

A STUDY OF THE CHANGING FINANCIAL POSITIONS
OF THE CORPORATE STOCKHOLDER AND
THE CORPORATE WORKER

by

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TABLE OF CONTENTS

INTRODUCTION	1
THE MODEL	8
TESTING THE HYPOTHESES	14
SUMMARY AND CONCLUSIONS	33
ACKNOWLEDGEMENT	38
BIBLIOGRAPHY	40

INTRODUCTION

Whose income will increase at a faster rate over his adult lifetime-- that of an employee of a corporation or of a stockholder of the same corporation? The answer to this question is not simple. The stockholder may receive a dividend income greater than the salary of the worker through the years. But what of their relative incomes? Whose income will increase by the greater percentage?

Historically, the plight of the working man has received the more sympathetic attention of social theorists and political economists. Ricardo condemned the economic and political environment of his time for providing the working man with an income sufficient only for bare subsistence living. The economic and political master plan of Communism developed by Marx and Lenin was designed to alleviate the woes of the working class at the expense of the capitalists and rentiers.

But has the predicament of the working man in America been the same as that pictured by these theorists? Economic theories may not be universally applicable. Times and circumstances change.

Some writers have implied that the worker's poor financial position has existed because he has not received an adequate share of the business income for his labor. If this is true, the capitalist has gained at the expense of the worker. Before an opinion could be ventured as to whether this is true, a value judgment would have to be made to determine what constitutes a fair or adequate share of the business income for the worker and the capitalist. While a qualitative judgment of this sort is best left to the social theorists and political economists, it is possible to determine whose share is increasing at the faster rate--that of the worker or that of the capitalist.

A quantitative comparison of the relative incomes of the investor and the worker should provide a clue as to which of these two groups the American economic system has favored.

The objective of this study will be to test two hypotheses pertaining to this investor-worker relationship. Testing data will cover the period from 1871-1961. The study will deal with average rather than individual movements of stock prices, dividends, and wages. Emphasis will be upon the constant dollar movements of these three categories.

The Hypotheses

Two hypotheses are proposed:

1. Common stock purchased at normal prices has increased in real (i.e., purchasing power) value over time.
2. The wage income of the average manufacturing worker has increased at a faster rate of growth over his working lifetime than the dividend income of the investor for the same period.

These hypotheses will be tested in two ways. First, a detailed primary model comparing the incomes of a worker and an investor will be constructed for the period 1927-1960. A logarithmic least-square trend line will be calculated for the constant dollar movements of stock prices, dividends, and wages for this 34-year period. These trend lines, which will furnish per annum growth rates for stock prices, dividends, and wages, will be compared to test the hypotheses. Second, a more generalized comparison will be made of the growth rates of constant dollar stock prices, dividends, and wages for longer and different periods of time within the period 1871-1961. Logarithmic least-square trend lines will also be computed for these three categories for the intra-period models to test the hypotheses over these various segments of time.

The principal sources of data used in the study are Standard and Poor's Trade and Securities Statistics, and various editions of the Statistical Abstract of the United States. Part of the earlier data on wage income is from a publication by the Twentieth Century Fund. One document giving annual average stock prices and dividend yields for Standard and Poor's Composite Stock Index for the years 1871-1962 was furnished the writer by the Standard and Poor Corporation.

Definitions and Clarifications

The main emphasis of this study is upon the real (i.e., deflated dollar) movements of stock prices, dividends, and wage income. The term "constant dollar" will be used to refer to real or deflated figures. Figures not deflated but expressed in the conventional sense (i.e., money or paper dollars) will be referred to as "current dollars."

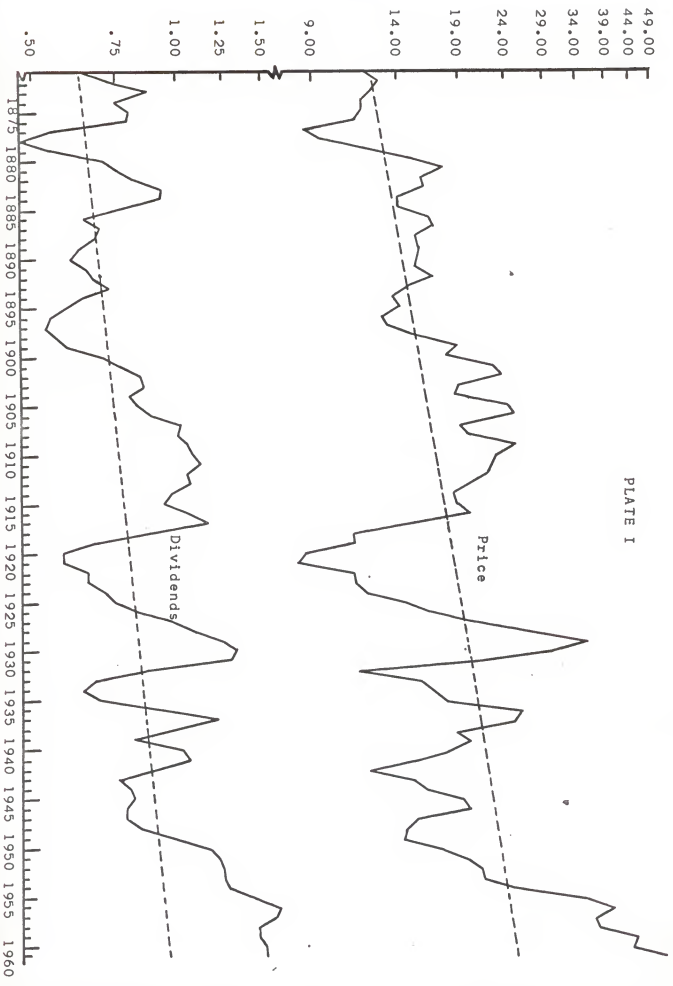
References have and will be made to common stock purchased at "normal" prices. Therefore, "normal" prices for common stock need to be defined for purposes of this study. To determine these prices, a logarithmic least-square trend line has been fitted to the constant dollar movements of stock prices for the period 1871-1961. Any point where this trend line intersects the constant dollar stock price curve is considered as a "normal" level of stock prices. Stock prices above or below this line are abnormal. Plate 1 shows these intersections.

Similar references to "normal" dividend levels will be made later in the study. These levels are the intersection points of a logarithmic least-square trend line fitted to the constant dollar movements of dividend income for the period 1871-1961. Plate 1 also shows these intersection points.

EXPLANATION OF PLATE I

Stock prices and dividends of Standard and Poor's Composite Stock Index are shown in constant 1947-1949 dollars for the period 1871-1961. The solid lines represent stock price and dividend movements for this period, and the dotted lines are logarithmic least-square lines fitted to the respective curves.

PLATE I



For purposes of this study, the working lifetime of the average worker will be between 45 and 50 years. Although many workers were on the job in excess of 60 years in the earlier part of the 1871-1961 period, social security, company retirement plans, and compulsory retirement at age 65 have reduced the average worker's years of full time employment to 50 years or less.

Limitations and Utility of the Study

Any study of constant dollar movements of stock prices, dividends, and wage income has several limitations. The main obstacle to a study of this type is the choice of a deflator to convert current dollar figures to constant dollar figures. Several price indexes, each designed for a specific purpose, are available for use as a deflator. However, different indexes may show very different constant dollar movements over the same period of time. This, in turn, may significantly alter the constant dollar growth rates. The Consumer Price Index seemed the most logical choice for a deflator for purposes of this study. However, some researchers might consider the Wholesale Price Index a better choice. Additional discussion of the choice of deflator will be deferred to the concluding section of this paper.

Accurate detailed data for many classes of information are not available prior to 1890. Wage and income data covering the period 1871-1961 are not available in any single source. Hence, various measures of wage income must be combined to cover this long period. Basic source materials for early wage data are fragmentary and scattered. Although indicative of general wage trends, these data are lacking in accuracy and reliability.¹ Investment data are better documented. The Standard and Poor Corporation has extended the

¹W. S. Woytinsky, Employment and Wages in the United States, p. 582.

dividend yields and stock prices of its Composite Stock Index back to 1871 through the use of the overall common stock indexes of the Cowles Commission for Research in Economics. This provides an important statistical tool for measuring the average experience of those investing in common stocks in the United States over the past nine decades.¹

The results of the primary model tend to favor the worker because of several events occurring during the 1927-1960 model period. One of these factors was the power that the National Labor Relations Act of 1935 gave labor unions. This act stipulated that corporate management must bargain with labor unions, thereby broadening the scope and power of the unions. The impact of this legislation upon the manufacturing worker's salary is not clear, however. It might or might not have caused his wage income to grow at a faster rate during the primary model period than it had previously. Salaries in the highly unionized manufacturing industry may not be typical of the average worker's salary for the country as a whole.

The inclusion of the escalator clause in most union contracts since World War II has given the worker a hedge against inflation. Under these contracts, the worker's salary is tied to a cost of living index. If this index increases a specified amount, the worker's salary is increased by a specific amount. Similarly, if the index declines, the worker's salary is reduced. Thus, inclusion of the escalator clause in labor contracts has guaranteed the worker a minimum constant dollar salary for each hour worked. In most cases since World War II, the labor unions have also been successful in gaining additional pay increases each time a contract has been renewed.

¹Nicholas Koledeovsky, "Valuation of Common Stocks," Readings in Financial Analysis and Investment Management, p. 247.

The investor has no guarantee that either his current or constant dollar income will remain the same or increase. In addition, high corporate income tax rates in effect since the early 1940's have possibly reduced the investor's potential income. After-tax profit levels will be reduced unless management has been able to pass the higher taxes on to their customers in the form of higher prices. Thus, the model may reveal higher wage growth rates and lower dividend growth rates when compared with the long-run trends of wages and dividends.

Other limitations of lesser importance will be considered as they arise in the course of the study.

While considerable attention has been devoted to the study of investment values as a hedge against inflation, little has been done regarding the constant dollar movements of dividend income. Studies comparing the incomes of the investing and working classes are also lacking. This study is intended to partially eliminate this void.

THE MODEL

The primary model in this study is constructed for the lives of two men. These two individuals are identical in age, size of family, personality, tastes, and personal goals. The only difference between them is their source of income. Mr. Worker's only income is derived from what he earns by his own labor during his lifetime. For the purposes of this model, he earns the average weekly wage paid to manufacturing workers.¹ Mr. Investor's only source

¹Production Index & Labor Statistics, September 1961 edition, Standard and Poor Corporation, p. 50.

of income during his lifetime is the dividends received from his investment in common stocks.

Choice of an Investment Portfolio

Mr. Investor will make his investment in units of Standard and Poor's Composite 500 Stock Index, hereafter referred to as the "500" stock index. The index value of this stock average will be considered the price of one unit of these 500 common stocks. The dividend income which Mr. Investor will receive will be the cash dividend payout of a unit of the "500" stock index, multiplied by the number of units he purchases.¹

For those who might argue that the common stocks which the average individual investor buys will outperform the companies in a published stock index, Benjamin Graham writes:

Under the heading of "Growth Stock Specialization" are listed 12 such (growth type mutual funds) companies which show a range of results for the period (the 1950's) from 86% to 165%, with an average (appreciation of capital) of 134%. A larger group of 48 (mutual fund) companies of the more general type show a corresponding range from 71% to 203%, with an average of 109%. But during this same period, the Standard and Poor's list of 425 industrials—pretty well reflecting the general market—showed a gain of 143%. Since this was a period of great popularity of the growth stock idea, we might surely have expected well managed companies specializing in this approach to outstrip a rather pedestrian list of 425 issues. Yet they did not do so. Why? There are a number of contributing factors such as operating expenses, the presence of uninvested cash, etc. But the chief reason is that the gains of companies selected are very uneven.

The experience of these investment companies is likely to be duplicated, on the whole, by the typical individual investor. The big fortune from single company investments are nearly always realized by persons who have a close relationship with the particular company.²

¹Standard and Poor Corporation, letter to author, May 7, 1963

²Benjamin Graham, The Intelligent Investor, p. 108.

The 425 industrials referred to by Graham comprise the major portion of the "500" stock index. Mr. Investor's investment in units of this stock average should yield results equal to or better than those which the average investor may expect to obtain. The 500 stocks of this index will probably earn average dividends and capital gains since the companies were selected neither for their dividend records nor for their growth potential. Many of these firms have not paid dividends at various times.

Since companies included in the composite index encompass over 90% of the market value of all common stocks listed on the New York Stock Exchange, this "500" index gives an overall coverage of the aggregate market.¹ This index is in line with the broad objectives of this paper.

Deflating the Current Dollar

It is necessary to deflate current dollar figures to a common denominator (i.e., a constant dollar) if the real movement of stock prices, dividends, and wages is to be obtained. Since the models portray situations where day-to-day living costs are important, a consumer price index would seem to be the most logical choice for deflating current dollar figures.

The consumer price indexes have been spliced to cover the total 91-year period under analysis. The Department of Labor's Consumer Price Index was used to deflate all current dollar figures from 1913 to 1961. The Estimated Cost of Living Index of the Federal Reserve Bank of New York was selected as the most representative of the various consumer price indexes compiled for the period prior to 1913.

All deflated figures are expressed in terms of 1947-1949 dollars.

¹Molodovsky, loc. cit.

Selection of the Primary Model Period

The primary model period is restricted to the period 1919-1960 due to unavailability of wage data. While detailed manufacturing wage data are available for two periods (1890-1947 and 1919-1960), the 1919-1960 figures were used in order to make this study as current as possible. These two groups of data might have been spliced together to cover a longer period. However, wage data were used from only one source in the detailed primary model to insure the greatest possible accuracy and comparability of results.

Ideally, the primary model period should approximate that of the total period from 1871-1961 as much as possible. The beginning year of the model should be such that the stock price level at which Mr. Investor makes his investment is "normal" as measured by the long-run trend of stock prices. The dividend level should also be normal, as measured by its long-run trend. Obviously, if the investment is made at a time when stock prices (or dividend income) are at low levels in relation to their long-term standards of value, the results would be very favorable to the investor. Common stock investment made at high stock prices (or dividend income) levels would penalize the investor, since he would obtain fewer shares of stock for the cash paid. For these reasons, the beginning year of the model should be a time when the constant dollar stock price and dividend curves are intersected by their respective long-term trend lines. These are the "normal" levels defined in the introduction of this paper.

Plate 1 (p. 5) shows five stock price-trend line intersections after 1919 (1927, 1931, 1935, 1938, and 1954), each representing a "normal" stock price level which might be suitable for the beginning year of the model. Therefore, stock price movements should be examined from each of these five possible

beginning years up to 1960 to determine which period most closely approximates that of the 1871-1961 period.

A model starting in 1954 would cover too narrow a time-span to give representative results. Stock price movements for this period are not typical of those for the longer run. The years from 1938 cover both the low stock prices prior to the beginning of the bull market in 1949 and the high prices that followed. If a logarithmic least-square trend line is fitted to the stock prices of this period, however, the line's slope is too steep to be representative of stock price movements for the 91-year period. This same argument applies for the periods starting in either 1931 or 1935.

By a process of elimination, the choice for the beginning year of the primary model is narrowed to 1927. The period beginning with 1927 covers good times to bad, and back to good. It includes the prosperity of the late 1920's and the years after World War II, as well as the "hard-times" of the depression and the war. The dividend level in 1927 is also normal since the constant dollar dividend curve is intersected by its trend line at this approximate point. While far from being perfect, 1927-1960 is the most representative of the possible model periods.

The constant and current dollar stock price at which Mr. Investor will make his investment in the model may now be determined. The constant dollar "500" stock index curve is intersected by its trend line in 1927 at a deflated index number (or unit price) of 19.63. Converting this 19.63 into current terms, this index value (or unit price) for the "500" stock index is 14.57. This is the current dollar price which Mr. Investor must pay for one unit of these 500 common stocks in 1927. Movements of the "500" stock index in 1927 were such that the purchase would have been made during the month of

April. To simplify calculations, it is assumed that Mr. Investor will receive all cash dividends paid in 1927 by the 500 companies comprising the index rather than just those dividends paid after April. This allows the study to be conducted on a calendar year basis rather than from April to April.

Assumptions of the Completed Model

A summary of the assumptions and properties of the primary model will complete the necessary framework for the empirical study. The beginning year of this model will be 1927--the final year, 1960.

Mr. Worker's current dollar income for the year will be the average weekly manufacturing wage multiplied by 52 weeks.¹ His current dollar income for each year will be deflated by the Consumer Price Index.

Mr. Investor invests \$35,000 (current dollars) in units of the "500" stock index in 1927. This amount will purchase 2,402 units of this index at a price of \$14.57 (i.e., $2,402 \times 14.57 = \$34,997.14$, rounded to \$35,000). This sum was selected since it will produce an accumulated dividend income for the 34 years of the model which is approximately equal to the wages which Mr. Worker will receive. The amount invested is immaterial since it will not change the percentage growth rates of dividend income. The second hypothesis, namely that the worker's income has increased faster than the stockholder's income, will be tested by growth rates and not the actual accumulated income received, since these latter figures will not show the relative changes. Thus, the two individuals have been placed in approximately the same income bracket merely to facilitate income comparison.

¹This assumes the worker will receive full pay while on vacation.

Mr. Investor's \$35,000 investment in 1927 represents a constant dollar investment of \$47,169.81 when converted to constant 1947-1949 dollars. This latter figure will be used in all constant dollar comparisons.

The current dollar value of Mr. Investor's investment will be found by multiplying the average yearly price (simple arithmetic mean) of the "500" stock index by the 2,402 units which he owns. The constant dollar value will then be determined by deflating this current dollar value by the Consumer Price Index figure for that year.

Mr. Investor's current dollar dividend income will be found by multiplying the average percentage yield of the "500" stock index for a given year by the current dollar value of the index for that same year. Deflating this dividend income figure by the Consumer Price Index will reveal the constant dollar dividend income received by Mr. Investor. This process will be repeated for each year in the model period from 1927 to 1960.

All taxes and brokerage fees are assumed to be zero in the model.

TESTING THE HYPOTHESES

The hypotheses will be tested by examining the findings of the primary and intra-period models for various time segments between 1871 and 1961. Thus, the problem is to determine (1) whether the investor's investment in common stocks has increased in constant dollar value over the years, and (2) whether the worker's wage income has increased faster during his 45-50 year working lifetime than the investor's dividend income for the same period. Growth rates of constant dollar stock prices, dividends, and wage income for these models will be computed by the logarithmic least-squares method. Stock price growth rates will show how the investor's investment has changed in

value over the years. The dividend and wage income growth rates will be compared to determine which income is increasing the faster.

In the primary model, both current and constant dollar comparisons will be made of the movements of stock prices, dividends, and average manufacturing wages in order to distinguish between the real and monetary movements. The year-to-year value of Mr. Investor's investment will be determined to see how it has changed. Since this value will continually fluctuate with stock price changes, attention will be focused on the average annual growth rate of the investment rather than upon its absolute value at any given point of time during the 34 years. Mr. Investor's dividend return from his investment will be calculated for each year and compared with the salary which Mr. Worker receives for these same years. Growth rates of these incomes will be compared to ascertain the manner in which the incomes are changing.

The hypotheses will then be tested in intra-period models of different time segments within the 1871-1961 period to determine whether they are applicable under a wide variety of circumstances. The long-run testing of dividend and stock price movements will not be difficult since accurate data for the "500" stock index are available back to 1871. Accurate detailed data for manufacturing wages prior to 1890 are not available, however. Hence, a more generalized test must be used to verify the second hypothesis for these earlier years.

Investment as a Store of Value

Mr. Investor's \$35,000 (current dollars) purchased 2,402 units of Standard and Poor's Composite 500 Stock Index in 1927 at \$14.57 per unit.

The fluctuation in value of this investment in both current and constant dollars may be traced from 1927 to 1960 by referring to Plate 2.

The current dollar value of this investment has grown from \$35,000 in 1927 to \$134,151.70 in 1960, a capital gain of 383.3 per cent. After fluctuating above or below the original current dollar cost for 17 years, the value has stayed above the original cost since 1945. The picture is somewhat different when viewed in terms of a constant dollar, however. This value has increased from \$47,169.81 to \$106,048.77 in 1960, an appreciation of only 224.8 per cent.

For the primary model period, the annual current dollar growth rate of this investment was a sizable 4.086 per cent. The average per annum constant dollar growth rate was only 1.498 per cent, however. Thus, nearly two-thirds of the current dollar growth can be attributed to erosion of the dollar's purchasing power and the other one-third to real growth. The 1.498 per cent constant dollar growth rate is still considerably higher than the .742 per cent growth rate for stock prices for the longer 1871-1961 period. This difference in growth rates can be traced to the greater influence of the high stock prices of recent years on the shorter model period.

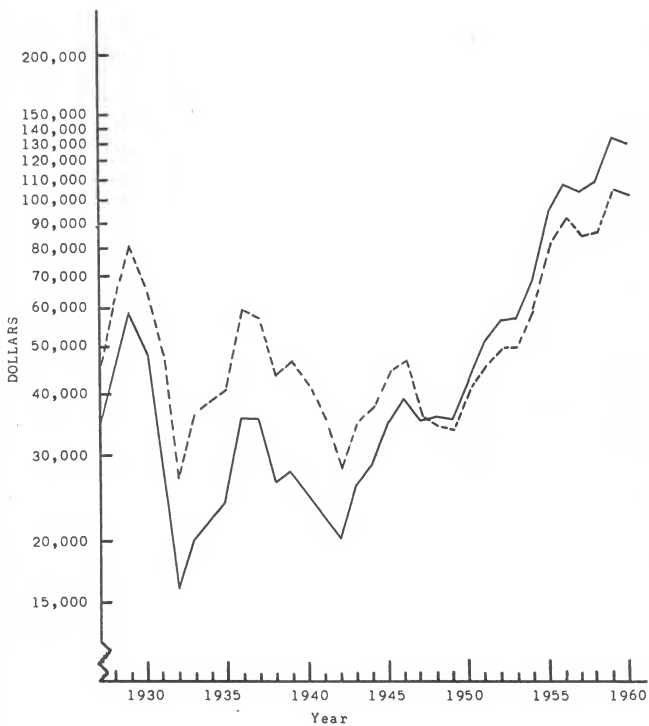
Mr. Investor's investment in common stocks has provided a very effective hedge against inflation. The investment value has appreciated considerably when measured by either current or constant dollars. However, "stocks are only good inflation hedges if bought at the right time and at the right price."¹ Mr. Investor's investment was made under such conditions.

¹G. M. Loeb, The Battle for Investment Survival, p. 176.

EXPLANATION OF PLATE II

Constant and current dollar movements of Mr. Investor's investment are shown for the period 1927-1960. The solid line shows the change in current dollar value, and the dotted line shows constant dollar change in investment value.

PLATE II



A Rising Investment Income

Mr. Investor's capital has done well in the market place. But what dividend income has this investment provided?

Plate 3 shows the annual constant dollar income Mr. Investor and Mr. Worker have received during each of the 34 years. Mr. Investor's dividend income increased at a slower rate than Mr. Worker's salary over most of the model period prior to World War II although his absolute income was greater. Mr. Investor's absolute level of income and the growth rate of this income fell during World War II. Though current dollar corporate profits before taxes increased from \$6.5 billion in 1939 to \$23.8 billion in 1944, Mr. Investor and the other stockholders in this country did not benefit from the increase.¹ Most of the increased corporate profits above a certain point were drained off by the excess profits tax. Higher price levels and greater output increased both working capital and investment requirements. Thus, management retained most of the remaining higher profits in the business to meet these requirements rather than paying them out in higher dividends. Current dollar dividends stayed relatively stable during these years, but war-time inflation cut the purchasing power of Mr. Investor's income by approximately one-fourth during these five years.

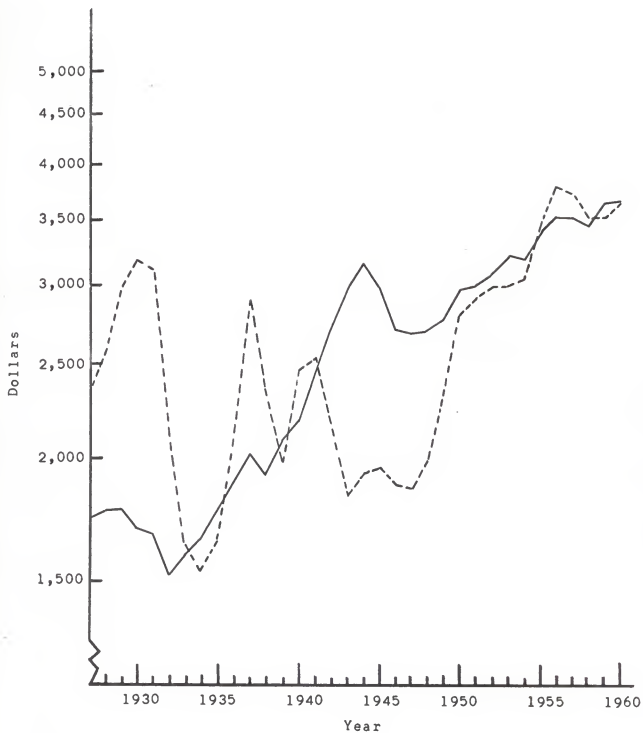
The depression of the 1930's temporarily halted the upward trend in Mr. Worker's wages in the early part of the model. However, the war-time labor shortage raised his current dollar wages to double the 1938 level by 1944. Mr. Worker's constant dollar income also increased sharply during this time, greatly surpassing Mr. Investor's annual income in both absolute amount

¹Historical Statistics of the United States, 1789-1958, United States Department of Commerce, p. 131.

EXPLANATION OF PLATE III

The constant dollar incomes of Mr. Investor and Mr. Worker are shown for the period 1927-1960. Mr. Investor's annual income is represented by the dotted line and Mr. Worker's income by the solid line.

PLATE III



and rate of growth. A series of labor strikes immediately following the end of the war reduced Mr. Worker's current dollar income temporarily, but his money wages resumed their climb in 1947. Inflation cut the dollar's purchasing power so rapidly during this period, however, that it was 1952 before Mr. Worker's constant dollar income equalled his 1944 high.

Most of the corporations in which Mr. Investor owned stock were able to raise their prices and maintain their physical volume of business as the price level increased rapidly during this time. In addition, deferred demand built up during the depression and war years pushed physical output to even higher levels in most cases, so Mr. Investor's dividend income increased greatly in both current and constant dollars following the war. Current dollar dividends doubled in amount between 1947 and 1952 with constant dollar income increasing by 60 per cent. The gap in annual incomes of Mr. Worker and Mr. Investor narrowed to a small amount during these years, and wages and dividends increased at approximately the same pace the remainder of the 1950's.

Mr. Worker and Mr. Investor received accumulated current dollar incomes of \$80,559.96 and \$79,869.12, respectively, during the 34 years of this model. When deflated to constant dollars, however, Mr. Investor's income represented \$88,664.80 in purchasing power compared to only \$87,990.24 for Mr. Worker. Thus, Mr. Investor received the greater constant dollar amount even though his current dollar income was less. This reversed situation is due to "inflation mix." Mr. Investor received a greater proportion of his current dollar income in the early years of this model period when the dollar would purchase more. Mr. Worker made up the cumulative difference in current dollar income later in the period, but the rising price level reduced the purchasing

power of these dollars, giving him an accumulated constant dollar income less than that of Mr. Investor. Table 1 shows these year-by-year incomes.

Viewing the entire period in Plate 3, wages show a relatively constant year-to-year increase. Dividend income reveals sharp up and down gyrations with a less definite upward secular movement. Mr. Worker's constant dollar income increased at an average annual growth rate more than double that of Mr. Investor's dividend income. These growth rates for the 34 years of the primary model are 2.865 per cent and 1.372 per cent, respectively. Part of the rapid rise in Mr. Worker's income might be attributed to the added influence of the unions after 1935 and a greater part to the labor shortage which existed during and immediately following the war.

Investment Values -- A Near Century in Retrospect

To see how Mr. Investor would have fared had he made his investment at a time prior to 1927, the results which earlier investors have obtained should be examined. Computing long-term stock price growth rates is a simple task since data on Standard and Poor's Composite 500 Stock Index are available as early as 1871.

For the near century period from 1871 to 1961, constant dollar stock prices have increased at an annual rate of .742 per cent while constant dollar dividends have increased an average of .700 per cent per annum. Table 2 shows stock price and dividend growth rates for various periods of time over these 91 years. All growth rates for the periods covered in Table 2 are positive except for that of dividends for the period 1871-1900. There have, of course, been shorter periods of time than those shown when the constant dollar growth rates of stock prices would have been negative.

Table 1. Current and constant dollar incomes of Mr. Worker and Mr. Investor, per year from 1927 to 1960.

Year	Mr. Worker		Mr. Investor	
	Current \$	Constant \$	Current \$	Constant \$
1927	\$1,286.48	\$1,733.68	\$1,753.46	\$2,363.15
1928	1,298.44	1,771.64	1,907.19	2,601.90
1929	1,301.56	1,775.80	2,169.01	2,959.09
1930	1,206.92	1,690.52	2,277.10	3,189.22
1931	1,083.68	1,667.12	2,017.68	3,104.12
1932	886.60	1,518.40	1,237.03	2,118.20
1933	869.96	1,573.00	905.54	1,637.51
1934	956.80	1,672.84	879.13	1,536.94
1935	1,046.76	1,783.08	972.81	1,657.26
1936	1,132.56	1,909.96	1,277.86	2,154.91
1937	1,250.60	2,036.84	1,799.10	2,930.13
1938	1,159.60	1,922.96	1,429.19	2,370.13
1939	1,240.72	2,088.84	1,172.18	1,973.37
1940	1,310.40	2,187.64	1,479.63	2,470.17
1941	1,538.16	2,445.56	1,609.34	2,558.57
1942	1,905.80	2,734.16	1,508.46	2,164.22
1943	2,243.28	3,031.60	1,361.94	1,840.46
1944	2,396.16	3,186.56	1,455.61	1,935.65
1945	2,308.28	3,001.44	1,518.06	1,974.07
1946	2,278.64	2,732.08	1,580.52	1,895.11
1947	2,600.52	2,723.24	1,796.70	1,881.36
1948	2,813.20	2,736.76	2,065.72	2,009.46
1949	2,853.76	2,803.32	2,411.61	2,368.97
1950	3,079.96	2,996.24	2,904.02	2,824.92
1951	3,359.20	3,026.40	3,288.34	2,962.47
1952	3,536.52	3,115.84	3,413.24	3,007.26
1953	3,726.84	3,257.80	3,444.68	3,011.08
1954	3,724.24	3,244.28	3,530.94	3,075.73
1955	3,983.72	3,479.32	3,968.10	3,465.59
1956	4,165.20	3,584.36	4,580.61	3,942.01
1957	4,290.00	3,569.28	4,638.26	3,858.79
1958	4,345.12	3,518.32	4,410.07	3,570.91
1959	4,654.00	3,735.16	4,450.91	3,572.16
1960	4,726.28	3,736.20	4,655.08	3,679.91

Source: Standard and Poor Composite Stock Index and Manufacturing Wage Index

Table 2. Real stock price and dividend growth rates per year for the Standard and Poor's Composite Stock Index, 1871-1962.

Time Period	Per Annum Growth Rates	
	Stock Prices	Dividends
1871-1900	1.186%	Minus .698%
1871-1912	1.488%	.774%
1871-1927	.377%	.441%
1871-1952	.372%	.480%
1871-1958	.588%	.637%
1871-1959	.642%	.658%
1871-1960	.638%	.681%
1871-1961	.742%	.700%
1871-1962	.788%	.723%
1919-1961	2.350%	1.774%
1927-1961	1.763%	1.444%
1929-1961	2.164%	1.693%

Differences at various times in stock price and dividend growth rates can be explained by the special political and economic conditions of those particular segments of time and the human nature of the investor to be over-optimistic or over-pessimistic at one time or another. Time, however, has a way of averaging out the moods of the investor and the special events characteristic of only certain periods of time. The long-term growth rates (i.e., trend lines) of stock prices and dividends are approximately parallel to each other for the years 1871-1961 (see Plate 1). Either stock price and/or dividend growth rates may be much higher for short segments of time, but this is usually a "catching up" period from some abnormally depressed situation. The period from 1947 to 1956 is a good example of a "catching up" period. Deferred demand from the depression and war years plus consumers with the savings to back it up made business conditions very favorable following the war. Constant dollar dividend income increased by a 7 per cent average annual rate of growth for this short period, but the "catching up" was completed by 1956. Constant dollar dividend income has declined slightly since 1956.

The first hypothesis--that common stock purchased at "normal" prices will increase in constant dollar value over time--has proven valid for the near-century of time studied. An aggregate investment in common stocks has not only been a hedge against inflation, but has also increased in constant dollar value.

A Near Century of Rising Income Levels

The means of measuring the worker's income must be changed somewhat for the long-run tests of the second hypothesis since Standard and Poor's data on average weekly manufacturing wages stop at 1919. One possible data source is the manufacturing wage index covering the period 1890-1947 previously mentioned. This information has been prepared by Paul H. Douglas for the years from 1890 to 1913 and extended from 1914 to 1947 by the Bureau of Labor Statistics. Indexes of nominal wages have been compiled by Alvin H. Hansen, Rufus S. Tucker, and the Aldrich Committee for the years prior to 1890. Both Hansen and Tucker relied upon the Aldrich Committee's raw data in preparing their indexes, so the three indexes are very similar.

Three of these wage indexes have been spliced together for comparison with dividend income for the period 1871-1960. Tucker's series was used from 1871-1890, while that of Douglas and the Bureau of Labor covered the years from 1891-1945, and Standard and Poor's average weekly manufacturing wage index was used for the years from 1946-1960. Standard and Poor's data are closely correlated with that of Douglas and the Bureau of Labor. Comparison of five year averages for these two indexes in the years in which they overlap (i.e., 1919-1947) shows a maximum difference of only .42 per cent. Tucker's data could not be compared with that of either Standard and Poor or Douglas

and the Bureau of Labor for similarity since Tucker's index did not overlap these other indexes at any time. His series did seem to be a compromise of the indexes prepared by Hansen and the Aldrich Committee.

These spliced wage data have been converted into a constant dollar index with 1871-1875 equal to 100 per cent. Five year averages were used to lessen the influence of possible over or understatement of earlier data as well as the questionable similarity of Tucker's data with that of the later indexes. Dividend information was also converted into five year average index values by this same method of calculation to facilitate comparison. Table 3 shows these index values for wages and dividend income for the period 1871-1960. These values are presented in graphic form in Plate 4.

Table 3. Index of constant dollar wage and dividend incomes. 1871-1875 = 100

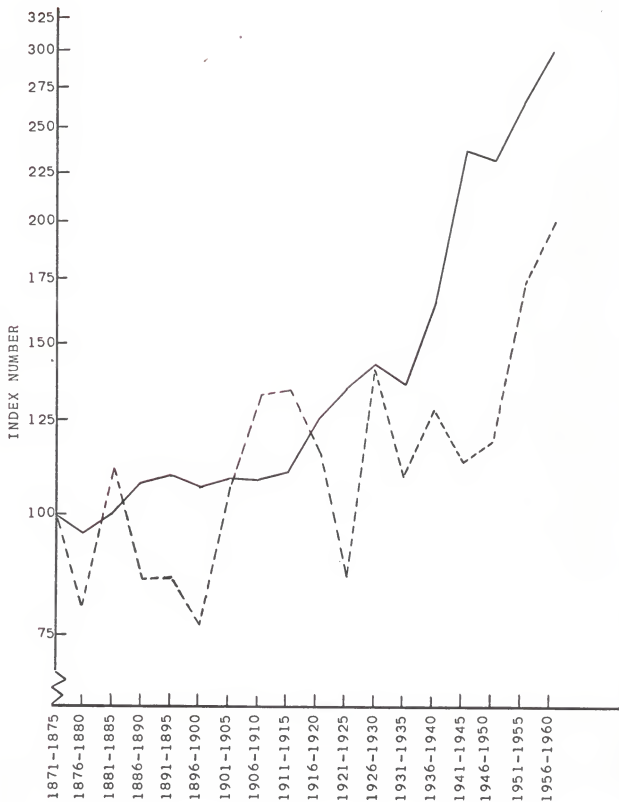
Time Period	Wages	Dividends
1871-1875	100.00	100.00
1876-1880	95.87	80.03
1881-1885	100.21	110.10
1886-1890	107.84	85.37
1891-1895	109.96	86.07
1896-1900	106.99	77.12
1901-1905	109.11	107.24
1906-1910	108.69	132.41
1911-1915	110.17	134.63
1916-1920	125.21	113.85
1921-1925	135.17	86.88
1926-1930	143.01	141.86
1931-1935	135.59	108.98
1936-1940	167.80	128.98
1941-1945	237.92	113.51
1946-1950	231.79	119.01
1951-1955	267.11	168.21
1956-1960	300.58	201.85

Source: Bureau of Labor Statistics, Paul H. Douglas, Rufus Tucker and Standard and Poor Corporation.

EXPLANATION OF PLATE IV

The income of the working class and the investing class are presented in index form in this plate for the period 1871-1960. The index is computed for quinquennial periods with 1871-1875 equal to 100. The workers' income are represented by the solid line and the investors' dividend income by the dotted line.

PLATE IV



Movements of dividend and wage incomes can be clearly distinguished in Plate 4. This plate shows that the worker's constant dollar income was virtually unchanged for the 30 years between 1886 and 1915. World War I's labor shortage started the wage trend upward again, and constant dollar wages continued to rise until stopped by the depression of the 1930's. This plate shows wages making the sharpest jump up to that time in the period 1936-1940. Part of this very rapid rate of growth can be explained by the depressed condition of wages in the depression. Perhaps more significant, however, was the new found power which the National Labor Relations Act of 1935 gave the workers and their labor unions. This act stipulated that management must bargain with the unions.

The war-time labor shortage drove the worker's constant dollar income up even faster during 1941-1945. Strikes and rapid inflation took away some of these constant dollar gains following World War II; but heavy consumer demand put labor in a strong bargaining position so current dollar wages continued to rise in these post-war years. With inflation lessening, the constant dollar income of the worker resumed its upward climb in the 1950's.

The experience of the investor for these same 90 years has been somewhat different from that of the worker. Some of the dividend movements shown on Plate 4 are more difficult to explain in relation to either economic or political events. The downward drift in dividend income from 1871 to 1900 might be attributed to a relatively stable price level and the completion of the reconstruction process which followed the Civil War. The sharp rise in dividend income from 1900-1910 could be due to new mass production economies and improving "scientific" management by corporate executives. Rapid war-time inflation and the "baby" depression of 1921 caused constant dollar dividend

income to drop sharply between 1916 and 1925, but the prosperity of the late 1920's increased dividend income to a new high. Constant dollar dividend income fell during the depression years but not as much as it had after World War I. The investor's dividend income improved little after this drop until the end of World War II when it shot up at a very rapid rate. The investor's income gain has been greater than that of the worker since 1946.

For the total period from 1871-1960, the working class has definitely been favored over the investing class. This is evident in both Plate 4 and Table 4. This table shows quinquennial constant dollar growth rates for both dividend income and wages. The working classes' long-run advantage is still apparent even if the very favorable years (for the workers) after 1936 are eliminated from the comparison. Closer examination of Plate 4 will show that most of the workers' gains can be traced to the two World Wars and labor shortage which ensued. The first 40 years of the 1871-1960 period, when viewed as a whole, favored the investor more than the worker.

Dividend income from an investment made in any of the four earliest periods--1871-1875, 1876-1880, 1881-1885, or 1886-1890--would have increased at a faster rate than the worker's income over the 45-50 year working lifetime of the average worker. An investment made at the average point of any of these five year periods would not completely conform to the assumptions set forth with the hypotheses in the introduction, however. These assumptions stated that the investment should be made when dividend and stock price levels are "normal." This non-conformity is a limitation of this five year average method of presentation and not of the data.

Investment made during the periods from 1876-1880 and 1886-1890 would be at levels which were below the "normal" dividend level. Investment made

Table 4. Quinquennial real growth rates for dividend and wage income for various periods between 1871 and 1960.

Time Period	Quinquennial Growth Rates	
	Wages	Dividends
1871-1890	2.733%	Minus 5.376%
1871-1900	2.383%	Minus 3.883%
1871-1905	2.072%	Minus .398%
1871-1910	1.737%	2.858%
1871-1915	1.560%	4.333%
1871-1920	2.088%	3.893%
1871-1925	2.643%	2.214%
1871-1930	3.081%	3.095%
1871-1935	3.064%	2.633%
1871-1940	3.593%	2.762%
1871-1960	6.529%	3.493%
1876-1900	3.179%	Minus 3.248%
1876-1915	1.670%	6.307%
1876-1920	2.293%	5.322%
1876-1925	2.917%	2.998%
1876-1930	3.388%	3.905%
1876-1935	3.317%	3.229%
1876-1960	7.015%	3.886%
1881-1905	1.640%	Minus 1.562%
1881-1920	1.988%	5.044%
1881-1925	2.816%	2.277%
1881-1930	3.402%	3.505%
1881-1935	3.314%	2.781%
1881-1940	3.983%	2.919%
1886-1910	.084%	11.597%
1886-1925	2.798%	4.136%
1886-1930	3.517%	5.244%
1886-1935	3.388%	4.012%
1886-1940	4.164%	3.954%
1886-1945	5.863%	3.257%
1891-1915	.193%	15.427%
1891-1920	2.112%	9.828%
1891-1925	3.426%	3.764%
1891-1930	4.171%	5.241%
1891-1935	3.876%	3.738%
1891-1940	4.710%	3.724%
1901-1925	5.868%	Minus 5.878%
1901-1940	6.105%	.251%
1901-1945	8.633%	.863%
1901-1950	9.293%	.005%
1901-1955	9.921%	1.960%
1901-1960	10.382%	3.255%
1916-1940	6.063%	4.881%
1916-1955	12.295%	4.633%
1916-1960	12.513%	6.827%
1921-1940	6.130%	9.663%
1921-1945	13.771%	4.493%

Source: Bureau of Labor Statistics, Paul H. Douglas, Rufus Tucker and Standard & Poor Corporation.

during either of the periods 1871-1875 or 1881-1885 would be at levels above the "normal" dividend level. However, the fact that the investor's income has increased at a faster rate than the worker's income for the two high periods as well as the two low periods would indicate that the second hypothesis is invalid for the earlier part of the 1871-1960 period.

Thus, the second hypothesis--that the average manufacturing worker's income has increased at a faster rate of growth over his working lifetime than the investor's dividend income for the same period--is only partially valid. The intra-period models and the primary model have shown that this hypothesis has accurately described the worker-investor relationship for periods starting in the twentieth century. The results of several intra-period models starting prior to 1900, however, have invalidated this hypothesis for these earlier periods.

SUMMARY AND CONCLUSIONS

Two hypotheses were tested in the study in an attempt to determine whose relative income increased the faster--that of the working class or that of the investing class. These hypotheses, both relating to common stock investment, were: (1) common stock purchased at normal prices has increased in real value over time; and (2) the wage income of the average manufacturing worker has increased at a faster rate of growth over his working lifetime than the dividend income of the investor for the same period.

Data for stock prices, dividends, and wages for the years 1871-1961 were deflated to constant dollar figures by the use of the Consumer Price Index. Growth rates, determined by the logarithmic least-squares method, were

computed from stock price, dividend, and wage data. These data were taken from a primary model covering the years 1927-1960 and from intra-period models covering various longer and shorter segments of time within the 1871-1961 period. These growth rates were compared and examined to test the hypotheses.

Results obtained from these models conclusively validate the first hypothesis since investment in the broad cross-section of common stocks included in Standard and Poor's Composite 500 Stock Index increased in constant dollar value over time in every case since 1871. The second hypothesis was substantiated by the comparisons of wage income and dividend income from the primary model, and from the intra-period models starting after 1900. There were model periods starting prior to 1900 when the investor's dividend income increased at a faster rate than the worker's wage income. Thus, to be valid, the second hypothesis should be restated as follows; since 1890, the wage income of the average manufacturing worker has increased at a faster rate of growth over his working lifetime than the dividend income of the investor for the same period. The worker's advantage stems mainly from the labor shortages of World War I and World War II.

A Summary of Limitations

Many limitations were encountered in the course of the study. These included the lack of reliable data for the earlier part of the 1871-1961 period, the possible bias in favor of the worker from using wage data from a highly unionized industry, the escalator clause, selection of a proper price deflator, and the strong influence of recent year's high stock price and dividend levels on the long term growth rates. Of these, the two latter

limitations merit further discussion because of their potential impact upon the findings of this study.

The importance of the deflator on final results can best be illustrated by comparing the constant dollar growth rates obtained by using the Wholesale Price Index and the Consumer Price Index. The current dollar average annual growth rates for stock prices and dividend income are 2.355 per cent and 2.298 per cent, respectively, for the period 1871-1961. Constant dollar per annum growth rates for stock prices and dividend income are .742 per cent and .700 per cent, respectively, when these data are deflated by the Consumer Price Index. Annual constant dollar stock price and dividend income growth rates are 1.150 per cent and 1.110 per cent, respectively, when the Wholesale Price Index is used as the deflator.¹

The purchasing power of the dollar has declined an average of 1.602 per cent per year when measured by the Consumer Price Index and 1.190 per cent when measured by the Wholesale Price Index. Thus, the Consumer Price Index attributes over two-thirds of current dollar growth to inflation while the Wholesale Price Index attributes only one-half of the growth to price level changes.

The use of a different index in this study would give different constant dollar growth rates, but it would not invalidate the findings. For example, real growth rates for stock prices, dividends, and wage income were higher when current dollar figures were deflated by the Wholesale Price Index rather than the Consumer Price Index. But the basic relationship among the three

¹ Slight arithmetic inconsistencies are due to rounding out decimals in the computations.

categories for the 1871-1961 period is unchanged. The wage income growth rate was greater than the dividend growth rate for this period when the Consumer Price Index was used as the deflator, and it was also greater when the Wholesale Price Index was used as the deflator. Thus, while the choice of index is very important insofar as exact constant dollar growth rates are involved, the index is less important to the basic relationships between categories since these will be unchanged in most cases.

High stock prices in recent years have significantly altered the long-term stock price growth rates. The stock price growth rate for the period 1871-1961 is almost double that for the 1871-1952 period. Table 2 on page shows the influence of the addition of one year's stock prices on long-term growth rates. The changes after 1958 are sizable in view of the length of time involved. If stock prices from 1952 to 1962 are out of line as measured by future levels, then these long term rates are overstated.

Some Implications for the Future

This country's economic system has undergone many structural changes since 1871, and most of these changes have favored the worker. Political actions, including anti-trust and full employment legislation, additional power for unions via the National Labor Relation Acts, high corporate income tax rates, and increasing government regulation of private business have tended to reduce whatever advantage the investor might have had in earlier years.

Although the investor's dividend income increased faster than that of the worker for the total post-World War II period, the investor's constant dollar income has declined slightly since reaching a high in 1956. The

investor's favorable position for this short post-war period is likely to disappear altogether in the next decade if stock prices and dividend levels follow the same cyclical movements that they have in the past (as shown in Plate 1). And there appears to be no fundamental reason why these major ten-to-twenty-year cyclical patterns will not continue.

On the other hand, the worker may expect his constant dollar income to continue rising, as it has over most of the past nine decades. Inflation no longer holds the threat over the worker's constant dollar income that it once did. Inclusion of the escalator clause in most labor contracts has virtually assured the worker of a stable or rising constant dollar income.

Aggregate investment by Americans in common stocks should continue to increase in constant dollar value when the investment is made at "normal" stock prices. In recent years, investors have ignored long-term standards of value. Whether a basic structural change is occurring in investors' attitudes or whether the market is on a speculative binge is unclear. If the investors' attitudes are changing, then "normal" stock price levels will have to be redefined. The two hypotheses proposed and tested appear to be tenable for the future, in either event.

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A STUDY OF THE CHANGING FINANCIAL POSITIONS
OF THE CORPORATE STOCKHOLDER AND
THE CORPORATE WORKER

by

PHILIP A. SHADE

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AN ABSTRACT OF A MASTER'S REPORT

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Two hypotheses were proposed and tested to evaluate how the financial positions of the corporate stockholder and the corporate worker have changed in this country since 1871. These hypotheses were:

1. Common stock purchased at normal prices has increased in real (i.e., purchasing power) value over time.

2. The wage income of the average manufacturing worker has increased at a faster rate of growth over his working lifetime than the dividend income of the investor for the same period.

The investor's income was the cash dividend payout of Standard and Poor's Composite Stock Index, multiplied by the number of units purchased. The worker's income was taken from manufacturing wage indexes.

The study covered the period 1871-1961 and was conducted in terms of a constant 1947-1949 dollar. The Consumer Price Index was used to deflate all current dollar figures to a constant dollar. Emphasis was upon average rather than individual movements of stock prices, dividend rates, and wage income.

Annual average growth rates, computed by the logarithmic least-squares method, were calculated for the constant dollar movements of stock prices, dividends, and wage income. These growth rates were contrasted in two ways to test the hypotheses. First, a detailed primary model was constructed for the period 1927-1960 and the findings were compared to test the two hypotheses. Several intra-period models were then constructed for various segments of time within the 1871-1961 period to test the hypotheses over different segments of time.

Findings of both the primary and intra-period models conclusively validated the first hypothesis. The value of the investor's common stock investment increased in constant dollar value in every model period. The test of

the second hypothesis was less conclusive. While the worker's real income increased twice as fast as the investor's real dividend income in the primary model period, there were several intra-period models starting prior to 1900 when the investor's constant dollar dividend income increased at a faster rate than the worker's constant dollar wage income. Thus, the second hypothesis was only partially valid.

While this country's economic system has undergone many structural changes since 1871, most of these changes have favored the worker. A variety of political events including enactment of the National Labor Relation Acts and imposition of high corporate tax rates have tended to reduce whatever advantage the investor might have had in earlier years. Much of the worker's gains have occurred during World War I and World War II when labor shortages drove wage incomes up very rapidly. Both hypotheses appear to be tenable for the future.