or poverty is due to individual circumstances and/or characteristics such as: (1) Lack of education, skills, experience, and intelligence; (2) Ill-health or physical / mental handicaps, age; (3) Lack of work orientation, time horizon, motivation, culture of poverty; and (4) Discrimination on the basis of race, sex, age.
- The aggregate or generic model which posits that poverty or low-income is best explained by general, society/economy wide problems such as: (1) inadequate non-poverty employment opportunities; (2) Inadequate overall demand for (or equivalently an oversupply of) qualified labor in a particular category; and (3) Low national income (Less Developed and Low Income Countries).

As Tussing insightfully points out, the consequences and effects expected from given actions to reduce poverty or increase incomes differ greatly, even diametrically, between these two theories or models. For example, if we provide extensive vocation

training to low income segments of the population, the individual or case theory predicts that overall income will rise because the individuals will then earn more, while the aggregate or generic model does not predict any rise in income but only the redistribution of poverty. Indeed, a case can be made under the aggregate or generic model that overall income will fall with the increased availability of skilled labor because static demand for workers with an increased supply will increase the competition for the higher paying jobs thereby lowering wages, and dissipate capital for training with no return. An example may make this point clearer. An employment sector which has shown some increase in demand (and therefore wages) in the 4-state area<sup>1</sup> for the last few years has been business form and box printing. The individual or case model would suggest that people should be trained to take advantage of this opportunity and thus increase their incomes. The aggregate or generic model would suggest that the only effect that increased numbers of qualified printers and technicians will have is to depress the current level of wages in these areas because of the increased supply, and if income maintenance (and possibly improvement) is desired then the availability of qualified printers and technicians should be limited and if possible reduced, relative to the demand. The record over the last few years indicates that the aggregate or generic model seems to dominant in this case. Many area Vo-Tecs, Community Colleges and Universities increased or implemented printing programs which produced large numbers of highly qualified and motivated printers and technicians. Additional printing firms were founded or relocated into the area because of the increased supply of qualified labor so there was an increase in the absolute number of

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<sup>1</sup> Many writers refer to NE Arkansas, SE Kansas, SW Missouri and NE Oklahoma collectively as the 4-state area as these tend to have many similarities, for example much more than NE Oklahoma has with the panhandle area.

printing jobs available, but because of the over-supply relative to the demand, wages, working conditions and benefits fell<sup>2</sup>. The generic model may help explain the phenomena of simultaneous increases in 4-state economic activity and reduction in the average or median wage when adjusted for inflation and the large increase in the "working poor."

The reader is cautioned against unnecessarily assuming a dichotomy or an "either / or" situation. Both models may be operative, although to different degrees, at the same time. The simultaneous operation of these models would help "explain" the great degree of difficulty typically encountered in raising or improving the economic conditions<sup>3</sup> or standard of living for statistically significant numbers of the population, especially those currently in the lowest one or two quintiles. It is apparent that actions taken to assist these groups under one model simply increase their difficulties under the other model.

Tussing notes that both models appear to be consistent with the facts, that is the available statistics, and therefore it is very difficult to determine which, if either, is "correct." Tussing points out that some indirect evidence supports the generic or aggregate model. Both BLS and Census statistics indicate a failure of poverty to decrease or wages to rise during large and intensive training programs, and there does not appear to be a corresponding rise in the average or median income with a rise in the general education level of the population which can be statistically separated from the expected rise with increased levels of economic activity<sup>4</sup>, that is the "rising tides lifts all boats" model. There seems to be a general (and fervent) wish by social workers, educators,

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<sup>2</sup> Personal observation at Allen County Community College, with communication from other areas schools such as Neosho County Community College, Labette County Community College, and Pittsburg State University at Pittsburg, KS.

<sup>3</sup> That is increasing their Skills Premium.

<sup>4</sup> Again, the "Accretion Model" indicates that very different results may be observed when extensive change occurs in the level or type of education among / between the different stages.

policy makers and the general public to believe the individual or case theory is correct. This apparently stems from: (1) The "Fallacy of Composition" error or their own micro experience -- that is assuming that what is true of a part must be true of the whole; (2) Studies of poverty and low-income tend to concentrate on the poor rather than the economy, especially those conducted by social workers, educators, and educational policy makers<sup>5</sup>; (3) It is much easier to study the poor than the economy; and (4) An effective anti-poverty policy would be (too) difficult (expensive) to implement if the generic/aggregate theories were true.

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<sup>5</sup> Which is highly reasonable because that is what they are trained in. This again indicates why a collegial and multi-disciplinary study is required.



**APPENDIX E**

**SKILLS PREMIUM**

## The "Skills Premium"

During research and literature review, several economics articles were discovered which introduced the term "skills premium." To paraphrase these articles, "skills premium" [SP] is that amount above a common baseline or minimum hourly wage which the "average" employer must pay to obtain a worker with given set of skills, knowledge, attitudes, talents, etc. The baseline hourly wage can be established through common usage or by legislation as is the case in the United States by minimum wage laws.

Because these were articles from economics journals, the existence and behaviors of the SP were examined using the tools of classical and neoclassical economics, which for our purposes is the same as free market and free trade economics. Indeed, several of these journal articles overtly posited that SP was the same as any other economic good and was subject to the same economic forces and effects. It should be noted that economics is an "amoral" science or discipline in that it is value free and that the topics of investigation are how various parameters of an economy change when other parameters are varied. As soon as moral values and ethics enter the discussion, the discipline is no longer economics but ideology or theology. In this context, when the word value is used in the following section it is specifically limited to the money sense. With this caution, let me summarize the results of assuming that the SP is an economic good using the free market /free trade economic theory.

1. It is possible to have a negative SP. If a person has or exhibits traits, characteristics, attitudes, etc., undesired by their employer or society, than it is likely that they will find only the most marginal employment with compensation below the accepted minimum, possibly outside of

mainstream economic activity, for example picking up bottles and cans along the roadside for the deposits.

2. If the SP is an economic good that the employer must purchase or pay for, then there is an incentive for the employer to reduce its cost like the cost of any other economic good or input.
3. The value of a SP depends on the supply of the particular skill vs. the demand for that particular skill.
4. A high SP motivates people to acquire that particular skill.
5. As more people acquire the particular skill, the supply relative to the demand increases, thus the value of the SP is reduced.
6. When enough people acquire the particular skill, the SP becomes zero, and therefore a component or characteristic of the baseline or minimum wage.
7. While not strictly part of classical economic theory, the extremely fluid and dynamic nature of current job markets causes rapid changes in the value of the SP. For example, the "skill premium" for COBOL programming was high for many years as long as most American businesses had centralized data processing departments and mainframe computers which generally used COBOL. The shift to distributed computing through the use of networked PCs resulted in a substantial oversupply of COBOL programmers relative to the demand with a dramatic reduction in the "skills premium," which in many cases became zero in that no jobs were available. With management realization ( and in some cases panic) over the year 2000 problem with the older COBOL program which used only the last

two digits of the year such that the program would interpret the date 2001 as 1901, the SP for COBOL programming suddenly increased to the extent that schools and institutes are again offering COBOL programming courses because of student demand resulting from the greatly increased SP.

Let us examine what these items implies for VOTE in the practitioner and policy maker context .

First, when an economist (or a person using the perspectives of economics, that is an employer) makes the statement that a labor shortage exists in a particular category, what is probably meant is that the SP which is currently necessary to acquire or retain an employee with the desired skills is "excessive." In (too) many cases "excessive" is defined as being greater than zero. This insight helps to explain or resolve the "problematique" of having the National Science Foundation trumpeting an existing large and growing shortage of scientists, engineers and technicians simultaneously with the public announcements of professional accrediting organizations such as the Technology Accreditation Commission / Accreditation Board for Engineering and Technology [TAC/ABET] and their member organizations such as the National Society of Professional Engineers [NSPE] that there is currently a gross oversupply of scientists, engineers and technician with schools currently producing two graduates for every available job, not counting those currently unemployed (in their profession) but qualified candidates and international employees in the United States on special work visas. The resolution is that these groups are talking about two quite different things. The NSF is observing, from the economic and employer perspective, that the SP is still "excessive" (that is above zero) for

the positions of interest, while TAC/ABET and NSPE is observing, from the perspective of the employee or worker, that the "skills premiums" for these positions are rapidly falling.

Items 1 through 6 have the following implications for VOTE policy makers, practitioners and participants:

1. While there is no ulterior motive in the sense of a plot or scheme to defraud, the employer has every incentive to obtain labor at the cheapest possible price just as they do for their other inputs such as machinery, materials and capital. These inputs interact. For example highly skilled labor, with an accompanying large "skills premium," can be used to compensate for lesser or variable quality materials, obsolescent machinery, and they can do this with minimal supervision, thus economizing on the need for capital investments and indirect labor such as supervisors and inspectors. Conversely, the employer may decide to minimize or even eliminate their need to pay a SP for direct labor by work simplification, machinery / methods improvements such as automation, standardization of materials and close supervision / inspection. This trend is especially clear in organizations in the later stages of economic and institutional evolution where institutional ownership has become indirect and fragmented, management has become professional (impersonal) and output has become abstracted into a branch of number theory. An additional factor is the discovery by Demming and many other investigators in the field of Statistical Quality Control that one of the more productive and effective

techniques to standardize, improve and maintain high product quality is to eliminate any way for the worker to directly affect the operation. For example, if the operation is to drill a hole in a workpiece, the speed and feed rate of the drill should not be under manual operator control but should be machine controlled so that these remain constant from part to part, day to day, operator to operator. Indeed, Demming and many others would advise that not only should the feed rates and speeds of the drilling operation be standardized but also the type and manufacturer of the drill bit, frequency of tool change, the jigs and fixtures, the drill press, the coolant, and any other item that is possible to control, in order to reduce and as possible eliminate variation in the parts produced. These two objectives, (1) reduction and as possible elimination of the "skills premium," and (2) minimization of product variation, combine to cause most employers to structure their operations so that only minimal employee skills are required and desired other than the ability to follow instructions exactly. It can be, and frequently is, argued that this is only partially true and is correct only for routine and repetitive job elements, however as the routine and repetitive job elements are what generates profit for the vast majority of employers, employees and activities, then it is correct in the vast majority of cases. Accordingly, although there always will be exceptions to this general principal, VOTE participants, either as practitioners or learners, must assume that any occupation or specialization which is primarily conducted or performed in a employee / employer

relationship, will be analyzed, subdivided and mechanized / automated to the extent necessary to minimize and as possible eliminate any skills premium and to standardize the output. Most apparent exceptions to this general rule are due to the (possibly unstated and even unconscious inclusion) addition of non-traditional activities such as supervision, training, and innovation to the "normal" routine and repetitive job elements. Even this apparent exception disappears when a more holistic or inclusive view is taken of the entire process, because these higher level activities such as supervision, training and innovation which traditionally justified a higher SP are now being conducted by individuals with a lower or even no SP. Thus the general rule is that all wage occupations, specializations and professions tend to become standardized minimum wage activities over time, subject to the conditions and exceptions in the item 2 discussion below.

2. The principal of this item is that the existence and size of the SP depends entirely on the interaction of two factors **totally outside of the control of the individual,** specifically: (1) how many people currently have and willing to apply the particular skill; and (2) how large is the current demand for that skill relative to the supply. Thus it is entirely possible to possess a rare skill or knowledge, such as the ability to play the Chinese nose flute, but to secure no SP for that skill or knowledge because of a lack of demand. This seemingly simple relationship is complicated in that there is neither a fixed skill supply nor a fixed skill demand at any given point in

time, but rather a supply that tends to increase as the SP offered increases and a demand that tends to increase as the SP decreases. Thus there are three possible conditions for any given SP: (A) The number of people who currently possess a given skill and are willing to apply it at this level of SP are fewer than the number of people currently needed (or desired); (B) The number of people who currently possess a given skill and are willing to apply it at this level of SP are about equal to the need / demand; and (C) more people possess the particular skill and are willing to apply it at this level of SP. Subject to the continuing effort of employers to reduce the SP to zero as discussed above, Free Market Economics 101 (and experience) indicate the following likely outcomes for these conditions:

- a) The SP offered by the employer will increase to the level necessary to cause enough workers who possess the desired skill to apply it to meet the perceived needs of the employer, (or the number of people thought to be required will be reevaluated and desires will be separated from needs).
- b) Because there is a match between the numbers of workers available and the number of workers required the SP will remain constant. A stable SP for one particular skill does not necessarily indicate a stable labor market. For example, a particular occupational niche may require a combination of skills, which include those necessary for several others, thus a stable SP in one particular category may coexist with shortages or surpluses in others. This is particularly



true for the increasingly common multi-occupational or multi-professional employee.

- c) Because a surplus of workers with the given skill and who are willing to apply it for the SP offered exists, the employer can reduce the SP until the number of workers available matches the number of workers required. This can result in either an increase in the total number of workers in that category for the same cost (worker banking) or the overall cost can be reduced for the same number of employees. (cost avoidance)
3. Because most individuals' objectives for vocational education is increased income, that is higher individual SPs, there is a predictable tendency for VOTE practitioners, policy-makers and participants to concentrate on skills and occupations with high perceived SPs, subject to other factors such as the participants' interests, parental guidance / prejudice, opportunities for local employment, social acceptability, etc. The general principal is that this results in VOTE concentration on a few, currently high SP occupations, subject to two qualifications. First, high is a relative term, as in high compared to what. Second, the perception of high SPs is not the same as the existence of high SPs, which are frequently assumed to exist because of a publicized “shortage” in a particular specialty. As previously indicated, the word “shortage” is used in the employment context with very different meanings by economists / managers and the general public. The effects of the free market discussed under the following item indicate that

this cycle of “creaming” or concentrating on “high” SP occupations will continue until NO occupations will have a significant SP.

4. Most VOTE programs have become highly efficient and highly effective in the context of rapid education and training in specific job skills and occupations. What may have required four years or more under the traditional master / apprentice procedures can frequently be accomplished in one year or less. Indeed, traditional baccalaureate programs in technical areas such as computer programming have been reduced from four or five years to one year or less by many proprietary schools. This “compression” has both good and bad effects. It is good in that demands by the market economy can be rapidly met, that is whenever an occupational niche exhibits a “high” SP, a large number of qualified workers will be rapidly trained to meet this demand, however this also has a downside. The rapid training possible by current VOTE means that high SPs will exist only for a very limited amount of time because the excess of demand over supply can be met so quickly, unless non-economic factors (restrictions) such as licensure or union membership restrictions prevent operation of the free market. The general principal is that any significant SP which currently exists will rapidly disappear.
5. By definition, as SPs approach zero, these become skills expected in the general population and thus required for employment at the baseline or minimum hourly wage. An example of this is the ability of drive a car. At one time this was a skill which few people possessed, and therefore a

chauffeur had a relatively large SP when cars were still new and somewhat hard to operate. As cars became common and the operations were “automated” as in the introduction of “automatic” transmissions and “automatic” chokes any SP for the specific ability to drive a car became minimal. While this example is correct for the great majority of people, exceptions do exist. For example, successful race car drivers are very well compensated, and drivers of specialty vehicles such as large trucks and busses do continue to command a slight SP, which is affected by both economic forces (that is excess of demand over supply) and non-economic forces such as licensure requirements (CDL) and union membership. The very limited number of paid positions for race car drivers, at most a few hundred world wide, excludes this from serious VOTE consideration. The extremely high driver turnover in the trucking industry (which is the proximate cause for the continuing demand) indicates that while the SP is perceived to be high enough to attract large numbers of new applicants, in reality the SP is inadequate to compensate for undesirable working conditions such as long and frequent family separations. The principal is that the amount of skills necessary for minimum or baseline employment continually increases without a corresponding increase in the minimum or baseline compensation.

6. The extremely unstable and unpredictable nature of the current economy, combined with the current ability of VOTE to rapidly produce qualified workers for almost any occupational niche, means that it is no longer

possible, except in the most general sense, to engage in meaningful career or occupational planning, especially in the context of acquiring and maintaining a high SP. Indeed, the current situation resembles a bingo game in which the players (workers) have a number of genetic and acquired characteristics, and if the economy by chance happens to need the combination of characteristics that only a few workers possess then these “win” and all the rest lose, at least until the next roll of the dice. (It should be noted that if many workers have the required / desired combination of characteristics, then there is no SP because this is a general or baseline occupational niche.) In this sense, VOTE has become more like a seller of lottery tickets where the more tickets a person buys the better their chances are to win, than the traditional perception of VOTE as a savings bank into which you invested your money (time) and which would then pay you interest indefinitely. Although the old adage “The harder I work, the luckier I get” may still apply, the operational principal of this item is that the acquisition and maintenance of a high personal SP is now mainly a matter of chance or luck.

**APPENDIX F**

**VALUE OF EDUCATION**

## **The “value” of Education.**

It is frequently suggested that education should be run like a business in order to minimize costs and maximize efficiency. If this is a reasonable suggestion, then it should also be reasonable to evaluate the “value” of education, at least to the individual, using business methods and techniques, specifically the net present value [NPV] or discounted cash flow [DCF] procedure. The details of this procedure can be found in most accounting business accounting texts. Briefly, what the procedure does is to calculate the present value of future expenditures or receipts, and to base financial decisions on the net present value of these expenditures or receipts, thus eliminating the complicating effect of the “time value” of money. An example will make this procedure clearer. Assume that you have won the lottery and are presented with the choice of one million dollars now, or one hundred thousand dollars a year for ten years. Most people would opt for immediate payment, The problem is more complex however if the option is between one million dollars now or the following options:

Year	Option #1	Option #2	Option #3
1	\$100,000	\$100,000	\$130,477
2	\$100,000	\$104,000	\$126,677
3	\$100,000	\$108,160	\$122,987
4	\$100,000	\$112,486	\$119,405
5	\$100,000	\$116,986	\$115,927
6	\$100,000	\$121,665	\$112,551
7	\$100,000	\$126,532	\$109,273
8	\$100,000	\$131,593	\$106,090
9	\$100,000	\$133,857	\$103,000
10	\$100,000	\$113,000	\$100,000
<b>Total</b>	<b>1,000,000\$</b>	<b>\$1,200,611</b>	<b>\$1,146,388</b>

The tendency for most people would be to select option 2, as this apparently provides the greatest total return, however this neglects the time value of the money. Because the larger payments of option 2 are far in the future, they are worth less immediately. While any discount rate can be chosen, a current typical rate is 5%. In effect this asks how much would one have to invest at the present time at 5% compound return to receive a given sum in the future. For example, what is the current or net present value of \$1.05 to be received in one year if an annual interest rate of 5% is assumed. The answer of course is \$1.00.

If the above values are discounted at 5% the following result is obtained.

Year	NPV 1\$ @ 5%	NPV Option #1	NPV Option #2	NPV Option #3
1	1.00\$	\$100,000	\$100,000	\$130,477
2	0.95\$	\$95,238	\$99,048	\$120,645
3	0.91\$	\$90,703	\$98,104	\$111,553
4	0.86\$	\$86,384	\$97,170	\$103,147
5	0.82\$	\$82,270	\$96,245	\$95,374
6	0.78\$	\$78,353	\$95,328	\$88,187
7	0.75\$	\$74,622	\$94,420	\$81,541
8	0.71\$	\$71,068	\$93,521	\$75,396
9	0.68\$	\$67,684	\$90,600	\$69,714
10	0.64\$	\$64,461	\$72,841	\$64,461
Total		\$810,782	\$937,276	\$940,495

It can therefore be seen that when the time value of money is considered, what at first appears to be the best choice may not be optimal. Because we have the projected median income for various educational attainment levels (Chapter 4), and good estimates of the required investment of time and money, it is possible to perform a “business” or NPV/DCF analysis of education for the individual.



Please note the following simplifying assumptions which uniformly result in the best possible case for additional “education” beyond high school.

1. Income is considered to be uniform throughout the working life. In actuality, higher income is skewed to the later years where the discount is higher and the NPV less. While not documented, it seems plausible that the higher the level of educational attainment, the more the peak earning years are skewed into the future.
2. Both the increase in total tax rates with time and the affect of progressive tax rates are ignored.
3. Opportunity costs are implicitly included because of the lower or no income shown for the post-secondary learners.
4. Carrying costs of (interest on) student loans are ignored, only cumulative cash-flow is considered.
5. High school graduation at 18 and a 50 year working life are assumed.
6. Values are in constant value inflation adjusted 1996 Dollars.
7. A working year of 2080 hours is assumed.
8. The median hourly wage rates are projected using the linear trend line equations previously calculated from last known (1996) values. From Chapter 4 these are:
  - 1 High school - \$10.60 per hour base less \$0.0773 per year
  - 2 Post-secondary - \$11.92 per hour base less \$0.0626 per year
  - 3 Baccalaureate - \$17.25 per hour constant

9. Three attainment levels are evaluated, high school, post secondary, and baccalaureate at three different discount rates 5% (Chart 1 - NPVED), 7% (Chart 2 - NPVED), and 9% (Chart 3 - NPVED).
10. VoTech charges of \$1,000 per year for two years are assumed.
11. Full time employment while attending VoTech is assumed.
12. Net college costs of \$12,500 per year for four years are assumed.
13. Part-time employment while attending college with minimal income is assumed.
14. Yield from alternative investment of either college tuition (\$50,000) or VoTech fees (\$2,000) is not considered.

**RESULTS:**

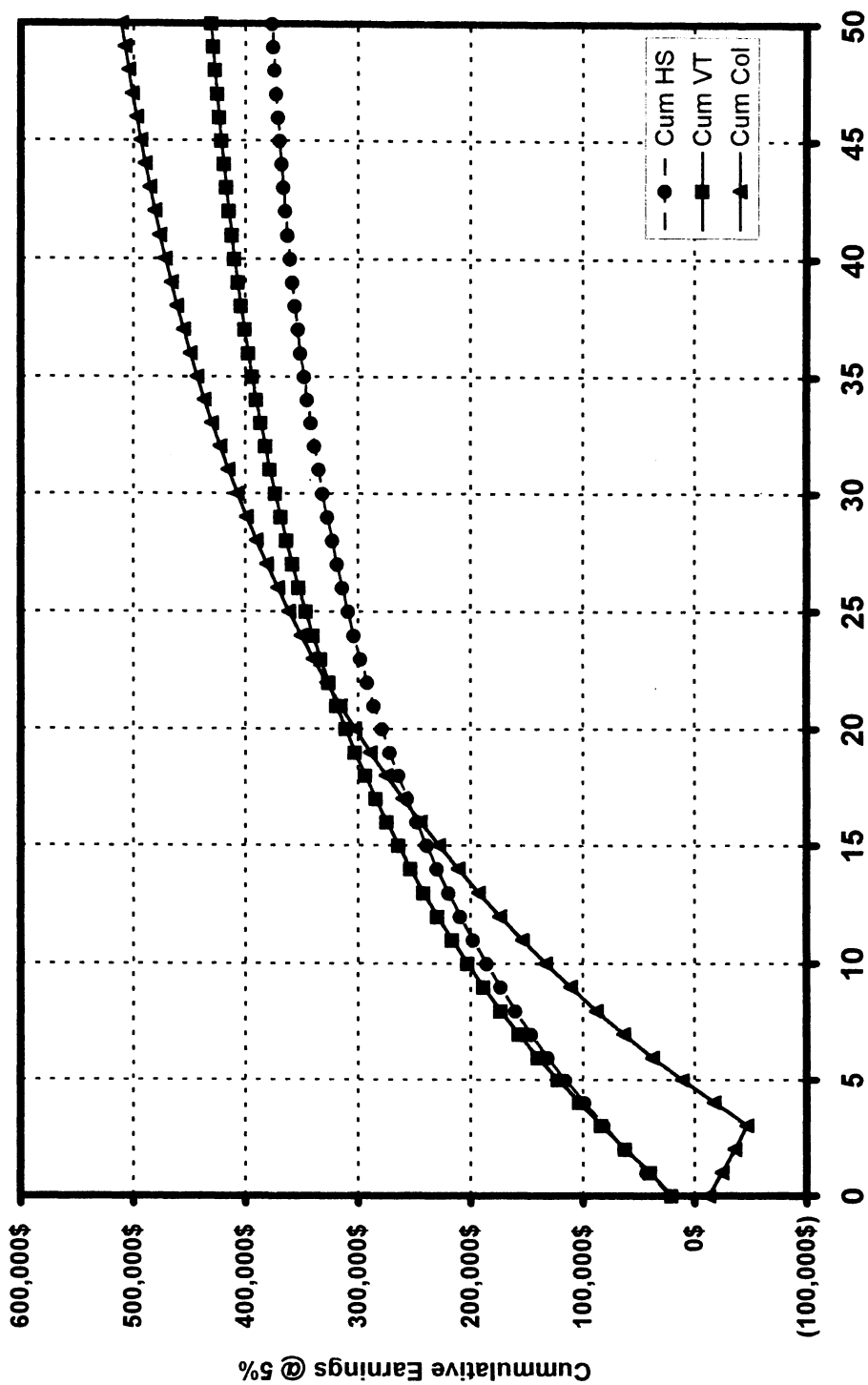
Examination of the following charts indicates the following:

15. Using commonly accepted criteria for investment analysis, it is clear that if college education was proposed as a business investment, it and its advocate would be ridiculed. Normal business practice requires “break-even” in one year or less without tax affect, and “break-even” in two years or less with tax effect, if a capital investment is to be even considered. Under the best case condition of 5% DCF, “break-even” of college does not occur until about 5.8 years into the project, and a net gain over the alternative of high school only does not occur until about 18 years into the project. Net gain over post-secondary [VoTech] education does not occur until 22 years into the project.
16. If the somewhat higher but more realistic discount rate of 9% is used, net gain over high school education only does not occur until 30 years into the project and

the post-secondary (VoTech) alternative is never exceeded, indicating an internal rate of return [IRR] of about 8% which is very low for a business investment.

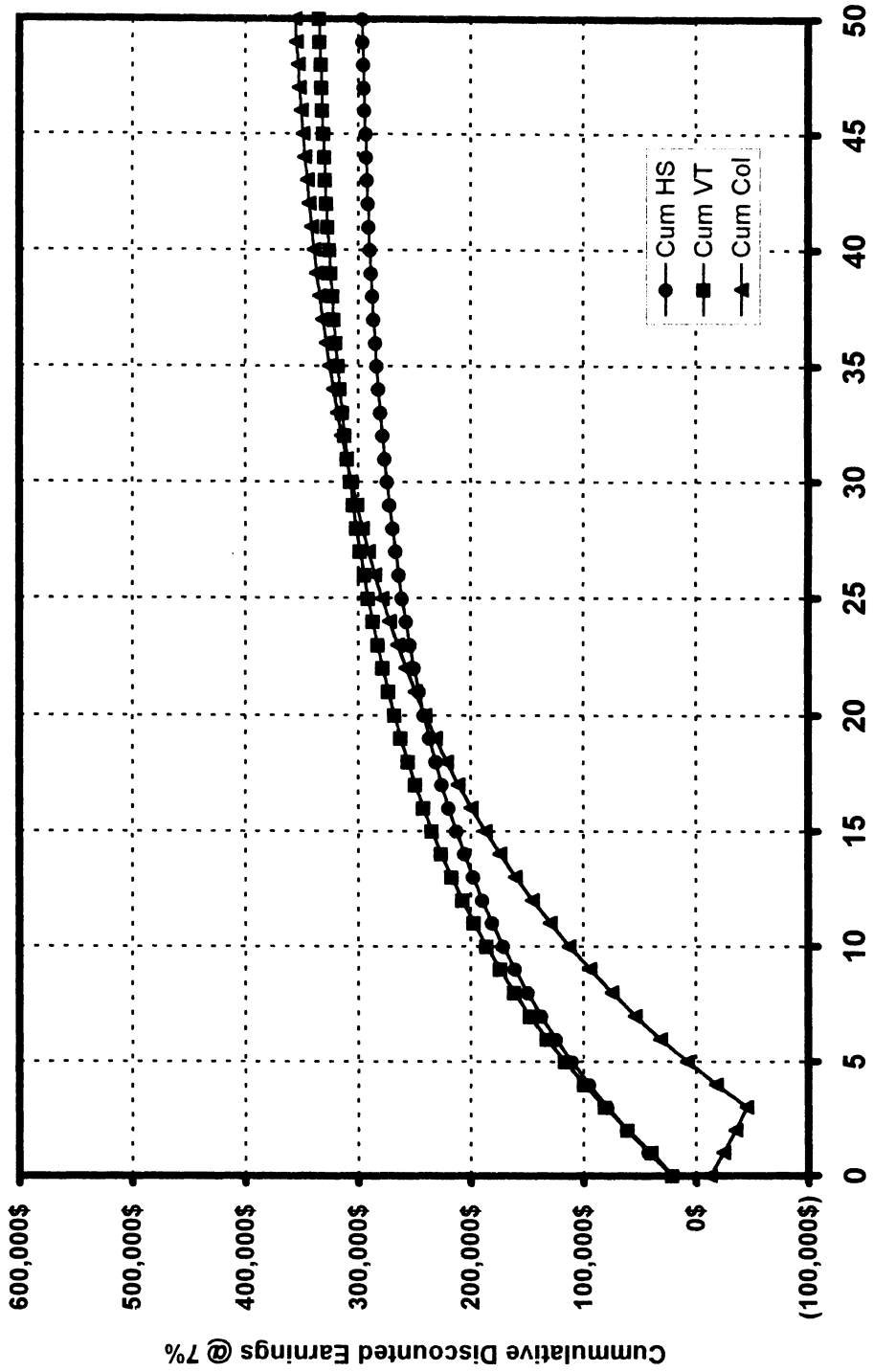
17. Ignoring any “quality-of-life” issues, if the only criteria is maximum economic income / return to the typical individual, it appears that the optimum strategy would be high school graduation, enlistment in the armed forces, and investment of the college costs in a good mutual fund.

Cummulative DCF (Earnings) @ 5%  
High School, Post-Secondary and Baccalaureate



Years out of High School  
Chart 1 -NPVED.XLS

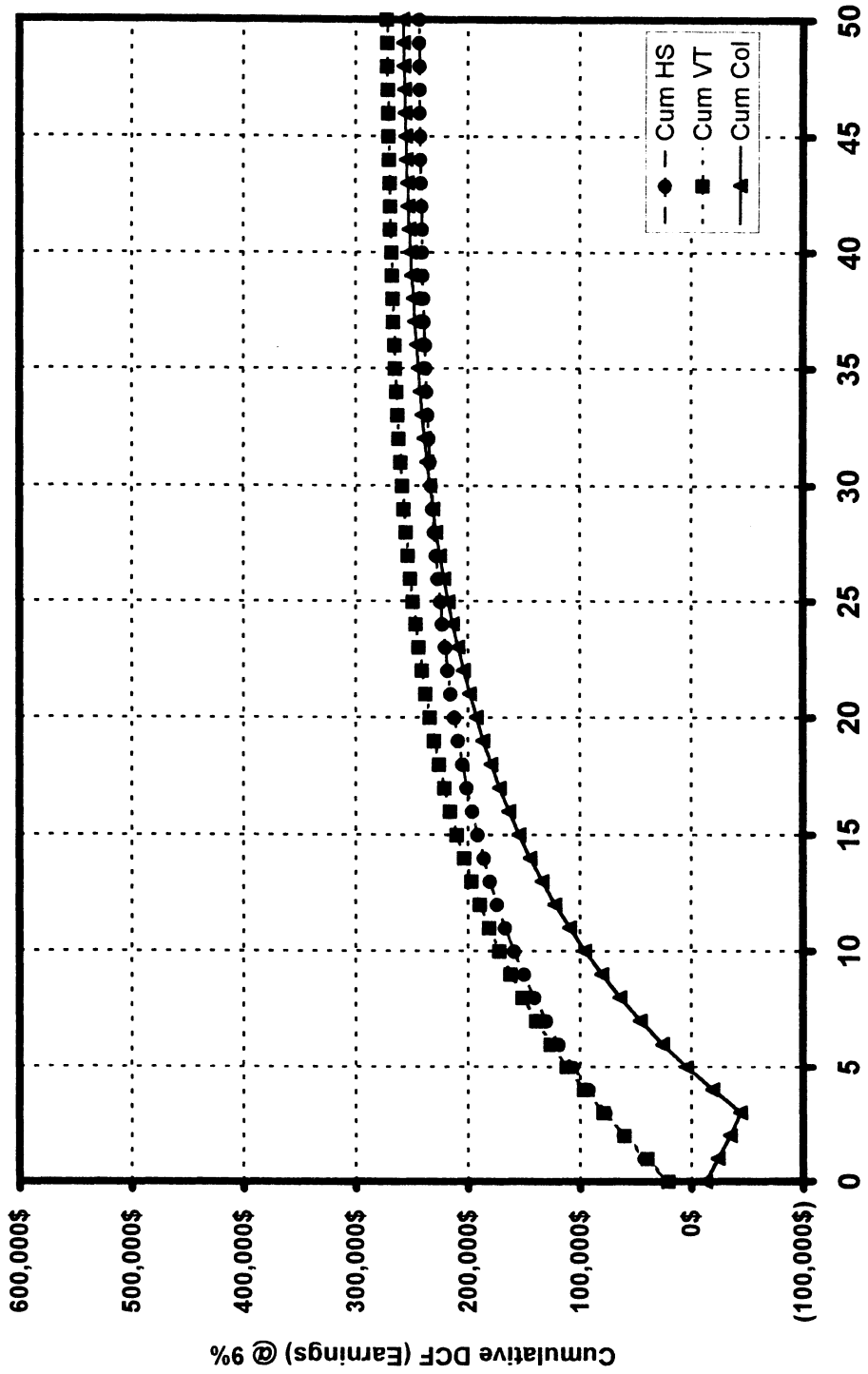
### Cumulative DCF (Earnings) @ 7%



Years out of High School

Chart 2 - NPVED.XLS

### Cumulative DCF (Earnings) @ 9% High School, Post-Secondary, and Baccalaureate



Years out of High School  
Chart 3 - NPVED.XLS

year	age	yrs	npv@5%	npv@7%	npv@9%	HS →			
						current	npv@5%	npv@7%	npv@9%
1996	18	0	1.00000	1.00000	1.00000	22,048\$	22,048\$	22,048\$	22,048\$
1997	19	1	0.95238	0.93458	0.91743	21,887\$	20,845\$	20,455\$	20,080\$
1998	20	2	0.90703	0.87344	0.84168	21,726\$	19,707\$	18,977\$	18,287\$
1999	21	3	0.86384	0.81630	0.77218	21,566\$	18,629\$	17,604\$	16,653\$
2000	22	4	0.82270	0.76290	0.70843	21,405\$	17,610\$	16,330\$	15,164\$
2001	23	5	0.78353	0.71299	0.64993	21,244\$	16,645\$	15,147\$	13,807\$
2002	24	6	0.74622	0.66634	0.59627	21,083\$	15,733\$	14,049\$	12,571\$
2003	25	7	0.71068	0.62275	0.54703	20,923\$	14,869\$	13,029\$	11,445\$
2004	26	8	0.67684	0.58201	0.50187	20,762\$	14,052\$	12,084\$	10,420\$
2005	27	9	0.64461	0.54393	0.46043	20,601\$	13,280\$	11,206\$	9,485\$
2006	28	10	0.61391	0.50835	0.42241	20,440\$	12,548\$	10,391\$	8,634\$
2007	29	11	0.58468	0.47509	0.38753	20,279\$	11,857\$	9,635\$	7,859\$
2008	30	12	0.55684	0.44401	0.35553	20,119\$	11,203\$	8,933\$	7,153\$
2009	31	13	0.53032	0.41496	0.32618	19,958\$	10,584\$	8,282\$	6,510\$
2010	32	14	0.50507	0.38782	0.29925	19,797\$	9,999\$	7,678\$	5,924\$
2011	33	15	0.48102	0.36245	0.27454	19,636\$	9,445\$	7,117\$	5,391\$
2012	34	16	0.45811	0.33873	0.25187	19,475\$	8,922\$	6,597\$	4,905\$
2013	35	17	0.43630	0.31657	0.23107	19,315\$	8,427\$	6,115\$	4,463\$
2014	36	18	0.41552	0.29586	0.21199	19,154\$	7,959\$	5,667\$	4,061\$
2015	37	19	0.39573	0.27651	0.19449	18,993\$	7,516\$	5,252\$	3,694\$
2016	38	20	0.37689	0.25842	0.17843	18,832\$	7,098\$	4,867\$	3,360\$
2017	39	21	0.35894	0.24151	0.16370	18,672\$	6,702\$	4,509\$	3,056\$
2018	40	22	0.34185	0.22571	0.15018	18,511\$	6,328\$	4,178\$	2,780\$
2019	41	23	0.32557	0.21095	0.13778	18,350\$	5,974\$	3,871\$	2,528\$
2020	42	24	0.31007	0.19715	0.12640	18,189\$	5,640\$	3,586\$	2,299\$
2021	43	25	0.29530	0.18425	0.11597	18,028\$	5,324\$	3,322\$	2,091\$
2022	44	26	0.28124	0.17220	0.10639	17,868\$	5,025\$	3,077\$	1,901\$
2023	45	27	0.26785	0.16093	0.09761	17,707\$	4,743\$	2,850\$	1,728\$
2024	46	28	0.25509	0.15040	0.08955	17,546\$	4,476\$	2,639\$	1,571\$
2025	47	29	0.24295	0.14056	0.08215	17,385\$	4,224\$	2,444\$	1,428\$
2026	48	30	0.23138	0.13137	0.07537	17,224\$	3,985\$	2,263\$	1,298\$
2027	49	31	0.22036	0.12277	0.06915	17,064\$	3,760\$	2,095\$	1,180\$
2028	50	32	0.20987	0.11474	0.06344	16,903\$	3,547\$	1,939\$	1,072\$
2029	51	33	0.19987	0.10723	0.05820	16,742\$	3,346\$	1,795\$	974\$
2030	52	34	0.19035	0.10022	0.05339	16,581\$	3,156\$	1,662\$	885\$
2031	53	35	0.18129	0.09366	0.04899	16,421\$	2,977\$	1,538\$	804\$
2032	54	36	0.17266	0.08754	0.04494	16,260\$	2,807\$	1,423\$	731\$
2033	55	37	0.16444	0.08181	0.04123	16,099\$	2,647\$	1,317\$	664\$
2034	56	38	0.15661	0.07646	0.03783	15,938\$	2,496\$	1,219\$	603\$
2035	57	39	0.14915	0.07146	0.03470	15,777\$	2,353\$	1,127\$	548\$
2036	58	40	0.14205	0.06678	0.03184	15,617\$	2,218\$	1,043\$	497\$
2037	59	41	0.13528	0.06241	0.02921	15,456\$	2,091\$	965\$	451\$
2038	60	42	0.12884	0.05833	0.02680	15,295\$	1,971\$	892\$	410\$
2039	61	43	0.12270	0.05451	0.02458	15,134\$	1,857\$	825\$	372\$
2040	62	44	0.11686	0.05095	0.02255	14,974\$	1,750\$	763\$	338\$
2041	63	45	0.11130	0.04761	0.02069	14,813\$	1,649\$	705\$	307\$
2042	64	46	0.10600	0.04450	0.01898	14,652\$	1,553\$	652\$	278\$
2043	65	47	0.10095	0.04159	0.01742	14,491\$	1,463\$	603\$	252\$
2044	66	48	0.09614	0.03887	0.01598	14,330\$	1,378\$	557\$	229\$
2045	67	49	0.09156	0.03632	0.01466	14,170\$	1,297\$	515\$	208\$
2046	68	50	0.08720	0.03395	0.01345	14,009\$	1,222\$	476\$	188\$
					total	919,448\$	376,935\$	296,308\$	243,587\$

VOTECH ----->				College ----->			
current	npv@5%	npv@7%	npv@9%	current	npv@5%	npv@7%	npv@9%
21,048\$	21,048\$	21,048\$	21,048\$	(12,500\$)	(12,500\$)	(12,500\$)	(12,500\$)
19,845\$	18,900\$	18,547\$	18,206\$	(12,500\$)	(11,905\$)	(11,682\$)	(11,468\$)
24,533\$	22,252\$	21,428\$	20,649\$	(12,500\$)	(11,338\$)	(10,918\$)	(10,521\$)
24,403\$	21,080\$	19,920\$	18,844\$	(12,500\$)	(10,798\$)	(10,204\$)	(9,652\$)
24,273\$	19,969\$	18,518\$	17,195\$	35,880\$	29,519\$	27,373\$	25,418\$
24,143\$	18,916\$	17,213\$	15,691\$	35,880\$	28,113\$	25,582\$	23,320\$
24,012\$	17,918\$	16,000\$	14,318\$	35,880\$	26,774\$	23,908\$	21,394\$
23,882\$	16,973\$	14,873\$	13,064\$	35,880\$	25,499\$	22,344\$	19,628\$
23,752\$	16,076\$	13,824\$	11,920\$	35,880\$	24,285\$	20,882\$	18,007\$
23,622\$	15,227\$	12,849\$	10,876\$	35,880\$	23,129\$	19,516\$	16,520\$
23,492\$	14,422\$	11,942\$	9,923\$	35,880\$	22,027\$	18,240\$	15,156\$
23,361\$	13,659\$	11,099\$	9,053\$	35,880\$	20,978\$	17,046\$	13,905\$
23,231\$	12,936\$	10,315\$	8,259\$	35,880\$	19,979\$	15,931\$	12,757\$
23,101\$	12,251\$	9,586\$	7,535\$	35,880\$	19,028\$	14,889\$	11,703\$
22,971\$	11,602\$	8,908\$	6,874\$	35,880\$	18,122\$	13,915\$	10,737\$
22,840\$	10,987\$	8,278\$	6,271\$	35,880\$	17,259\$	13,005\$	9,850\$
22,710\$	10,404\$	7,693\$	5,720\$	35,880\$	16,437\$	12,154\$	9,037\$
22,580\$	9,852\$	7,148\$	5,218\$	35,880\$	15,654\$	11,359\$	8,291\$
22,450\$	9,328\$	6,642\$	4,759\$	35,880\$	14,909\$	10,616\$	7,606\$
22,320\$	8,833\$	6,172\$	4,341\$	35,880\$	14,199\$	9,921\$	6,978\$
22,189\$	8,363\$	5,734\$	3,959\$	35,880\$	13,523\$	9,272\$	6,402\$
22,059\$	7,918\$	5,328\$	3,611\$	35,880\$	12,879\$	8,665\$	5,873\$
21,929\$	7,496\$	4,950\$	3,293\$	35,880\$	12,266\$	8,099\$	5,389\$
21,799\$	7,097\$	4,598\$	3,003\$	35,880\$	11,681\$	7,569\$	4,944\$
21,669\$	6,719\$	4,272\$	2,739\$	35,880\$	11,125\$	7,074\$	4,535\$
21,538\$	6,360\$	3,968\$	2,498\$	35,880\$	10,595\$	6,611\$	4,161\$
21,408\$	6,021\$	3,686\$	2,278\$	35,880\$	10,091\$	6,178\$	3,817\$
21,278\$	5,699\$	3,424\$	2,077\$	35,880\$	9,610\$	5,774\$	3,502\$
21,148\$	5,395\$	3,181\$	1,894\$	35,880\$	9,153\$	5,396\$	3,213\$
21,018\$	5,106\$	2,954\$	1,727\$	35,880\$	8,717\$	5,043\$	2,948\$
20,887\$	4,833\$	2,744\$	1,574\$	35,880\$	8,302\$	4,713\$	2,704\$
20,757\$	4,574\$	2,548\$	1,435\$	35,880\$	7,906\$	4,405\$	2,481\$
20,627\$	4,329\$	2,367\$	1,309\$	35,880\$	7,530\$	4,117\$	2,276\$
20,497\$	4,097\$	2,198\$	1,193\$	35,880\$	7,171\$	3,848\$	2,088\$
20,367\$	3,877\$	2,041\$	1,087\$	35,880\$	6,830\$	3,596\$	1,916\$
20,236\$	3,669\$	1,895\$	991\$	35,880\$	6,505\$	3,361\$	1,758\$
20,106\$	3,471\$	1,760\$	904\$	35,880\$	6,195\$	3,141\$	1,612\$
19,976\$	3,285\$	1,634\$	824\$	35,880\$	5,900\$	2,935\$	1,479\$
19,846\$	3,108\$	1,517\$	751\$	35,880\$	5,619\$	2,743\$	1,357\$
19,715\$	2,941\$	1,409\$	684\$	35,880\$	5,351\$	2,564\$	1,245\$
19,585\$	2,782\$	1,308\$	624\$	35,880\$	5,097\$	2,396\$	1,142\$
19,455\$	2,632\$	1,214\$	568\$	35,880\$	4,854\$	2,239\$	1,048\$
19,325\$	2,490\$	1,127\$	518\$	35,880\$	4,623\$	2,093\$	961\$
19,195\$	2,355\$	1,046\$	472\$	35,880\$	4,403\$	1,956\$	882\$
19,064\$	2,228\$	971\$	430\$	35,880\$	4,193\$	1,828\$	809\$
18,934\$	2,107\$	902\$	392\$	35,880\$	3,993\$	1,708\$	742\$
18,804\$	1,993\$	837\$	357\$	35,880\$	3,803\$	1,597\$	681\$
18,674\$	1,885\$	777\$	325\$	35,880\$	3,622\$	1,492\$	625\$
18,544\$	1,783\$	721\$	296\$	35,880\$	3,450\$	1,395\$	573\$
18,413\$	1,686\$	669\$	270\$	35,880\$	3,285\$	1,303\$	526\$
18,283\$	1,594\$	621\$	246\$	35,880\$	3,129\$	1,218\$	483\$
1,089,894\$	430,525\$	334,404\$	272,094\$	1,636,360\$	510,772\$	355,706\$	258,341\$



**APPENDIX G**

**ECONOMY OF SCALE**

## **Probing a fundamental economic business assumption -- The myth of "economy of scale"**

One of the most basic assumptions in Management Science and Economics is the existence of an effect called "Economy of Scale." This is a highly plausible tenet that states that as an organization becomes larger it becomes more "efficient" because not all functions and sub-divisions must be increased at the same rate. For example, any single organization requires only one president, and doubling production of an item does not require doubling the Engineering or R & D support staff. Indeed, the acceptance of this has become so ingrained that it is now frequently offered as a short-hand rationale for almost any merger or acquisition, generally in the context "the consumer will benefit from the economy of scale." This of course begs the question "will any of the savings be passed on to the consumer," but a deeper and more fundamental problem exists: specifically, does "economy of scale" continue to be operational at the size and complexity of the new huge trans-national corporations, or as in so many other things does a point of diminishing returns exist? While this does not appear to be a VOTE question, as indicated in the other sections, very large organizations are playing an increasingly important role in the economy, and therefore it is worth probing. While different results may be obtained using a different selection of subjects or criteria for efficiency, chart1 dj1.xls plots the "efficiency" of the world's 250 largest corporations as ranked by their gross sales measured as per cent of gross sales. The assumption is that if an "economy of scale effect" does exist, profit measured as per cent of gross sales should increase as the size of the organization increases. Using data obtained from the 1998 Wall Street Journal Almanac, p203-7, profit as percent of sales versus gross sales was plotted and a first

degree LSBF trend or regression line. The F-ratio for these variables was calculated using the Excel statistics utilities with the following results:

#### Summary

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Gross Sales	250	7415158	29660.63	6.5E+08
Profit as % of Sales	250	10.92407	0.043696	0.002311

#### ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	1.1E+11	1	1.1E+11	338.4467	4.69E-58	3.860208
Within Groups	1.6E+11	498				
Total	2.7E+11	499				

1. The null hypothesis that there is no “economy of scale effect” for organizations of this size is rejected at the .05 .. level, however the sign of the effect is wrong indicating a dis-economy of scale or decreasing efficiency with an increase in size, with expected profits as a per cent of sales falling to zero about 225 billion \$US gross revenues.
2. This is so contrary to accepted wisdom that a second larger data set, the Fortune Global 500<sup>1</sup> was input and additional correlational studies were performed. The Fortune data had additional information such as the total assets, stock holder equity and number of employees. This allowed different definitions of organizational size and “efficiency” to be checked. These charts are identified as:

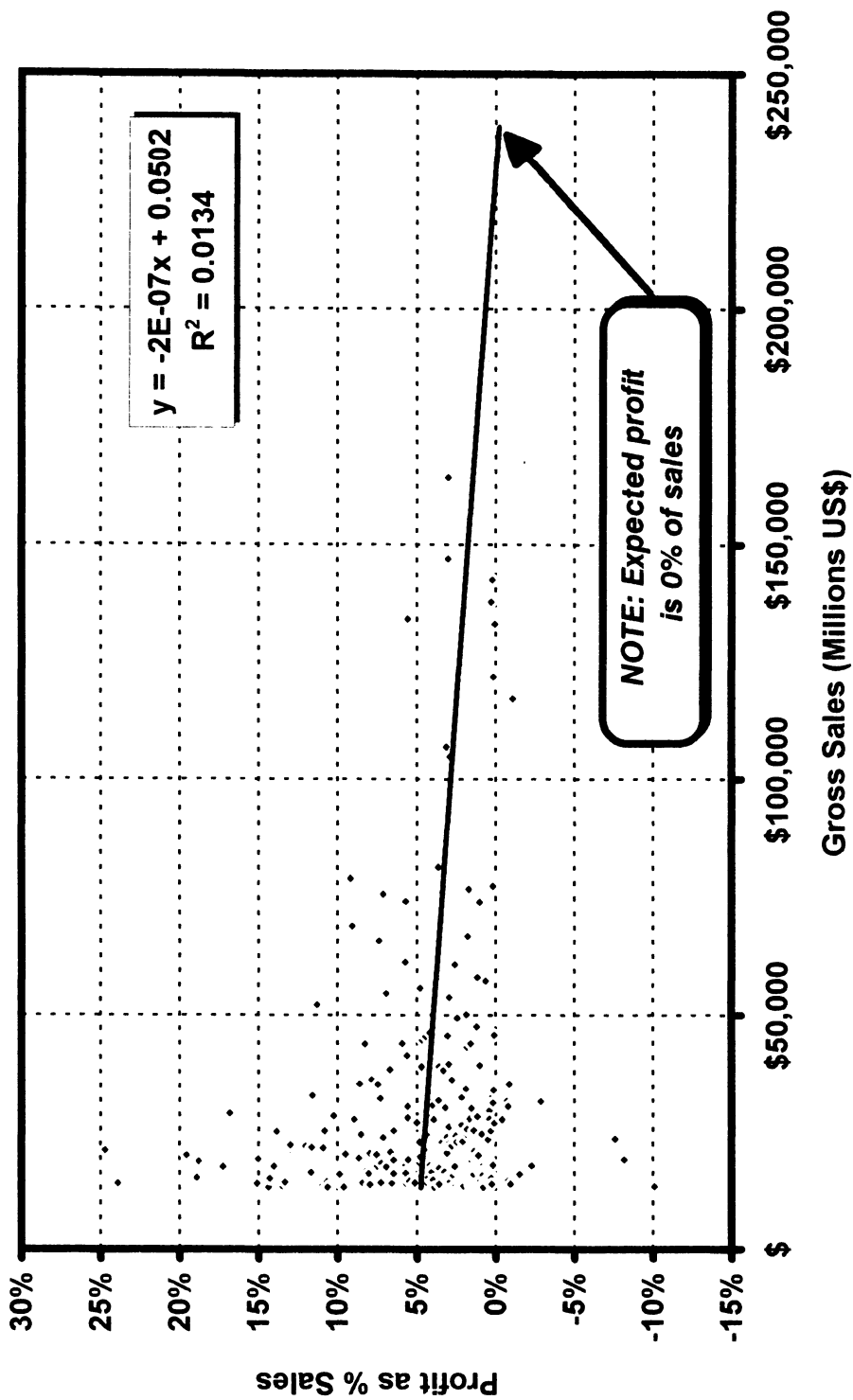
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<sup>1</sup> The World’s Largest Corporations (1998, August 3) Fortune F1-10

Size as $\bar{O}$ Efficiency as $\bar{a}$	Amount of Gross Sales	Amount of Total Assets	Stock Holders Equity	Number of Employees
Profit as per cent of sales	Chart 1	Chart 5	Chart 9	Chart 13
Profit as per cent of assets	Chart 2	Chart 6	Chart 10	Chart 14
Profit as % of Equity	Chart 3	Chart 7	Chart 11	Chart 15
Profit per employee	Chart 4	Chart 8	Chart 12	Chart 16

This is a large data set with 500 subjects, and their combined gross sales of \$11,453,516,500,000.00 is 41% of the entire world's output of goods and services, estimated at \$27,684,197,390,000.00 by the World Bank for the same period. It should be noted that this is not a sample but a census. The following pages summarize the F-ratio test results to determine possible correlation. It should be noted that there are different numbers of organizations. This is because some organizations either did not supply the data or it does not apply, for example, the United States and German Post Offices are included in this data set, but because they do not have stockholders, they are excluded from measures which require stockholder data.

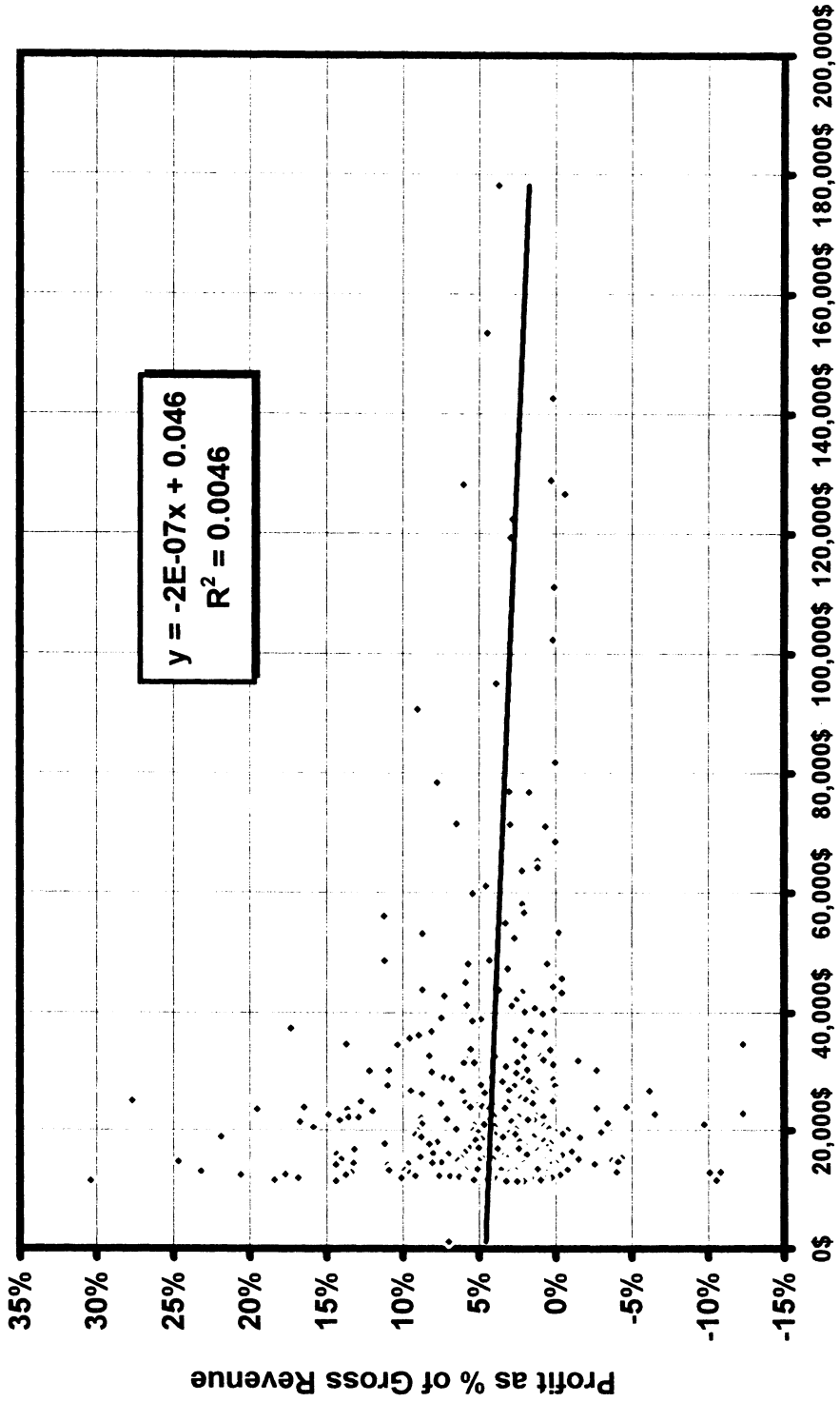
**Profit as % Sales vs. Sales for World's 250 largest companies**  
source: 1998 Wall Street Journal Almanac p203-207



DJ1.XLS

# Profit as % of revenue vs. Gross Revenue

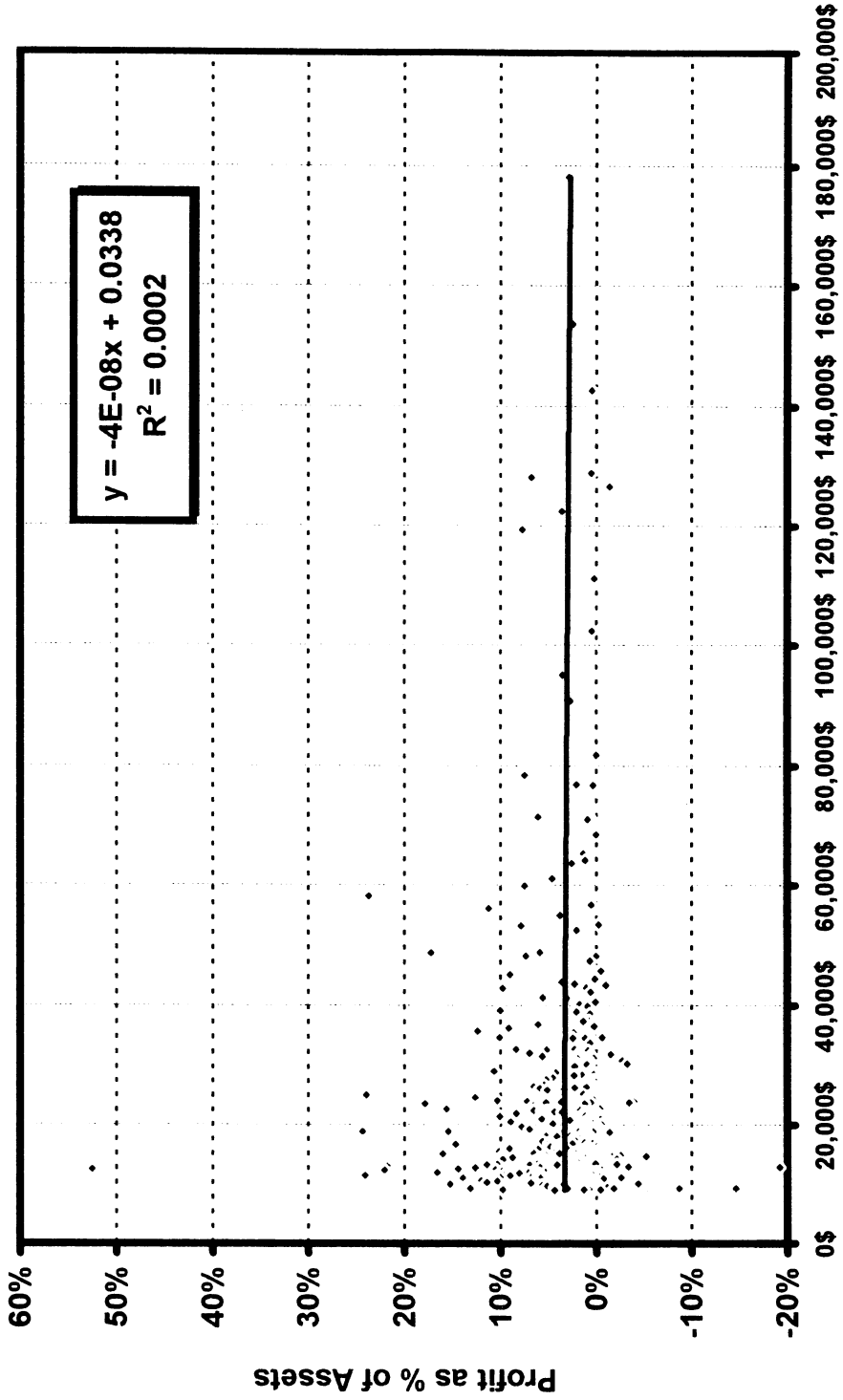
Fortune Global 500 source: Aug 3, 1998 Fortune



Gross Revenue in millions of US\$

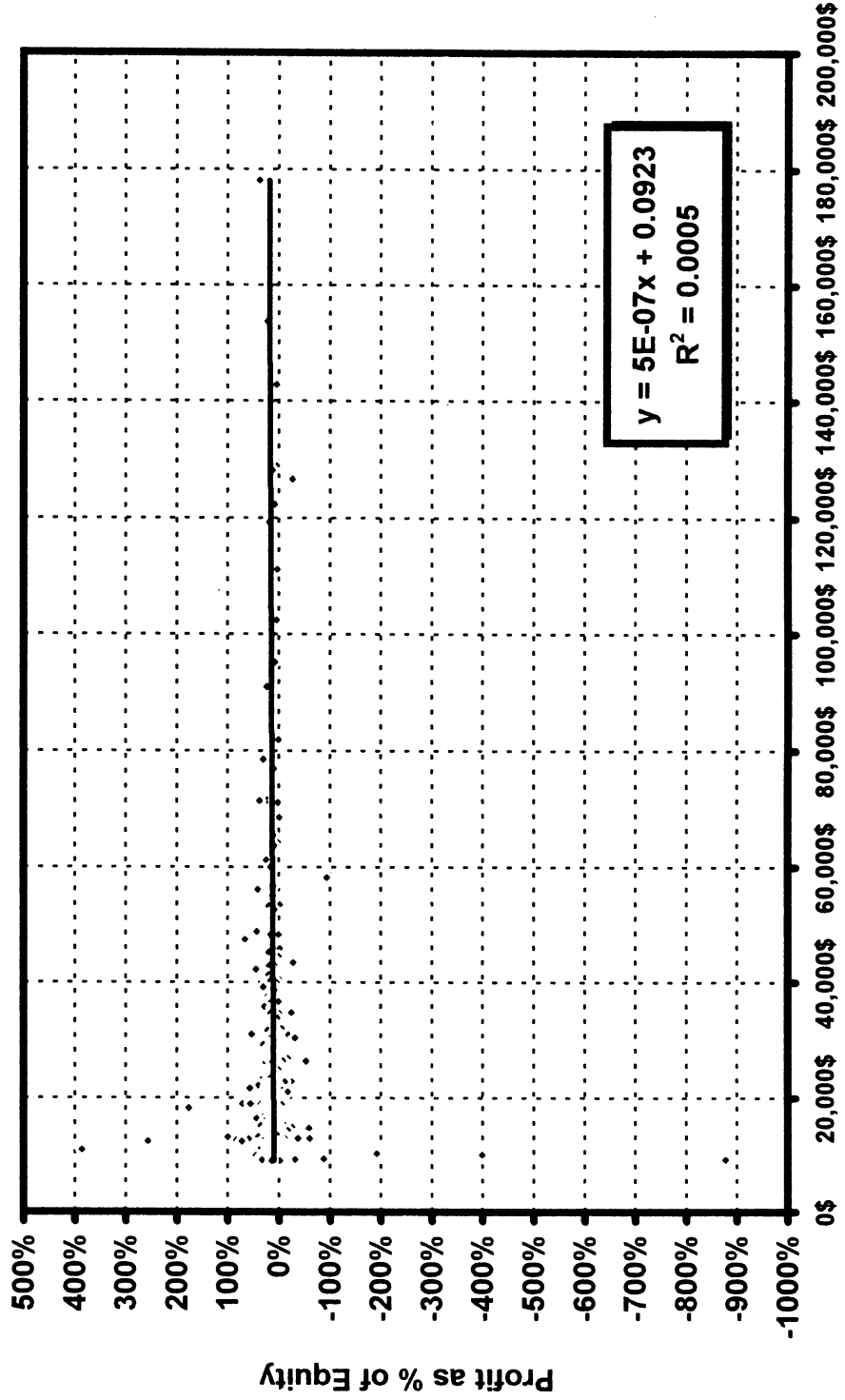
Chart 1 - GLB500.XLS

# Profit as % of Assets vs. Gross Revenues 1998 Fortune Global 500



Gross Revenues (Millions US\$)  
Chart 2 - GLB500.XLS

### Profit as % of Equity vs. Gross Revenues 1998 Fortune Global 500

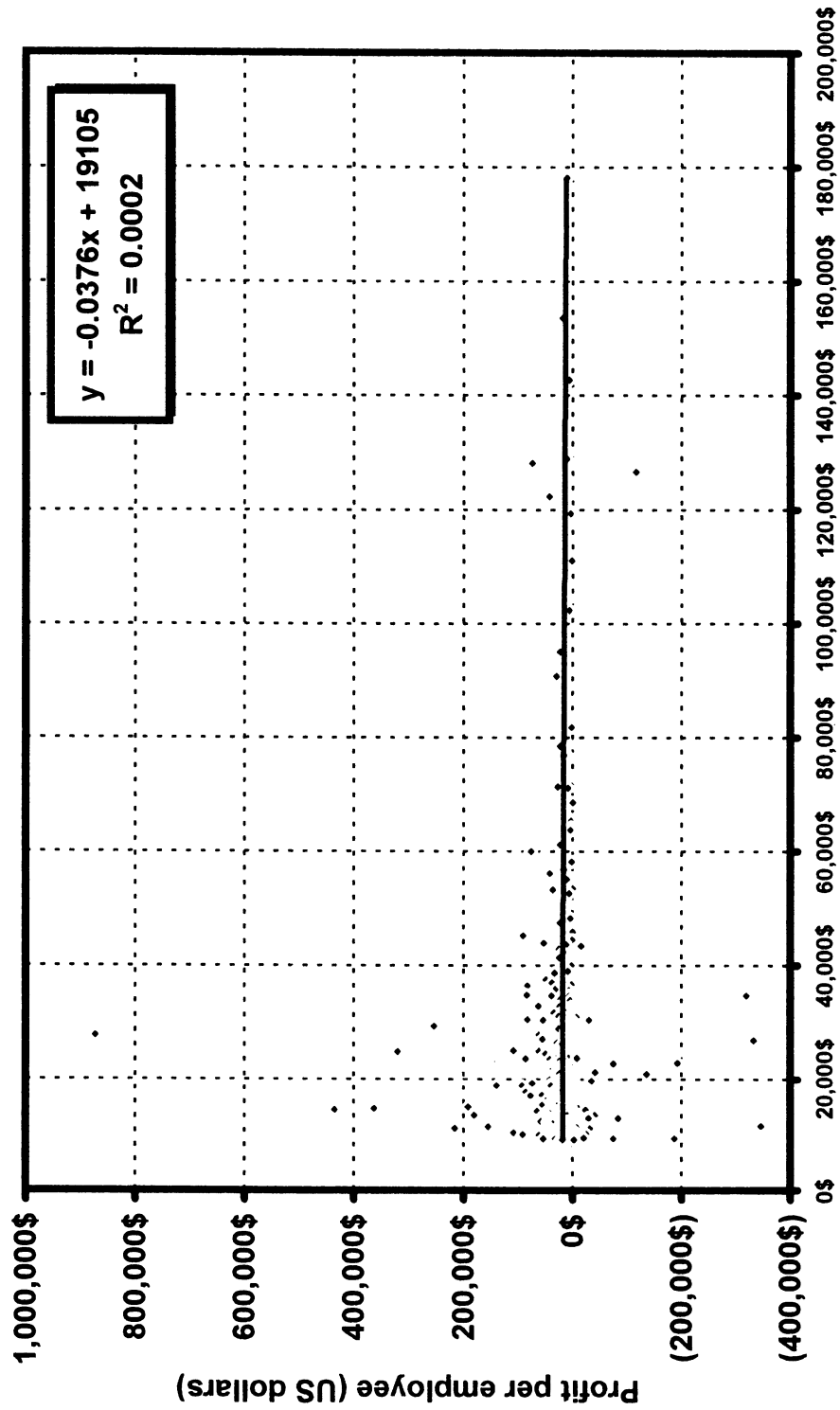


Gross Revenues (Millions US\$)

Chart 3 - GLB500.XLS



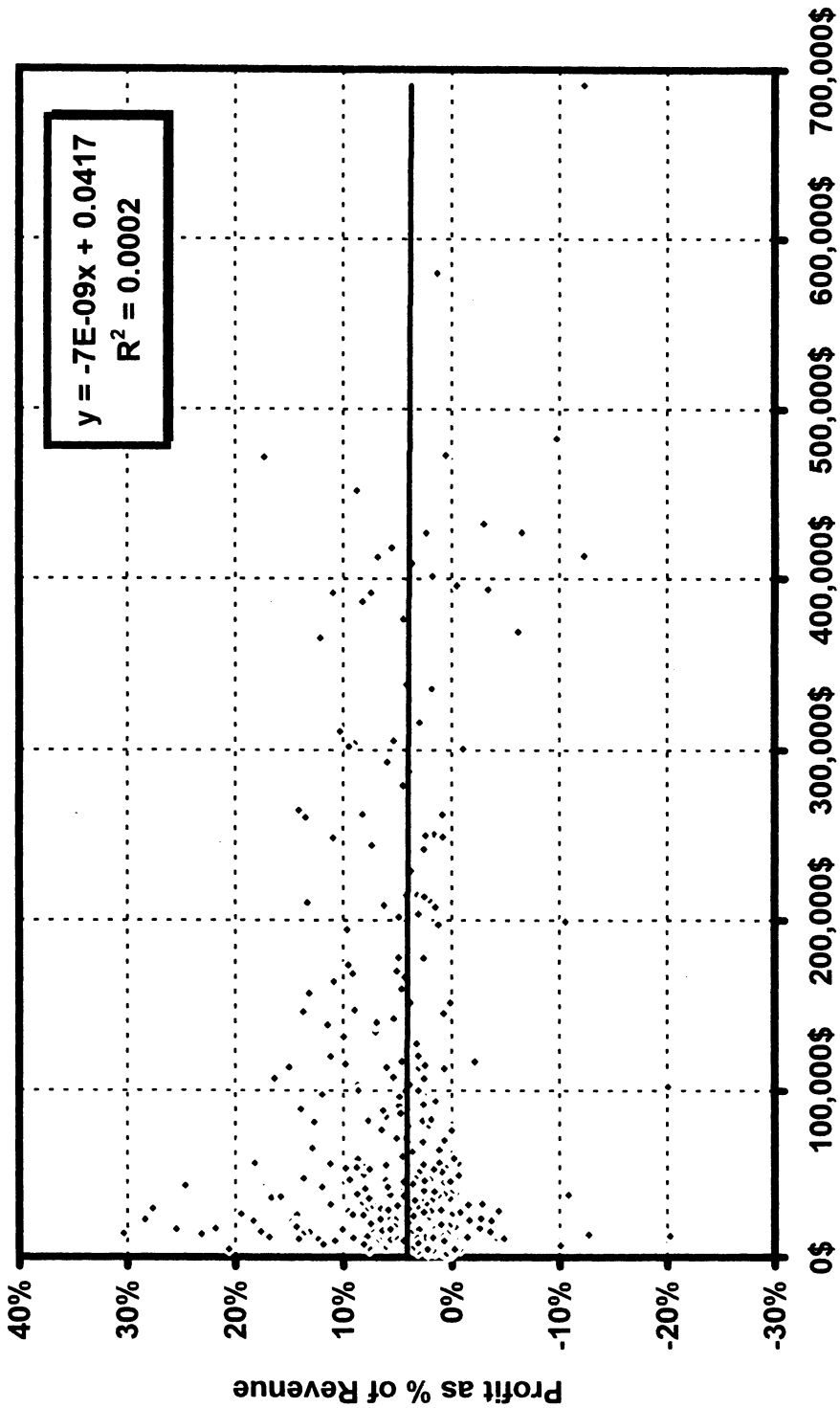
# Profit per employee vs. Gross Revenues 1998 Fortune Global 500



Gross Revenues (Millions US\$)

Chart 4 - GLB500.XLS

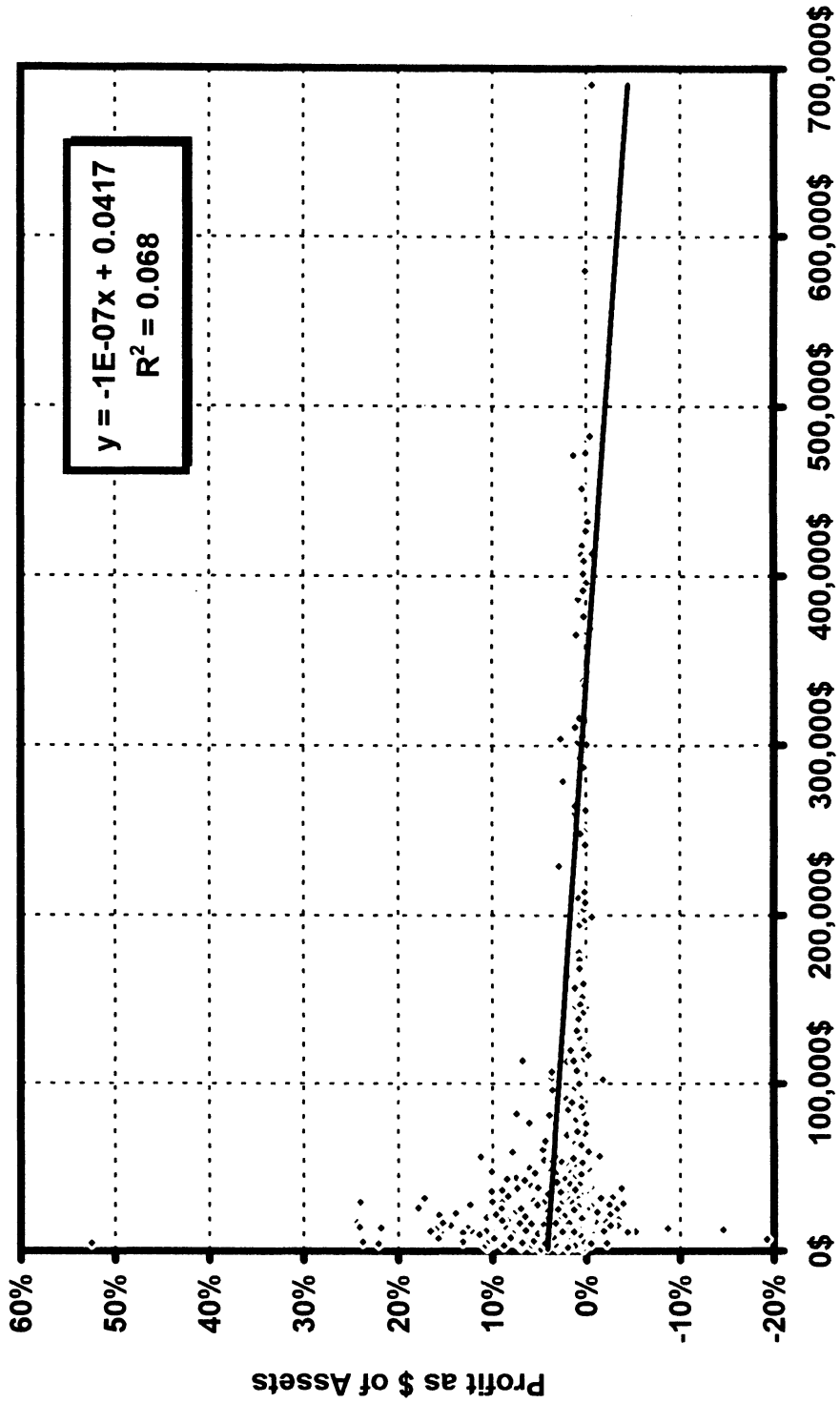
### Profit as % of Revenue vs Assets 1998 Fortune Global 500



Assets in millions of dollars US

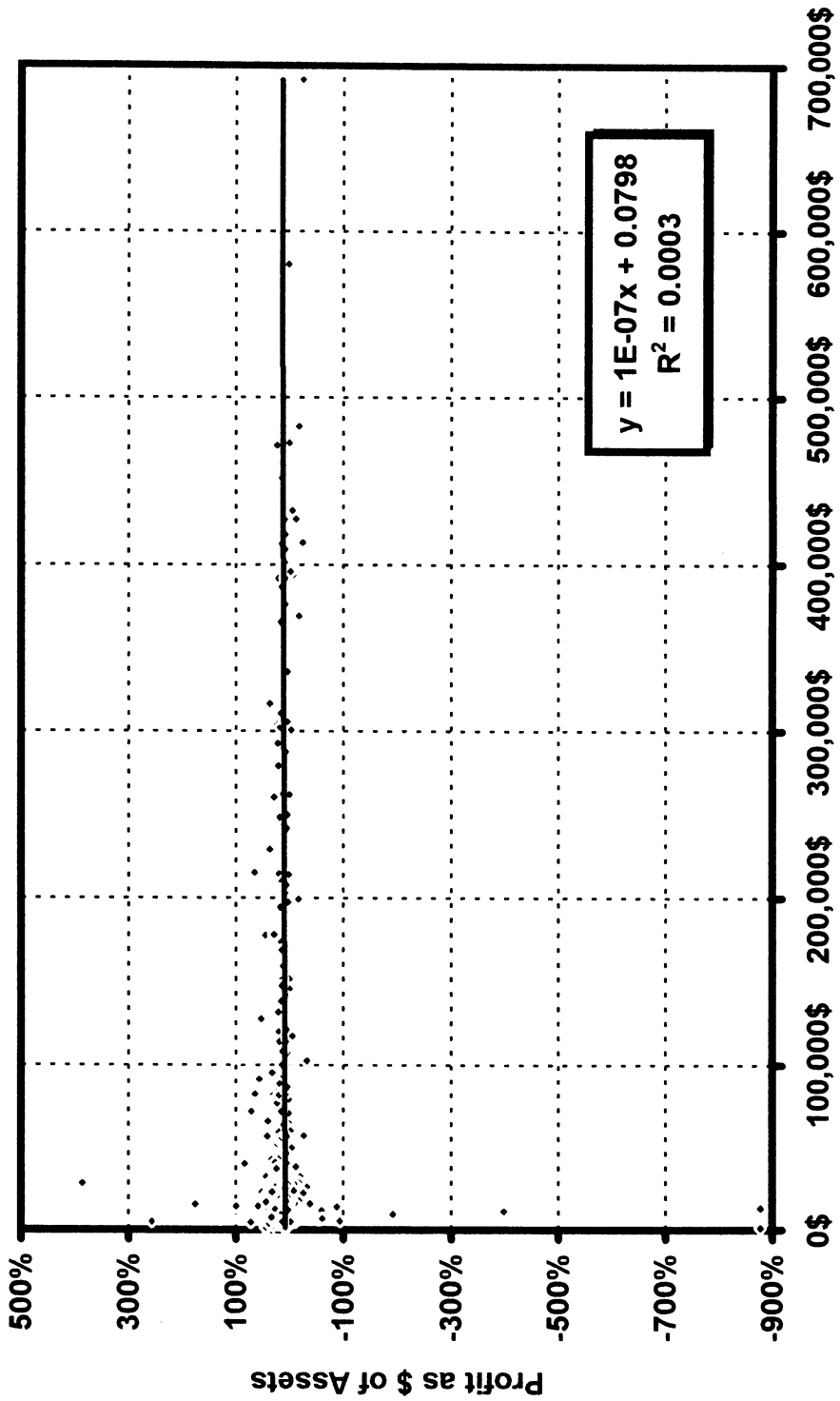
Chart 5 - GLB500.XLS

# Profit as percent of Assets vs. Assets 1998 Fortune Global 500



Assets (Millions of US\$)  
Chart 6 - GLB500.XLS

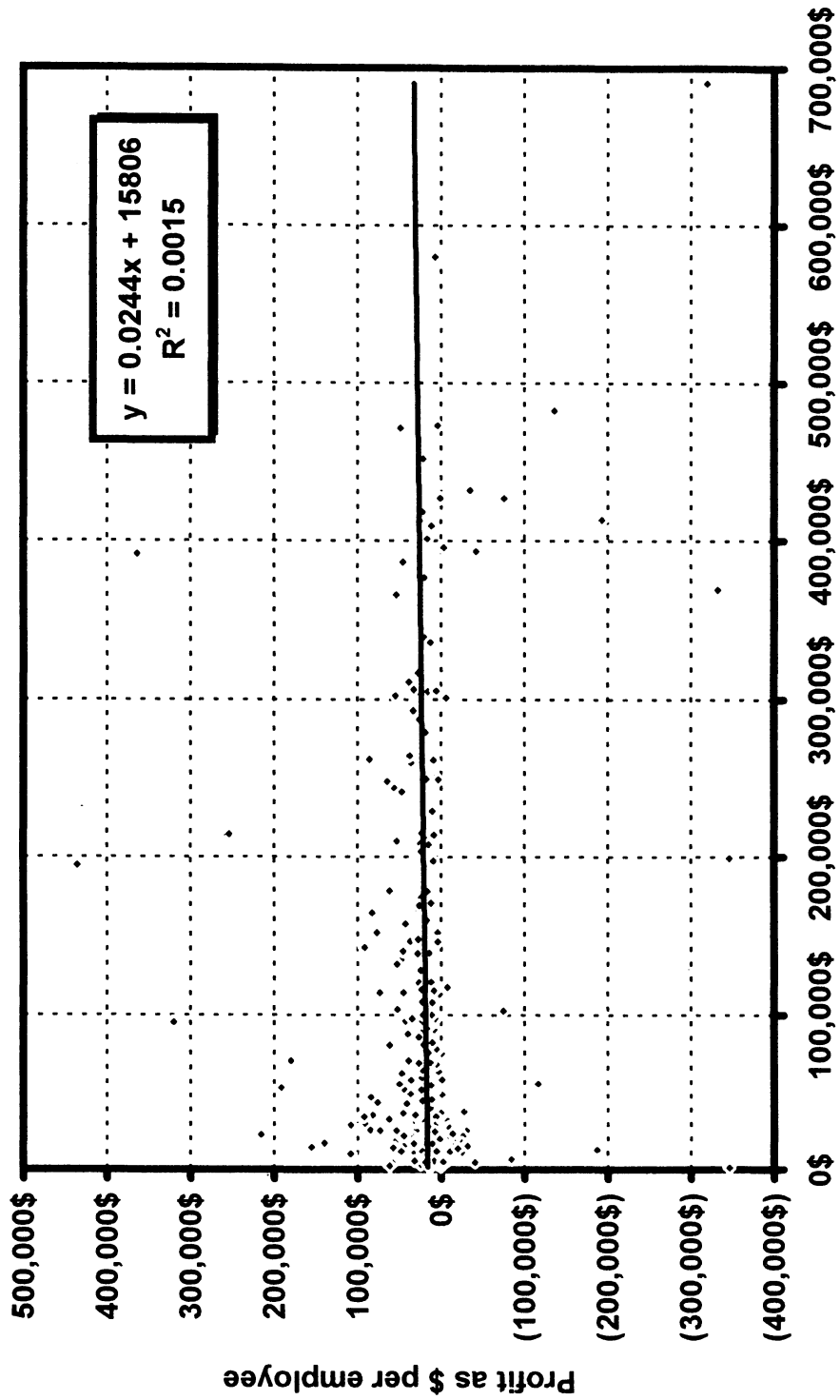
# Profit as percent of Equity vs. Assets 1998 Fortune Global 500



Assets (Millions of US\$)

Chart 7 - GLB500.XLS

# Profit per employee vs. Assets 1998 Fortune Global 500



Assets (Millions of US\$)  
Chart 8 - GLB500.XLS

# Profit as % Sales vs. Stockholder equity 1998 Fortune Global 500

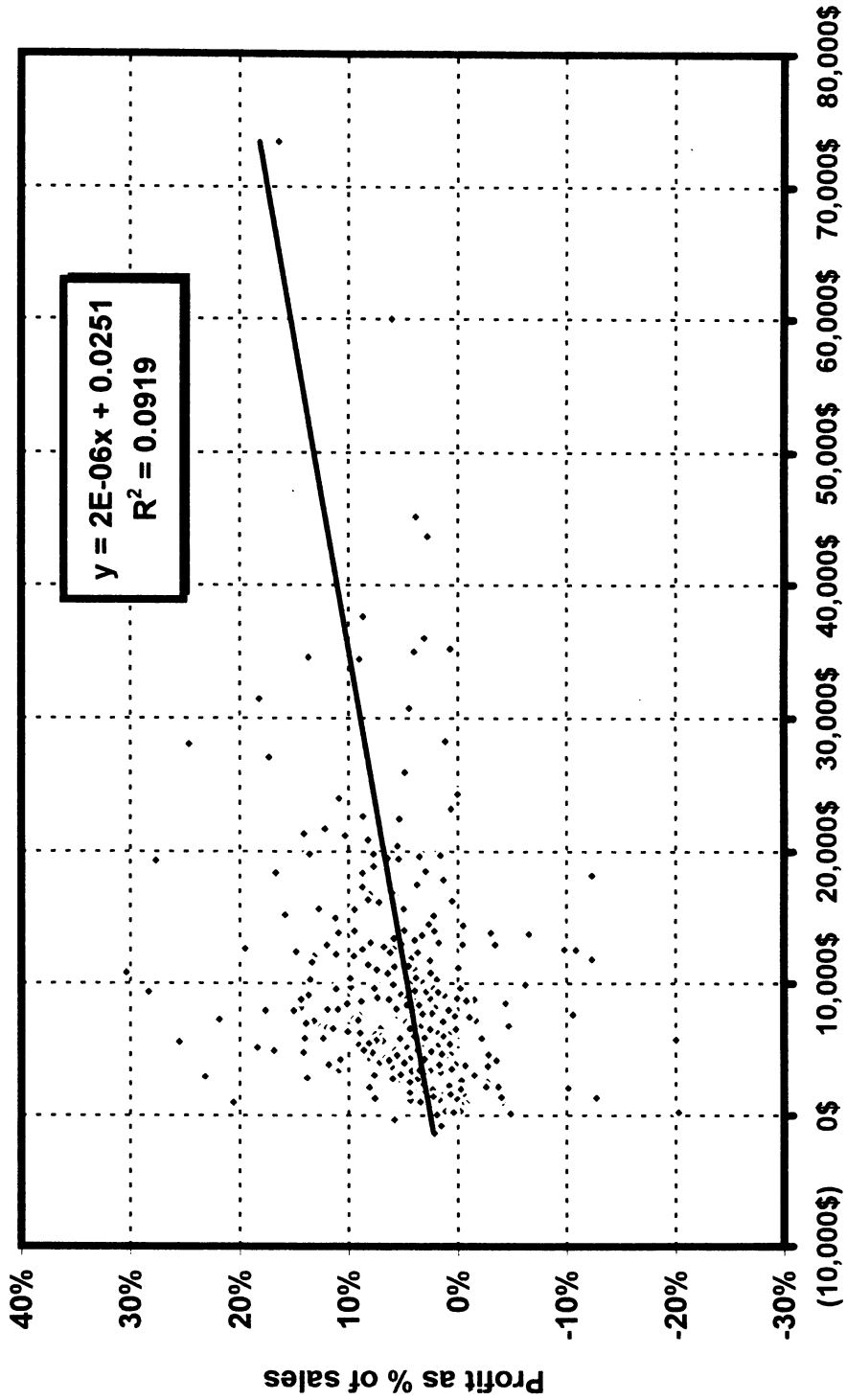
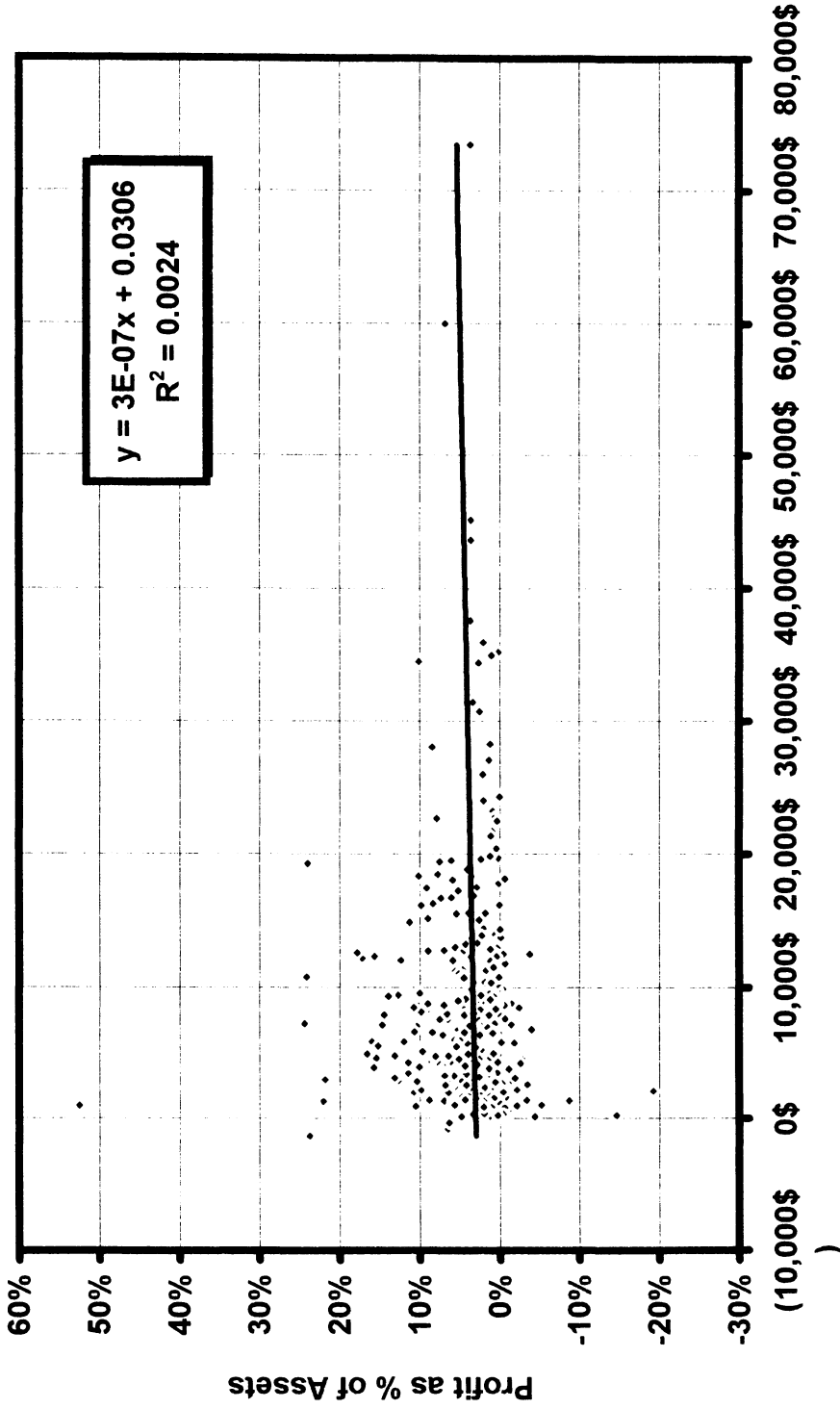


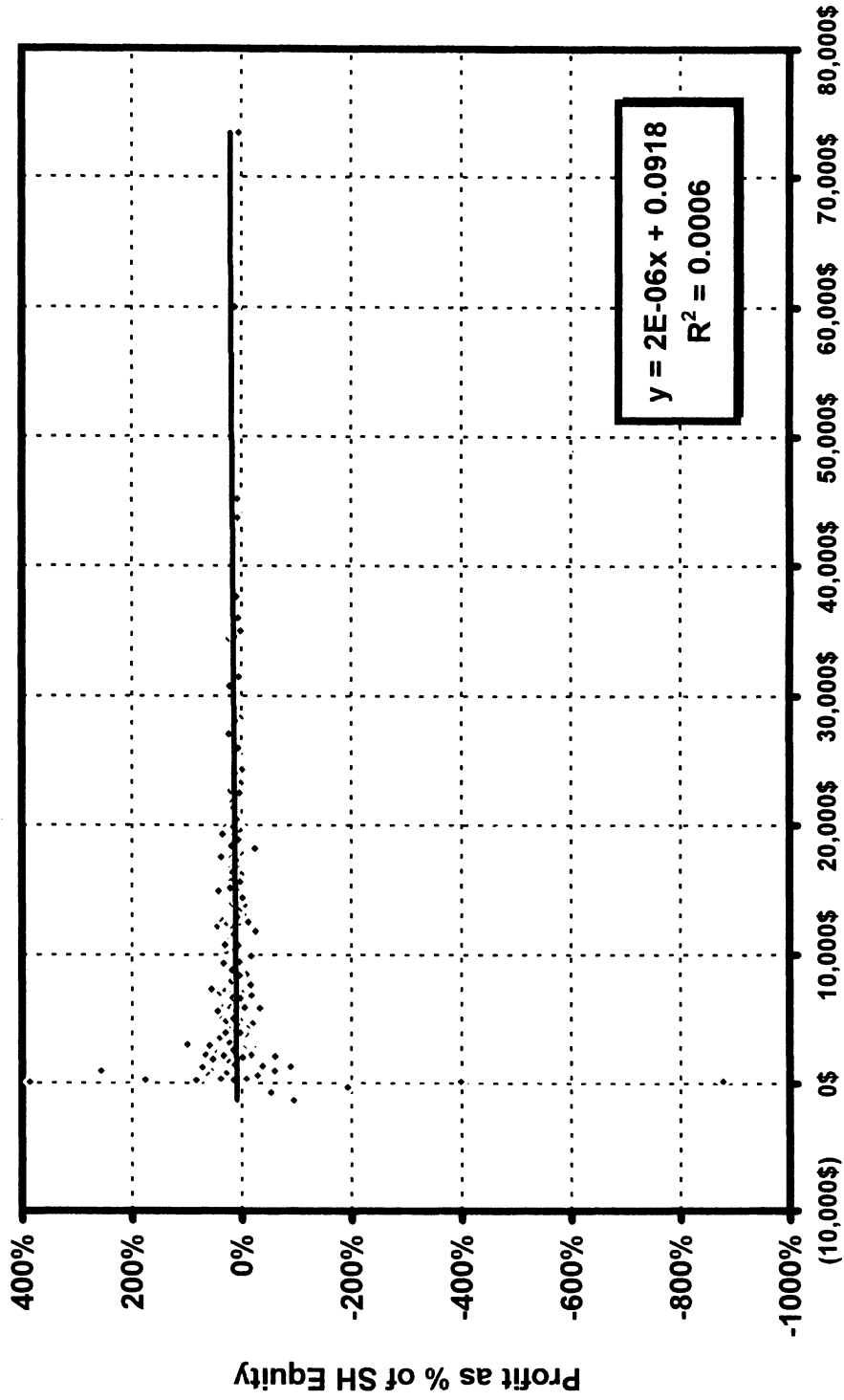
Chart 9 - GLB500.XLS

# Profit as % of assets vs. Stockholder Equity 1998 Fortune Global 500



Stockholder Equity (Millions \$US)  
Chart 10 - GLB500.XLS

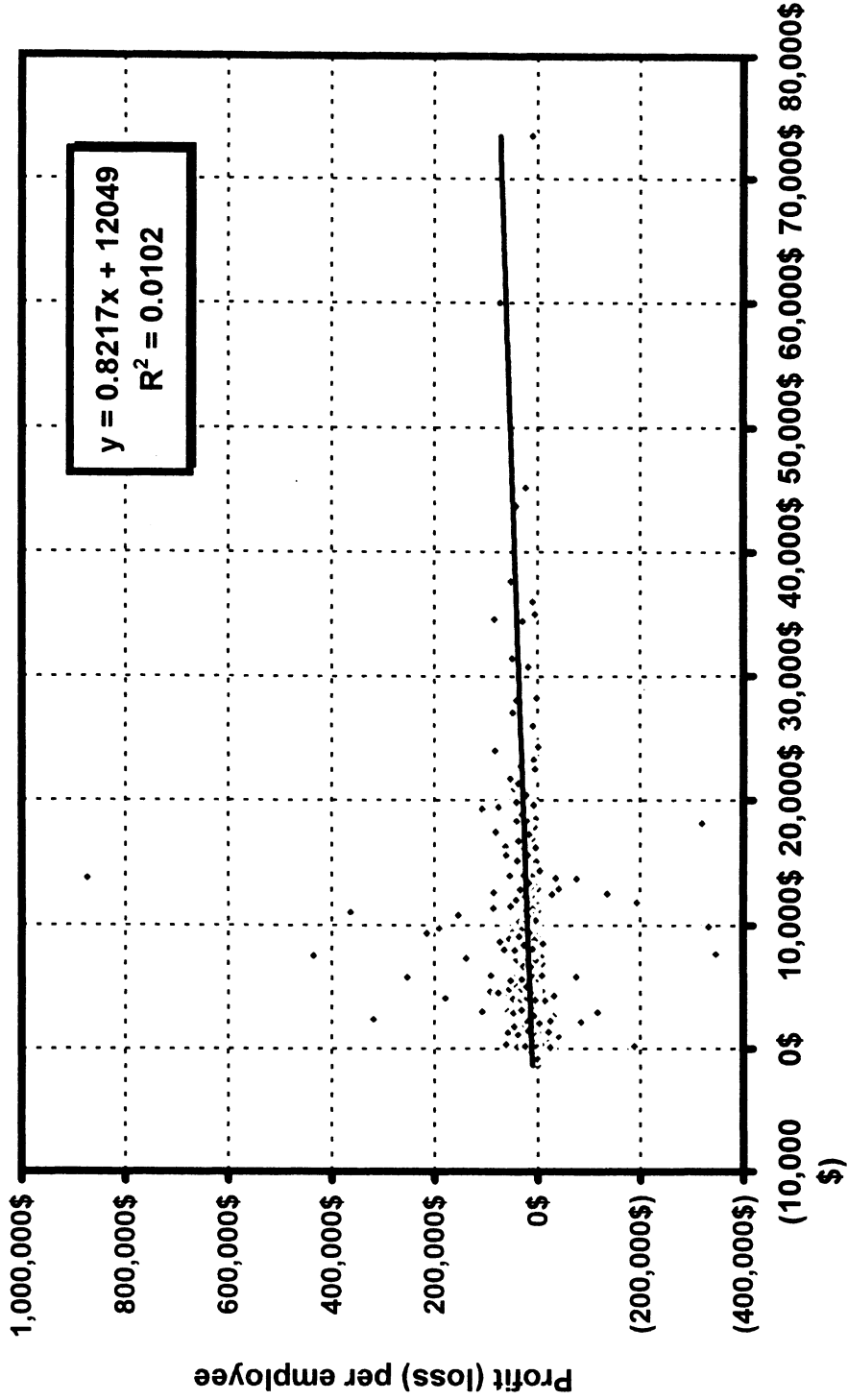
### Profit as % of SH Equity vs. Stockholder Equity 1998 Fortune Global 500



Stockholder Equity (Millions \$US)  
Chart 11 - GLB500.XLS



### Profit per employee vs. Stockholders equity



Stockholder Equity (Millions of \$US)

Chart 12 - GLB500.XLS

# PROFIT AS % OF GROSS REVENUE VS NUMBER OF EMPLOYEES

Fortune Global 500, source: Aug 3, 1998 Fortune

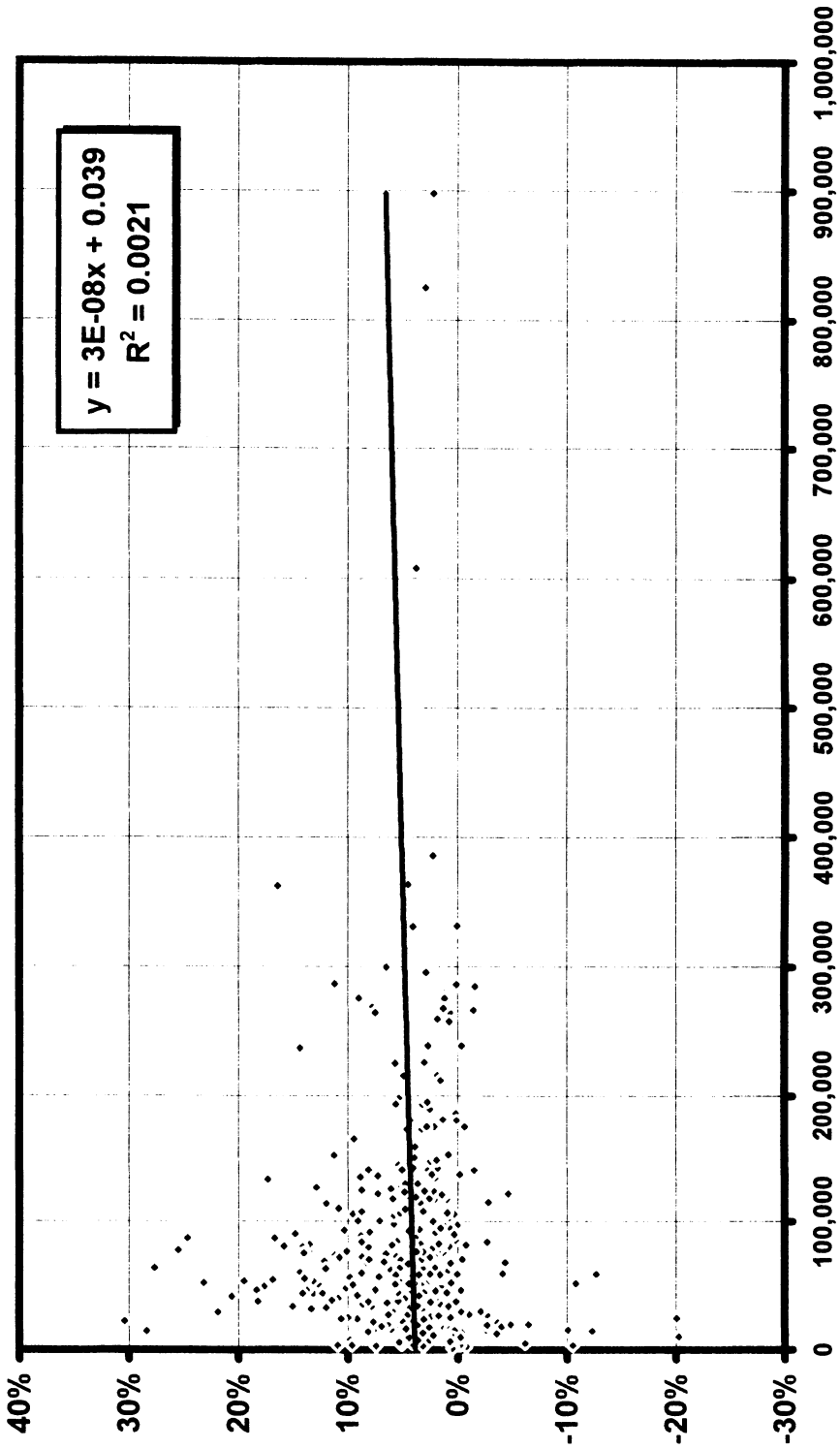


Chart 12 - GLB500.XLS

Community College.

Publications: Venable, W. and McDuffee G. *Textual Analysis with Neural Networks as an Alternative Assessment Tool for Evaluating Responses to Open ended Questions*. (Manuscript #137) Paper presented at the Academy of Human Resource Development Atlanta March 6-9 1997.  
Charles, Brian G. and Mc Duffee, George F. (1992, Aug.) *Adaptation of Machining Center To Mount Router For CNC Woodworking*. Ann Arbor, Michigan: School Shop and Tech Directions. 19-20. Mc Duffee, George F. *C-sub-PK - Program to calculate CsubP and CsubPK values from Statistical Process Control Chart Data. ver. 1.1*. Public Brand Software. 1991. PC/MS-DOS 3.0, 128KB, disk.

Presentations: "*The Promises and Reality of Economic Development: the Garden City, KS experience*" Developed as a two day seminar, with the cooperation of university specialists in economics and criminology in addition to education, to critically examine all the effects and reality of economic development; "*Cow chips, potato chips and computer chips -- Why high value added manufacturing is important.*" Developed to promote an understanding why organizations producing commodities are generally low paying employers and why the people in the SEK area must change their focus from just jobs to high paying jobs; "*Will the last person out of SEK [South East Kansas] please turn out the lights.*" Developed to examine the economic changes in rural and small town America.