

Stock Ownership:  
Characteristics and Trends

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## Part I. Introduction and Summary

Relatively little is known about the patterns of stock ownership or changes in these patterns over time, even though stockholdings are a highly important component of total wealth, especially for individuals at the upper income levels. Even the historical series we do have on the total market value of stock owned by individuals in the United States (and by individuals and non-individuals combined) are subject to a substantial margin of error. More deficient still is our information on the value and characteristics of individual stocks and stock portfolios held by various income and other socio-demographic groups and on the investment experience of these groups. Such information on stock ownership is valuable for analyses of a wide range of economic issues, including problems associated with inequality in the distribution of income and wealth, the magnitude and timing of asset effects on consumption and saving, and the riskiness and performance of stock investments held by different groups in the population.

The purpose of this article is to fill in some of these deficiencies in information on stock ownership mainly on the basis of data on individual dividend receipts and the income, occupation, location, and broad age grouping of the recipients, as reported in two large stratified random samples of individual income tax returns for the years 1960 and 1971. Although the information from the 1960 sample was analyzed in earlier papers,<sup>1</sup> this article represents the first

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<sup>1</sup>J. Crockett and I. Friend, "Characteristics of Stock Ownership," Proceedings of the Business and Economics Statistics Section of the American Statistical Association, 1963 and I. Friend and J. de Cani, "Stock Market Experience of Different Investor Groups," Proceedings of the Business and Economics Statistics Section of the American Statistical Association, 1966.

use of the 1971 data. The 1971 results are based on a random sample of 17,056 returns, stratified so as to over-sample greatly the upper income groups. The actual returns were sampled by the Internal Revenue Service (IRS). For each return in the sample, the data on the amount of individual dividend receipts, the names of the payor corporations, and the income and other socio-demographic characteristics of the taxpayers, but not their names, were transmitted to the Census Bureau. The Census Bureau obtained from us information on the dividend yield, market rates of return, industry, size and risk characteristics for each of the corporations paying dividends and then prepared tapes matching the corporate information with the data on the individual returns. These tapes, which were designed to preserve the anonymity of individual returns, were used by the Bureau of Economic Analysis (BEA) to carry out the tabulations necessary for this study. Only the IRS had access to the original returns.

The 1960 and 1971 samples are unique in that they permit the matching of characteristics of individuals holding stock with the characteristics of the issuing corporations, making it possible to estimate the market value of stock owned by different socio-demographic groups. The IRS does publish annually the distribution of dividends by income class of recipient, but it is not possible to estimate satisfactorily the distribution of market value directly from these data since price-dividend ratios may vary substantially by income class. Using dividend receipts from individual payor corporations and the price-dividend ratios applicable to these corporations, the 1960 and 1971 samples provide the basis for estimating the average price-dividend ratios for stock held by different groups of individuals. While the market value of stock held by these groups can also be

estimated directly from the sample data, somewhat more reliable estimates of the distribution of market value by income class are obtained by applying the price-dividend ratio for each income class as estimated from the sample to the aggregate IRS figure for dividend receipts by that class. The distribution of market value by other socio-demographic characteristics estimated from the sample data has been made to conform to the distribution by income class. A more detailed description of the procedures followed, including the adjustments made for non-dividend paying stocks, is provided in the Appendix to Part V,

From the 1960 and 1971 data it is possible to obtain fairly reliable estimates not only of the distribution of the market value of all stock held by different groups in the population but also to determine the other characteristics of the stock owned by these groups. The data can further be used to analyze the investment performance and risk characteristics of the portfolios held by the different groups and to improve the accuracy of estimates of the total market value of outstanding stock in the U.S.

Some but not all of this information--specifically estimates of the distribution of dividend income and market value of all stock by income class--can be obtained for other years and will be presented for 1958, 1964, 1969 and 1970, as well as for 1960 and 1971. However, the market value estimates for the other years are not as reliable as for 1960 and 1971.

#### Summary of main results

Following is a summary of the main results of and implications of our analysis: (1) The concentration of dividend income and market

value of stock among upper income groups in the United States continued to decline from 1958 to 1969, but not from 1969 to 1971. The share in stock ownership of the richest 1 percent of the population changed very little over the entire period, in contrast to an appreciable decline from 1958 to 1969 in the share of the other upper income groups. Other data suggest that the 1958-1971 period was characterized by stability or a slight decline in the concentration of total family income and net worth, although the estimates for total income and net worth--especially the latter--are subject to substantial error.

(2) While data on the distribution of income and net worth subsequent to 1971 are not available, the sharp drop in stock prices since that time relative to other assets implies a significant decline in the concentration of net worth inasmuch as stocks constitute a major share of the assets of the upper income but not of the lower income groups. However, no similar effect on the distribution of total income between the upper and lower income groups would be expected since dividends unlike stock prices have not been depressed.

(3) To place these results in a longer-run perspective, while the distribution of both total income and dividend income became considerably less concentrated from the 1920's to the end of World War II, only dividend income continued to show a significant trend towards less concentration in the following years and even that trend seems to have become much less pronounced in recent years.

(4) In spite of the fairly substantial movement in the postwar period, and probably also earlier, towards a more egalitarian distribution of

stock ownership, the 1971 distribution of stock ownership among different income classes remained quite concentrated. Thus, the 1 percent of U.S. families (including single individuals) with the largest personal income accounted for 47 percent of dividend income received and 51 percent of the market value of stock owned by all families, while the 10 percent of families with the largest income accounted for 71 percent of dividend income and 74 percent of market value. (Foreign as well as domestic stock and beneficial ownership of stock held by fiduciaries and agents are reflected in these figures.) The 1 percent and 10 percent groups in 1960 owned 50 percent and 79 percent respectively of the market value of families' shareholdings. Both the 1971 and 1960 figures, each of which is based on a single year's income, probably understate the concentration of stock ownership which would be indicated for upper income groups if families were classified by their normal lifetime income or their average income over a period of years.

(5) As of mid-1971 the amount of stock owned by individual residents of the United States is estimated at \$780 billion. This is moderately higher than the corresponding Securities and Exchange Commission (SEC) and Federal Reserve Board (FRB) estimates and may be compared with a \$335 billion figure for mid-1960. Of the \$780 billion figure for 1971, \$460 billion was held in domestic New York Stock Exchange (NYSE) and other listed issues, \$50 billion in mutual fund shares, \$35 billion in unlisted bank and insurance shares, and \$190 billion in direct holdings of other traded and privately held unlisted stock.

(6) The two occupational groups with the largest stock ownership in 1971

were the managerial group and the retired. The relative share of families headed by retired persons was appreciably higher than in 1960.

(7) A surprisingly high proportion of the portfolios held by individuals in 1971 were dominated by a very small number of issues and thus were not well diversified. This finding applies not only to lower and middle income groups but also to upper income groups. Since there is ample evidence that investors are risk averse, the lack of effective diversification in these portfolios strongly suggests that two of the basic assumptions typically made in capital asset pricing theory cannot both be valid: Namely, that investors measure risk by the volatility of the rate of return on the entire portfolio, and that investors hold homogeneous expectations about expected rates of return and risk. The lack of effective diversification also has important social implications since in a major downturn in the stock market, a high proportion of investors will do very much worse than the market. Thus, since early last year when the market value of NYSE stock as a whole dropped nearly 40 percent from its high point, millions of investors--including a large number with modest means--must have experienced catastrophic losses.

(8) The lower income groups tended to hold somewhat less risky stocks than did the upper income groups. While the upper income groups owned substantially more stocks on the average, as high a proportion of their portfolios were as poorly diversified as those of the lower income groups. Mutual funds were a much more, and NYSE stock a somewhat more, important part of lower income portfolios. Among the NYSE stocks, the lower

income groups were relatively more likely to hold telephone and electric and gas utility stock than the upper income classes, but the differences for telephone stock were smaller than they had been in 1960. Electric and gas utility stock in 1971 constituted a much smaller proportion of holdings of all income groups than in 1960.

(9) Among the occupational groups, managers tended to hold the riskier and retired and other not gainfully employed persons the less risky stocks and portfolios.

(10) Investors in the upper income classes tended to hold stocks with higher price-dividend ratios than other investors. This tendency is consistent with the greater tax advantages to high income individuals of stocks with low dividend payout, i.e., a high earnings retention ratio. The same tendency was observed earlier in the analysis of the 1960 income tax returns but became more pronounced by 1971.

(11) The rates of return realized on average in 1970 and 1971-72 on stock held by the low income groups in 1971 were not significantly different from those realized by the middle and upper groups during these periods. This result is quite similar to that found for the years immediately preceding and following 1960.

(12) For 1971, comprehensive data were also available for the first time on the rates of return realized on stock held by investors in different occupations and regions. There did not appear to be any noteworthy differences in investment performance among groups that held substantial amounts of stock.



(13) While the total market value of stock owned by U.S. families and the number of individuals owning stock increased greatly from the late 1950's to 1971 (and still remains much higher than in the earlier period), the percentage of stock owned by individual investors declined appreciably, reflecting both the rapid rise in assets of financial institutions and the increased proportion of these assets channeled into stock investment. Many individual holdings of all sizes have been replaced by a much smaller number of large institutional holdings, and a large number of new and generally rather small stockholders have acquired shares through the reduction in holdings of more substantial individual investors. As a result, since institutions have not played an active role in corporate affairs and small individual investors have tended to be less active than large investors, managerial control of U.S. corporations may have been enhanced over this period.

#### Plan of discussion

The following section of this article (Part II) summarizes earlier studies of trends in stock ownership. The detailed results of our new analysis are presented in the last three sections, which cover the distribution of aggregate dividends and shareholdings in 1971 among broad ownership groups (Part III); the trends in the concentration of aggregate stock ownership among various income groups since the late 1950's (Part IV); and the 1971 distribution of different types of stock among fairly detailed classifications of investors and the investment experience of these different investor groups (Part V).

## Part II. Earlier Studies of Trends in Stock Ownership

Earlier studies have provided historical insights into a number of different facets of stock ownership, though much of the information provided by these studies is based on fairly tenuous data. We have reasonably useful but rough long-term estimates of the following: (a) the total market value of stock outstanding in the United States, (b) the aggregate amounts owned by the two major groups of investors--financial institutions and families or households, (c) the number of individuals owning stock,<sup>2</sup> and (d) the amounts of dividends and of total income received by groups of families classified by total income.

Historically, the market value of stock has increased considerably more than that of total net worth either of the economy as a whole or of the household sector.<sup>3</sup> For many years stock has been by far the largest of the financial assets held by families and together with housing has constituted one of the two major components of household net worth.

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<sup>2</sup>There are no long-term series available on the number of families owning stock.

<sup>3</sup>R. W. Goldsmith, R. E. Lipsey, and M. Mendelson, Studies in the National Balance Sheet of the United States, National Bureau of Economic Research, 1963, provides historical estimates of the value and composition of assets and liabilities of households and financial institutions. More recent though less comprehensive estimates can be found in the SEC Bulletins and the FRB Flow of Funds publications.

### Growing importance of institutions

Excluding personal trusts, which are largely administered by commercial banks, stockholdings and stock trading by financial institutions became important only after World War II. In 1940, such holdings accounted for less than 5 percent of the market value of all outstanding stock in the United States, and even by 1950 this percentage was less than 8 percent, in contrast with over 24.0 percent currently. Stock held in personal trust funds has experienced relatively little change in relative importance over the past half century accounting for about 10 percent of all outstanding stock owned by non-corporate entities. Thus, a relatively small number of institutions now hold close to 35 percent of all outstanding stock. The remainder of the stock is currently owned by somewhat under 32 million individual stockholders.<sup>4</sup>

In spite of the marked decline in the share of the market value of all stock owned by individual shareholders, the number of such stockholders has increased greatly since the turn of the century. Earlier studies indicate that the number of individual stockholders in the first three decades of this century may have risen from about one to ten million.<sup>5</sup> During the next 20 years, the number of stockholders actually declined, but the decline was reversed in the 1950's. By the end of the decade the number had increased to about 12.5 million,

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<sup>4</sup>NYSE 1973 Fact Book. The NYSE Shareownership series started in 1959.

<sup>5</sup>See E. B. Cox, Trends in the Distribution of Stock Ownership, University of Pennsylvania Press, 1960, for a summary of these studies.

and by early 1972 a peak of 32.5 million was recorded.

The number of stockholders or the ratio of that number to the total population obviously provides a completely inadequate picture of the diffusion of ownership among different sectors of the population. It does not even provide an altogether satisfactory picture of the growth in the number of basic economic units (families or households) owning stock, since a number of members of the same basic unit may hold stock in their own name, and this number may vary over time as a result of changes in the tax laws.

The two major sources of information on historical trends in the distribution of stock ownership among different groups in the population have been the dividends reported by income class on income tax returns and, probably less useful, the asset data on estate tax returns.<sup>6</sup> The estate tax data are less satisfactory as a source for information on trends in the distribution of stock ownership not only because they cover a considerably smaller range of incomes, but also, and more importantly, because of the number and questionable nature of the assumptions required to estimate the assets of wealthy survivors from the assets reported for wealthy decedents (see Part IV).

#### Declining importance of upper income groups

The analyses of trends in the distribution of dividend income based on income tax data point to a substantial decline in the pro-

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<sup>6</sup>The income tax data were analyzed in S. Kuznets, Shares of the Upper Income Groups in Income and Savings, National Bureau of Economic Research, Inc., 1953 and Cox, op. cit.; the estate tax data were analyzed in R. Lampman, The Share of Top Wealth-holders in National Wealth, National Bureau of Economic Research, Inc., 1962.

portion of dividend income received by the highest income classes over the 1919-57 period. Estimates derived from the estate tax data, on the other hand, point to a moderate increase over this period in the concentration of the market value of stockholdings in the top wealth group. The discrepancy seems too large to be explained wholly by differences which may exist between the concentration of dividend income by income class and the concentration of value of stock by wealth group as a result either of differential movements in price-dividend ratios of stocks held by upper and lower income families or of differential movements in the relation of income to wealth for these two groups of families. As noted above, the findings from the income tax data seem more reliable and appear to suggest some decline in the proportion of stock held by the upper income and probably also the upper wealth families. Those findings also seem more plausible in light of the fairly broad range of evidence that the concentration of total income in the upper income groups diminished during most of this period.<sup>7</sup>

Date on the distribution of dividend income based on income tax returns and on the distribution of the market value of stock based on estate tax returns are available for a number of years subsequent to the late 1950's and will be discussed in Part IV of this article in conjunction with the new data for 1971. Probably the most comprehensive and reliable data previously available on the distribution of stock

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<sup>7</sup>Kuznets, op. cit., and D.B. Radner and J.C. Hinrichs, "Size Distribution of Income in 1964, 1970 and 1971," Survey of Current Business, October, 1974.

ownership by income class and by other socio-demographic characteristics were contained in the 1960 study of dividends reported on individual income tax returns which was the precursor of the present analysis.<sup>8</sup> The 1960 and 1971 studies make possible much more reliable estimates of the market value of stock held by different groups of families in these years and of the trends over this period than are available for these or any other years in earlier data. In addition to data on the distribution of stock ownership, both studies also have made possible improved estimates of the market value of outstanding stock in the United States<sup>9</sup> and provided new information on the risk, rate of return and other characteristics of the stock held by different groups in the population. All of these findings will be discussed in subsequent sections.

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<sup>8</sup>The earlier results were presented in Crockett and Friend, op. cit., and Friend and de Cani, op. cit.

<sup>9</sup>The 1960 figure was used as a new benchmark by the SEC.

Part III. Distribution of Aggregate Dividends and  
Shareholdings Among Broad Ownership Groups

A basic input in estimating the aggregate value and distribution by income class of the shareholdings of individuals is the aggregate value and income distribution of dividends as reported on Individual Income Tax Forms 1040. Such information, based on a very large sample of returns, is developed each year by the IRS and published in Statistics of Income: Individual Income Tax Returns. However, the Statistics of Income (SOI) data fail to reflect two components of dividends allocable to individuals: (a) dividends not actually paid out to individuals but retained by estates and trusts on their behalf as beneficiaries; and (b) the dividends paid to individuals which are not reported on their tax returns, either because the recipients are not legally required to report them or because of illegal under-reporting.

The dividend gap

We have estimated the aggregate magnitudes of the two omitted components as follows. The first aggregate is derived from total dividend receipts of estates and trusts as reported on fiduciary income tax returns, after allowance for distributions of fiduciary income to individuals and other categories of beneficiaries. The income tax data, which are available for 1970, are updated using the market value of stock held by bank-administered trusts and estates in 1971 (see Appendix to Part III,A). The second aggregate is derived by comparing total cash distributions to stockholders from domestic corporations, as reported on corporation income tax returns, with total dividend receipts as reported on Forms 1040, after allowance for dividend receipts of other stock ownership groups and a number

Table 1.- Estimation of Dividend Receipts by Individuals Not Reported on Individual Income Tax Returns, 1971

		Millions of Dollars
1.	Distributions to stockholders by domestic corporations of assets other than own stock	32,580
2.	Less domestic dividends (other than those paid by Federal Reserve Banks) received by domestic corporations	- 5,460
3.	Plus distributions other than own stock by foreign corporations to domestic individuals, fiduciaries and tax-exempt institutions	+ 110
4.	Less domestic dividends paid to foreigners	- 840
5.	Equals distributions other than own stock by domestic and foreign corporations to domestic individuals, fiduciaries and tax-exempt institutions <sup>1</sup>	26,390
6.	Less dividends received by corporate pension funds	- 2,460
7.	Less dividends received by state and local government retirement funds	- 330
8.	Less dividends received by other tax-exempt institutions (including those distributed through fiduciaries)	- 1,440
9.	Less dividends retained by estates and trusts or utilized to pay taxes or administrative costs	- 1,660
10.	Equals distributions other than own stock by domestic and foreign corporations to domestic individuals <sup>2</sup>	20,500
11.	Less distributions of small business corporations taxed as partnerships	- 1,290
12.	Less non-taxable distributions	- 560
13.	Less distributions taxable as capital gains	- 880
14.	Equals dividends reportable on individual income tax returns	17,770
15.	Less dividends reported on individual income tax returns	-16,790
16.	Equals dividend gap	980

Sources: See Appendix to Part III, A.

<sup>1</sup> Includes a small amount of cash distributions other than dividends paid to domestic corporations and foreigners.

<sup>2</sup> Includes a small amount of cash distributions other than dividends paid to other ownership groups.



of reconciliation items. This computation is shown in table 1 for 1971.<sup>10</sup>

Total cash distributions to stockholders by domestic corporations exceed the distributions received by domestic individuals by the dividends paid to domestic corporations, nonprofit institutions and foreigners and by the dividends paid to fiduciaries but retained by them or used to pay taxes or defray expenses. Such dividends must therefore be subtracted in arriving at the cash distributions paid to individuals.<sup>11</sup> On the other hand, cash distributions paid by foreign corporations to domestic individuals must be added. Making these adjustments, a figure of \$20.5 billion is obtained in table 1 for 1971 cash distributions by domestic and foreign corporations to domestic individuals.

Some portion of this total is not reportable as dividend income on individual income tax returns: (a) distributions of small business firms electing to be taxed as partnerships; (b) distributions taxable

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<sup>10</sup>A detailed explanation of the sources and procedures utilized in deriving the items in this table is given in the Appendix to Part III, A. A comparable table for 1960 appears in Crockett and Friend, op. cit.

<sup>11</sup>For some ownership groups dividend receipts must be inferred from the market value data provided by Government sources. This requires that market value be multiplied by a ratio of dividend-paying to total stock, appropriate to the types of stock held, to obtain the value of dividend-paying stock only. This figure must then be multiplied by a dividend yield (dividend-price ratio), appropriate to the portfolio held, to obtain dividends. For estates and trusts, nonprofit institutions and foreigners, the proportion of stock paying dividends and the dividend yield utilized are those characteristic of listed stock and large unlisted issues traded over-the-counter. For simplicity the two steps described above are combined, here and elsewhere, and

market value multiplied by the ratio of dividends to total market value

as capital gains; and (c) non-taxable distributions. For comparability with dividends actually reported on Forms 1040 in 1971, these items must be subtracted, yielding a figure of \$17.8 billion for dividends reportable on individual income tax returns. Comparing this with the \$16.8 billion reported in 1971, we find about \$1 billion unaccounted for.

This dividend gap is presumed to consist of three components: (a) the modest amount of illegal under-reporting of dividends revealed by audit checks; (b) dividends received by non-filers--either those with gross income so low that they are not legally required to file or those who escape the audit checks; and (c) dividends below the exclusion which the recipients neglected to indicate on their tax forms and which were not found on the audit.<sup>12</sup>

Since different procedures should be used in distributing the three components by income class, rough estimates have been made of their relative magnitudes. An estimate of illegal under-reporting at 2 percent of reported dividends gives a figure of \$340 million. This percentage is considerably less than the average under-reporting of 5 percent assumed in the 1960 study. The 5 percent figure, based on 1959 IRS estimates published by Holland,<sup>13</sup> was derived by checking

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<sup>12</sup>In 1971, there was no requirement that dividends be listed on Schedule B if total dividend receipts fell below \$100. While such dividends should be indicated on the first page of the return (and thus caught by the S01 sample, though not by our special sample), it is probable that some filers may neglect to do so since no tax liability is involved.

<sup>13</sup>D. M. Holland, Dividends Under the Income Tax, Princeton University Press, 1962, p. 90.

tributed to the omission of dividend receipts from tax returns in cases where these receipts failed to exhaust the legal exclusion. Although about  $4\frac{1}{2}$  million filers in 1971 listed dividends totaling less than the exclusion to which they were entitled, the NYSE stockholder census indicates that there were  $12\frac{1}{2}$  million holders with portfolios under \$5,000 at the beginning of 1970.<sup>16</sup> A large proportion of these stockholders would be expected to fall below the \$100 exclusion, but the average amount of dividends received in such cases would be small.

Market value of unlisted domestic stock, other than mutual funds and banks and insurance companies

The information in table 1, in conjunction with data drawn from Government or industry sources and from the 1971 sample of individual income tax returns described in the Appendix to Part V, can be used to generate estimates of the aggregate market value of unlisted domestic stock and its distribution among ownership groups. Such stock is a very substantial component of the total financial wealth of households, but existing estimates of its total value are subject to wide margins of error. While the Investment Company Institute (ICI) provides reliable figures on the market value and business and institutional holdings of mutual funds and the SEC makes estimates of the market value of unlisted banks and insurance companies, no similarly reliable estimates are available for other unlisted stock. This residual group is largely but not entirely nonfinancial; and a significant proportion is not traded over-the-counter (OTC), in which case price quo-

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<sup>16</sup>NYSE, op. cit., p. 9.

tations are unavailable.<sup>17</sup>

There are two basic approaches that can be used to estimate the value of the residual group of unlisted stocks. We present results based on both approaches, as well as a third procedure making use of the 1971 sample of individual income tax returns.

The first approach begins with aggregate cash distributions on all categories of stock, which can be determined with a high degree of accuracy from corporate income tax data; removes dividends on listed stock, mutual funds and unlisted stock of banks and insurance companies, which can be estimated with varying degrees of accuracy from industry and Government sources;<sup>18</sup> removes non-dividend distributions; and thus obtains dividends on other unlisted stock as a residual. (These computations are shown in the Appendix to Part III,B.) From aggregate dividends, an estimate of the aggregate value of dividend-paying stock in the residual category can be developed by dividing

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<sup>17</sup>Unlisted stock not traded over-the-counter (i.e., stock in which transactions involving a dealer or broker-dealer do not occur) either is closely held for control purposes, as in a family corporation, or has a strictly local market, as in the case of a small town bank or retail enterprise. To the extent that the return on such stock is taxed as partnership income, we exclude the market value from our total. This is consistent with National Income Accounts procedure, which excludes such return from dividend income.

<sup>18</sup>Where the sources supply market value rather than dividend data, it is necessary to estimate both the average dividend yield and the proportion of stock paying dividends on a sample basis. Dividend figures are highly accurate for NYSE stock and for mutual funds, less so for other listed stock and unlisted banks and insurance companies.

by an appropriate dividend yield, based on a large market value-weighted sample of stocks in the category under consideration.

A major difficulty arises, however, in estimating the value of nondividend-paying stock by this method. What evidence we have indicates that a far higher proportion of unlisted than of listed stock pays no dividends. It is possible to estimate this proportion on a sample basis for the category of stock under consideration; and the aggregate previously obtained for dividend-paying stock may then be correspondingly augmented. However, little confidence can be placed in such an estimate because samples are necessarily drawn from an incomplete listing, consisting only of those issues for which price quotations are available, and because the large sample available to us at low cost from the Rodney L. White Center files almost certainly overrepresents the larger firms to a very substantial but unknown degree.<sup>19</sup> Since it is clear from classifying our sample by market value of stock that the proportion of nondividend-paying stock increases sharply as size of firm declines, the overrepresentation of large firms is a considerable disadvantage.

The second approach deals directly with market values, but on a sample basis. Data on number of shares outstanding are collected for individual firms for which price quotations can be found. The NYSE, in connection with its most recent census, Shareownership 1970,

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<sup>19</sup>Similar sampling limitations apply to the estimate of average dividend yield utilized in obtaining the aggregate value of dividend-paying stock, but with less force since our sample of dividend-paying stocks probably covers a large fraction of total market value for the universe sampled, while no such presumption can be made for the sample of nondividend-paying stocks.

contacted 7,450 unlisted firms (other than mutual funds) early in 1970 and determined their market value to be \$366 billion. Such a sample aggregate, since it is not exhaustive, necessarily understates the universe total. At a minimum, the NYSE figure must be adjusted upward to account for unlisted stock (other than mutual funds) not traded OTC. From the adjusted figure it is then necessary to eliminate the market value of unlisted banks and insurance companies to arrive at the aggregate we are attempting to measure.

Apart from the mutual fund component, any estimate of the market value of unlisted stock not traded over-the-counter is subject to a wide range of error. We have followed Tri in basing our estimate on estate tax data for 1965, which distinguish privately held stocks<sup>20</sup> from the holdings of traded stock reported in the 97,000 Federal estate tax returns filed in that year.<sup>21</sup> Such stocks amount to 15½ percent of other stockholdings, as reported in these returns.

A basis exists in the 1971 sample of individual income tax returns for approximating for that year the aggregate holdings that correspond to the category of traded stock recognized in the breakdown

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<sup>20</sup> i.e., stocks which are not identified by executors as traded and for which price quotations are not readily available.

<sup>21</sup> Statistics of Income, 1965: Fiduciary, Gift and Estate Tax Returns, Table 1. L. M. Tri, "The Market Value of Corporate Stock in the U.S.," Securities and Exchange Commission, Office of Policy Research, June 1971, pp. 20-1.

of stockholdings from the 1965 estate tax returns.<sup>22</sup> Taking 15½ percent of this figure, we arrive at an estimate for 1971 of individuals' ownership of privately-held stock, assuming that the relationship of such stock to traded stock for all individuals in 1971 is similar to that for the decedents represented in the 1965 estate tax returns. To obtain the desired figure for total market value of privately-held stock, it remains only to make a modest allowance for holdings of other ownership groups, which may be expected to constitute a rather small proportion of such stock, and to remove from the total the stock of small corporations electing to be taxed as partnerships. Such stock is apparently included in the privately-held category in the estate tax data, although we have excluded it from our total.

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<sup>22</sup> Sample holdings that can be identified as listed stock, mutual funds, stock in unlisted banks or insurance companies or as other unlisted stock traded over-the-counter are all presumed to fall in this category, as is stock held in agency or custodial accounts or in street name--i.e., stock held as nominee by a bank or brokerage house, for the interest of the beneficial owner. In all but the last case the dividend data can be converted to market values with some confidence on a company-by-company basis. While the conversion is less precise for stock held in agency or custodial accounts or in street name, the overall figure for market value of individuals' holdings of the group of stocks in question is a reliable one. See Part V for further details of the conversion procedures.

Individuals' beneficial ownership of stock through fiduciaries is excluded for present purposes, in part because such stock will not necessarily appear as part of the beneficial owner's estate and in part because a significant proportion of the stock in nonbank-administered trusts may be privately held. The total obtained for individuals' holdings of traded stock probably falls short of the figure that would correspond precisely to the traded stock category as utilized in analysis of the estate tax returns--to the extent that traded stock held in trusts does appear in the estates of beneficial owners and to the extent that stock for which we could not identify the paying corporation is in fact traded.

Both approaches to estimating unlisted stock, other than that of mutual funds and banks and insurance companies, can be seen to involve questionable steps: The first particularly in the estimation of the nondividend-paying component and the second particularly in the estimation of the privately-held component. In addition, inaccuracies are certain to be introduced in any process which converts dividends to market value or market value to dividends on the basis of sample estimates of the ratio of one to the other for a particular class of stock.

A third approach depends, like the first, on an estimate of the total dividends paid on stock of the requisite type, but makes use of the 1971 sample of income tax returns in determining these dividends. The dividends received by individuals on direct holdings of unlisted stock other than mutual funds are immediately available from the sample. This is a fairly reliable figure,<sup>23</sup> which must, however, be augmented by estimates of the dividends from unlisted stock held by individuals in agency and custodial accounts and in street name and by fiduciaries and other ownership groups.

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<sup>23</sup>There is room for some difference of opinion as to how much, if any, of the dividends for which the paying corporation could not be identified represent listed stock incorrectly specified by the filer. In view of the care taken to identify corporate payors, at least as to listing status, the proportion cannot be large. We have assumed here 10 percent, which is probably an upper limit. There is also an element of arbitrariness in determining how much of the dividend receipts associated with banks represents dividends on bank stocks and how much represents return on stocks held in bank-administered trusts which has been distributed to the individual as beneficiary.



Total dividend receipts for stock held in agency and custodial accounts and in street name are obtained from the 1971 sample, while for fiduciaries and other ownership groups dividend receipts have already been estimated for the purposes of table 1. (See Appendix to Part III, A, for details.) By making plausible assumptions as to the proportion of dividend income that is derived from unlisted stock in each of the above cases, an estimate may be obtained of dividends on all unlisted stock not held directly by individuals. The assumptions as to portfolio composition for the various groups must meet the constraint that the total dividends allocated to listed stock (including individuals' direct holdings as determined from the 1971 sample) must be consistent with the highly accurate external figure for total market value of listed stock, taking into account the average dividend yield and the proportion of stock paying dividends that characterize listed stock.<sup>24</sup>

Having derived in this way an estimate of the dividends on unlisted stock not held directly by individuals, we may add to this the sample-based estimate of dividends on individuals' direct holdings of unlisted stock other than mutual funds. After adjusting for

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<sup>24</sup>Since domestic corporations are known to invest heavily in unlisted as well as listed subsidiaries, we have assumed that the proportion of intercorporate dividend receipts coming from unlisted stock is as high as for individuals' direct holdings, i.e., 27 percent. The portfolios for estates and trusts and for agency and custodial accounts are assumed to be similar to those held directly by individuals, but a little more conservative, so that a somewhat smaller proportion of dividend receipts is assigned to unlisted stock. For nonprofit institutions, individuals' holdings in street name and foreigners, a very small proportion of dividend receipts is assumed to come from unlisted stock.

the small amount of mutual fund dividends received by ownership groups other than individuals and subtracting out aggregate dividends on stock in unlisted banks and insurance companies, we obtain an estimate--alternative to that developed by the first approach--of dividends on the category of stocks for which we are attempting to determine market value. The market value of dividend-paying stock is then derived by multiplying dividends by the estimated dividend yield.

As with any approach based on dividend information, the problem remains of obtaining a satisfactory estimate of the value of nondividend-paying stock. However, the 1971 sample provides some assistance here also. We require an estimate of the overall ratio of nondividend to dividend-paying issues for the class of stock under consideration in order to derive a figure for nondividend-paying stock from the estimated aggregate of dividend-paying stock. However, it is not feasible to obtain a large random sample from the relevant universe on which to base such an overall ratio. The available sample is believed to be strongly biased in favor of the larger firms, but should provide a relatively unbiased estimate of the ratio of nondividend to dividend-paying stocks within each size class. If appropriate weights were available (ideally the population aggregate of dividend-paying stocks within each size class), then a weighted average of the ratios for individual size classes would provide a suitable estimate of the overall ratio. We make use of the 1971 sample data on the relative importance of each size class in individuals' holdings of dividend-paying stocks within the relevant category, as indicative of the population weights.<sup>25</sup>

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<sup>25</sup>Even on this basis some bias probably still exists toward over-representation of the larger firms.

This use of sample information on individual holdings of dividend-paying stock to approximate the population weights for all holdings of dividend-paying stock is equivalent to assuming that for each dollar of dividend-paying stock in a given size class held by individuals (or other ownership groups) an amount of nondividend stock is held equal to the ratio of nondividend to dividend-paying stock for that size class. When this weighting scheme is used for averaging over size classes, we refer to the average ratio obtained as a sample-weighted ratio.

As a check on the sample-weighted ratio of nondividend-paying to dividend-paying stock, a random sample of 130 unlisted stocks (not stratified by size) was drawn from the Bank and Quotation Record, a listing subject to considerably less size bias than the large sample available from our own files. The small random sample provided an estimate almost identical to the sample-weighted ratio described above.

The three estimates of the market value of unlisted stock, other than that of mutual funds and banks and insurance companies, are in fairly close agreement. The first approach yields a dividend figure of \$5.2 billion for this category of stock; and, utilizing sample-weighted averages for the dividend yield and the proportion of nondividend-paying stock, implies a market value of \$318 billion. The second approach begins with the \$366 billion figure obtained by the NYSE in early 1970 for 7,450 unlisted firms which were traded OTC.<sup>26</sup> This figure of \$358 billion is obtained by adding \$33 billion for privately-held stock, other than that of corporations electing to be taxed as partnerships, and subtracting \$41 billion of stock in unlisted banks and insurance companies.

<sup>26</sup>In view of the unavailability of a broadly based price index for unlisted stock other than mutual funds, no adjustment has been attempted reflecting the general price rise that occurred in the first half of 1971, after a very slight decline during 1970.

The third approach yields a dividend estimate of \$5.7 billion, half a billion higher than the first. Utilizing the same dividend yield and proportion of nondividend-paying stock as in the first approach, a market value of \$350 billion is obtained--intermediate between the first two estimates but close to the second. Thus the second and third approach tend to confirm each other providing some support for the assumptions as to portfolio composition that are utilized in the third approach.

Market value of all domestic issues, by market type and ownership group

Table 2 combines market value figures for domestic listed issues, mutual funds and unlisted banks and insurance companies, as obtained from industry and Government sources, with our second estimate (\$358 billion) for other unlisted stock to obtain total market value of domestic issues.<sup>27</sup> We have chosen the second estimate, the largest of the three, in part because it utilizes a direct attempt to measure market value, rather than an indirect approach via dividends, and thus avoids the difficult problem of inferentially evaluating nondividend-paying stock. In part, we hesitated to use a lower figure than that chosen because the conceptual shortcomings of that estimate lie in the direction of understatement rather than overstatement, both because the NYSE sample cannot have completely exhausted the universe of unlisted traded stock and because some price rise almost certainly occurred between early 1970 and mid-1971.

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<sup>27</sup>A detailed explanation of the sources and procedures used in deriving table 2 appears in the Appendix to Part III, C.

Table 2.- Market Value of All Domestic Issues, by Market Type and Ownership Group, June 30, 1960 and 1971 (billions of dollars)

Type of Stock	All Holders		Individuals, 1971		Nonprofit Institutions, <sup>3</sup> 1971	Domestic Corporations, <sup>2</sup> 1971	Foreigners
	1960	1971	Direct <sup>1</sup> Holdings	Beneficial <sup>2</sup> Ownership			
	Listed	326	760	317	144	135	138
NYSE, domestic and foreign issues		731					
Other, domestic and foreign issues		54					
Less listed foreign issues		-25					
Unlisted	160	458	273	43	18	121	3
Mutual funds	16	51					
Banks and insurance	36	41					
Other	108	358	189				
All Domestic Stock	486	1,218	590	187	153	259	29

<sup>1</sup> Includes some stock held in street name; The 1971 special sample did not always permit the segregation of such stock.

<sup>2</sup> Stock held by fiduciaries, in agency and custodial account and in street name for the beneficial interest of individuals.

<sup>3</sup> Includes pension funds as well as other nonprofit organizations. See text for complete coverage of item.  
Sources: See text and Appendix to Part III, C.

Table 2 also shows the distribution of listed, unlisted and total stockholdings among ownership groups. Total holdings of individuals (direct holdings plus beneficial ownership of stock held by fiduciaries or in agency or custodial accounts or in street name) are derived from the 1971 sample of income tax returns, after adjustment to exclude holdings of foreign stock. Those of foreigners and nonprofit institutions (corporate pension funds, state and local retirement funds, foundations and educational endowments) are taken from Government sources with the adjustments previously indicated in the Appendix to Part III, A. The stockholdings of fiduciaries have been allocated between individuals and charitable organizations in the same proportion as the distributions by fiduciaries shown in that Appendix. While total receipts of domestic dividends by domestic corporations are known from corporate income tax data, the market value of the corresponding domestic stockholdings is not known, and so is computed as a residual in table 2.

Individuals' direct holdings of listed stock can also be obtained from the sample. Other holdings of listed stock depend on the assumptions mentioned earlier as to portfolio composition. Specifically we assume that for estates and trusts and agency and custodial accounts, 25 percent of the market value (and hence a smaller percent of the dividends) is assignable to unlisted stock; and that for nonprofit institutions, foreigners and the stock of individuals held in street name, 10 percent of market value (and hence a smaller percent of dividends) is assignable to unlisted stock.

Corporate holdings of listed stock are again determined as a residual. When the value thus obtained is compared with the amount of intercorporate dividends previously assumed to arise from listed domestic issues (i.e. 27 percent of the \$5.5 billion aggregate obtained from corporate income tax returns), the resulting ratio of dividends to market value<sup>28</sup> is that characteristic of listed stock as a whole. This tends to confirm the reasonableness of our assumptions as to portfolio composition.

Since the stock of mutual funds and of unlisted banks and insurance companies is to a very large extent held directly by individuals and since good external estimates are available of the total market value of such stock, individuals' direct holdings are obtained by adjusting total market value for the holdings of fiduciaries and other ownership groups. The market value of individuals' direct holdings of other unlisted stock is then obtained by removing from dividends on all direct holdings, as derived from the sample, the dividends already accounted for by the estimated direct holdings of listed stock and stock in mutual funds and unlisted banks and insurance companies. These residual dividends are then converted to a market value figure.<sup>29</sup>

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<sup>28</sup>This ratio is the product of the proportion of stock paying dividends and the dividend yield.

<sup>29</sup>The ratio of dividends to total market value used is somewhat higher than the sample-weighted ratio for nonfinancial firms traded over-the-counter in the belief that individuals probably would not be inclined to hold the very high proportion of nondividend-paying stock that characterizes the small unlisted firms (market value under \$15 million) for which we have dividend information.

The value of unlisted holdings of fiduciaries, nonprofit institutions and foreigners is already determined by our portfolio composition assumptions, given the data on total stockholdings; and the holdings of corporations are again determined as a residual.<sup>30</sup>

Table 2 indicates a total market value for domestic issues of \$1,220 billion in mid-1971. This is 2½ times the corresponding estimate for 1960. (The total stock here includes intercorporate holdings--financial as well as nonfinancial--unlike the figures published by the SEC which are discussed in Part IV.) Listed stock increased at a slightly lower rate, unlisted non-financial stock somewhat more rapidly and mutual funds, of course, much more rapidly than the total.<sup>31</sup> In view of the substantial trend during the intervening years toward listing of bank holding company stock, it is perhaps not surprising that the market value of unlisted banks and insurance companies increased very little.

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<sup>30</sup> Comparing this residual market value with intercorporate dividends previously assigned to unlisted domestic issues, we find the ratio of dividends to market value to be somewhat lower than the sample-weighted ratio. This is a consequence of our decision to use a somewhat higher ratio in converting dividends on individuals' direct holdings to a market value figure, since the dividends on the combined amount of individuals' direct holdings and corporate holdings bear a relationship to the combined market value that is very close to the sample-weighted ratio. If the holdings of each group were made to conform precisely to the overall ratio for the residual category of unlisted stock, the effect would be to increase the total holdings of individuals by about \$20 billion and to reduce the holdings of domestic corporations correspondingly.

<sup>31</sup> Since 1971, the growth rate of mutual funds has no longer exceeded that of the market as a whole.



Individuals' direct holdings in 1971 account for over 40 percent of listed stock, somewhat over 50 percent of unlisted stock other than that of mutual funds and banks and insurance companies and about 60 percent of all unlisted stock. Total stock of individuals, including beneficial ownership of stock held by fiduciaries and in agency and custodial accounts and street name, amounts to about 60 percent of listed stock and 70 percent of unlisted stock. Nonprofit institutions account for 18 percent of listed stock and, under our assumptions, for very little unlisted. Intercorporate holdings account for 18 percent of listed stock and over one-fourth of unlisted stock. The latter result depends to some extent on our assumption that corporations are considerably more likely than individuals to hold substantial amounts of nondividend-paying stock in small unlisted firms.

Part IV. Trends in Concentration of Stock Ownership  
Since Late 1950's

The most widely publicized structural development in the securities markets over the past two decades has been the very substantial growth in the relative importance of financial institutions in the ownership of corporate stock and the even more rapid rise in their stock trading activity. This development, associated with a corresponding decline in the relative importance of individual investors, has been cited as having a seriously adverse effect on market liquidity and, indirectly, on the ability of most corporations to raise equity capital. Thus, it has been argued that institutions tend to buy and sell large blocks of stock and concentrate their activity on a relatively small number of large issues. It is also asserted that, since they are subject to the same influences, have access to the same information, and closely follow each other's assessments and actions, they are more often than not on the same side of the market. The result is said to be much greater price volatility in the stocks in which institutions trade than would exist in a market dominated by individual investors.<sup>32</sup> Price volatility, except to the extent it can be offset through diversification, increases the risk of stock investment and hence the cost of equity capital. Moreover, it has been claimed that to the extent institutions divert funds which would otherwise have been invested in the smaller and riskier issues, they tend to depress the prices of such issues and as a result penalize new ventures.

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<sup>32</sup> It should be noted that there is no convincing evidence that institutional trading is in fact associated with greater price volatility. The SEC Institutional Investor Study (1971) provides some contrary but generally inconclusive evidence. However, institutions have become much more important in the stock market since the period covered by that study.

### Trends in institutional stock ownership

Pension funds accounted for the largest growth in institutional stock ownership. Mutual funds were a not too close second for the period as a whole and of diminishing relative importance in recent years. Up to the time of this study, there has been no systematic examination of the types of individuals who accounted for the decline in the individuals' share of stock ownership and trading. It has frequently been asserted however that it is the small investor who has left the market as a result of a loss in market liquidity and unfavorable investment experience. Before presenting our new data on trends since the 1950's in the distribution of stock ownership among different family income classes, it is useful to review the available information on the changing relative importance of aggregate institutional and family stock holdings.

The stockholdings of financial institutions other than stock in bank-administered personal trusts increased from about 7.6 percent of the market value in 1950 of all non-investment company stock outstanding in the United States owned by domestic individuals, institutions and foreigners,<sup>33</sup> to 16.5 percent in 1960, 19.8 percent in 1969, 22.5 percent in 1971, and 24.0 percent in 1973. The share of the trusts has remained relatively constant at 10 percent of all such stock during this period. The share of domestic individuals inclusive of trusts declined from 89.1 percent in 1950 to 72.3 percent in 1973. The relative importance of institutions in stock ownership is greater for publicly traded corporations and especially so for corporations traded on the New York Stock Exchange (NYSE).

The changes in the proportion of the market value of stock held by institutions reflect the magnitude of their net purchases of stock compared with the size of net corporate stock issues and, presumably

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<sup>33</sup> Intercorporate holdings other than investment company holdings of non-investment company stock are excluded from the total; foreign issues outstanding in the United States are included. The source of the estimated holdings of institutions, which include non-profit organizations, is the SEC Statistical Bulletins. Estimates of the total market value of outstanding stock were also obtained from the SEC for 1950 and 1960, from the procedures outlined in this article for 1971, and roughly approximated in 1969 and 1973 by extrapolating our 1971 figure on the basis of the trends shown by the corresponding SEC series. All figures are for the end of the year indicated.

to a lesser extent,<sup>34</sup> the price performance of the stocks they held compared with the performance of the market as a whole. For the period 1950 to 1973, institutional net stock purchases of \$153 billion were substantially in excess of net corporate stock issues of \$77 billion. (Net stock issues are defined as sales of stock issues less stock repurchases by U. S. corporations other than mutual funds). Net stock issues were moderately in excess of institutional net purchases until the late 1950's, but since that time institutional net purchases have greatly exceeded net stock issues. This excess of institutional net purchases over corporate net sales of stocks in recent years, averaging more than \$7 billion annually since 1965, represented almost exclusively net stock sales by domestic individuals.

#### Trends in individuals' stock ownership

Some insights into the characteristics of those individuals who sold these substantial amounts of stock to institutions can be obtained from data available prior to this study. Thus it is known

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<sup>34</sup> It is fairly well documented in a number of studies that the investment performance of institutional investors (i.e., rate of return for a given risk) has not differed significantly from that of the market as a whole and that the risk characteristics of stock held by individuals and institutions differ markedly only in the much higher proportion of non-NYSE stock owned by individuals. Therefore, the only noteworthy impact of differences in price performance on the relative importance of institutional holdings of stock would reflect differences in the price trends of NYSE and other stock. There is evidence to suggest that NYSE stock did not fare as well as other stock for much of the 1960's (SEC Institutional Investor Study), but the reverse was probably true in subsequent years.

that odd-lot balances (purchases less sales) on the NYSE and American Stock Exchange (Amex), which are relatively more important for small than for large investors, turned negative in the late 1950's. The rate of odd-lot net sales which amounted to \$5.0 billion for the 1950-73 period as a whole increased over the period and reached a level of about \$2.0 billion annually after 1970.<sup>35</sup> Moreover, since 1971, these odd-lot sales balances have been in excess of net purchases of mutual fund shares, which are generally bought by small investors, and since 1972, more mutual fund shares have been sold than purchased. It may be noted that the rate of odd-lot net sales over the past two decades was only a small fraction of the total net sales by domestic individuals to financial institutions, so that there is some reason to believe that the larger individual investors were also selling stock on balance over this period.

The hypothesis that the larger individual investors were selling stock on balance, i.e., the dollar value of their sales was greater than their purchases, is also supported by the extremely rapid rate of increase in the number of stockholders for most of the period subsequent to early 1959. This rate of increase was very much larger than the rate of growth in the value of all stock owned by individuals which is attributable to net purchases of stock rather than to changes in stock prices.<sup>36</sup> Thus the average stockholder owned

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<sup>35</sup>SEC Statistical Bulletins for monthly 1973 data; NYSE 1973 Fact Book and Amex 1973 Data Book for annual data for other years.

<sup>36</sup>See Part II of this paper for historical and recent data on number of stockholders; R.W. Goldsmith, A Study of Savings in the United States, Princeton, 1955, for historical data on net stock purchases by individuals; and the SEC Statistical Bulletins for more recent data on net stock purchases.

a smaller proportion of all stock at the end of the period than at the beginning and these results seem to suggest an increase in the diffusion of stock ownership among small investors.

However, none of this information provides very much insight into the extent of changes in the distribution of stock ownership among different groups of families since the 1950's and in particular among the more and less affluent sectors of the population. Prior to the availability of the new data provided in this article, there were two sources of data for investigating such changes.

The first consists of estimates by Smith and Franklin of the share of corporate stock (and other major components of net worth) held by the richest 0.5 percent and 1.0 percent of the population for the years 1953, 1958, 1962, 1965, and 1969 based on estate tax returns.<sup>37</sup> The second consists of the more comprehensive data on the income distribution of dividends by adjusted gross income class available annually (currently through 1971) from Statistics of Income--Individual Income Tax Returns.<sup>38</sup>

The estate tax estimates by Smith and Franklin point to a substantial decline in the share of the richest 0.5 percent and 1.0 percent of U.S. individuals in corporate share ownership over the 1953-69 period associated with relatively little change in the share of such

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<sup>37</sup>J. D. Smith and S. D. Franklin, "The Concentration of Personal Wealth, 1922-69," American Economic Review, May 1974.

<sup>38</sup>Both the estate tax and income tax data reflect ownership in the shares of investment companies, including mutual funds, as well as those of other corporations.

individuals in total net worth. There is some evidence of a decline of the share of these upper income groups in total net worth from 1965 to 1969, but given the margin of error associated with estimates based on estate tax data, little confidence can be placed on this result since it could be changed by a small revision in either the 1965 or 1969 figures. For corporate stock, the estate tax estimates indicate a decline in the share of the richest 1 percent of individuals from 86.3 percent of the market value of all stock in 1953 to 74.4 percent in 1958, 62.0 percent in 1962, 61.2 percent in 1965, and 50.8 percent in 1969.

There are, however, a number of potentially serious inadequacies in the estimates derived from estate tax data. These include possibly substantial biases involved in the assumption that the assets and liabilities of decedents are representative of the assets and liabilities of living individuals in the top wealth groups, deficiencies in the mortality rates used to characterize specific groups in the population,<sup>39</sup> systematic understatement in the estate tax estimates of the values of certain assets held by the top wealth groups (including closely-held stock and large blocks of publicly-traded issues) even after the reported values are adjusted on the basis of sample audits, and the treatment of individuals rather than families or households as the basic economic units. The Smith and Franklin estate tax estimates of the ratio of the holdings of the upper income groups to the total market

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<sup>39</sup>These deficiencies and other problems of estate tax data, including the need to **adjust for** lifetime transfers, have been discussed most recently in J. D. Smith, The Concentration of Personal Wealth in America, The Pennsylvania State University, 1973.



value of stock owned by all individuals also appear to include the shares and certificates of savings and loan associations as part of stockholdings and use earlier estimates of total market value which are less reliable than the revised figures presented in this paper.

The second published source of data for analyzing changes in the distribution of stock ownership by different income groups--the SOI data on the income distribution of dividends--is subject to fewer deficiencies than the estate tax data and has the great advantage that both the total of dividends reported by all individual taxpayers and the specific amounts reported on each return are subject to check from external sources. These checks include the total of dividends reported paid by U.S. corporations on corporate tax returns, adjusted in the manner described in Part III of this paper, and the IRS audits of a large number of individual returns also described in Part III. The check results provide a reasonable degree of confidence in these data as an indication of the adjusted gross income (AGI) distribution of dividends received by individuals who are required to file tax returns, where AGI is defined as in the tax laws.

Even the income tax data, however, are subject to three significant deficiencies for our purposes. First, AGI per return is not a satisfactory economic measure of income for an appropriate household unit. It does not conform very closely to the concept of income used in the national accounts or to the family unit used for distributional analysis in those accounts. The tax measure of income is deficient perhaps most notably because wealthy families have a tax incentive to distribute dividend income among different

members of the family, each of whom would file a separate return, and because certain forms of income are fully or partially tax-exempt and therefore not properly reflected in AGI. Second, families or individuals with AGI below specified limits do not have to submit income tax returns. Third, the distribution of dividend income by income class may differ appreciably from the distribution of the market value of stock owned, since in view of the tax structure, high-income families might be expected to hold stocks with a relatively low dividend payout, a high growth rate of earnings and hence a high price-dividend ratio.

In spite of these deficiencies in the income tax data, they might be expected to provide a reasonably good indication of the trend in the income distribution of dividend receipts, from which the trend in market value can be estimated, in periods when there were only small changes in the relevant tax laws. Thus, in the period 1958-69 when there were no major changes in the definition of AGI or in the minimum income classes required to submit tax returns,<sup>40</sup> there is again evidence of a reduction in concentration of dividend income by total income class. The Lorenz curves for these years, with the cumulative percent of returns on one axis and the cumulative percent of dividends on the other, indicate a continued

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<sup>40</sup> There was one small change in 1966 when dividend income on Form 1040A had to be reported separately for the first time and hence could be included in the S01 data. A special tabulation for that year, however, indicates that the amount of dividends involved was negligible, and the estimated income distribution of dividends in 1966 (as measured by a Lorenz curve) is quite close to that in 1965.

shift in dividend income (in percentage terms) away from the upper income groups. There was a further small movement in the same direction in 1970, but in view of the very substantial upward revision in that year in the minimum income classes required to submit tax returns, not too much reliance can be placed on this finding. In 1971, there was no further change in the income distribution of dividends.

Thus, the income tax like the estate tax data point to some tendency towards a further reduction in the concentration of stock ownership among the upper income groups after 1958. However, the reduction in concentration of stock ownership implied over this period by the income tax data on dividends seems less than that indicated by the estate tax data on market value of stock held, unless the differential changes in price-dividend ratios for the upper and lower income groups are much larger than seems plausible. According to the income tax data, the 1 percent of returns with highest income received 52 percent of all dividends reported on tax returns in 1958, 49 percent in 1960, 43 percent in 1969, and 42 percent in 1971, implying a much smaller decline in the concentration of stock ownership than the estate tax estimates mentioned earlier.

#### New data on distribution of stock ownership

More satisfactory estimates of the recent trends in the distribution of stock ownership by income class can be obtained by extrapolating the BEA estimates of the distribution of dividend income by family income class for the one year for which it is available to other years on the basis of the IRS data on dividend income by AGI

class. The resulting time series on the family income distribution of dividend income is then converted to a series on the distribution of market value on the basis of appropriate price-dividend ratios derived from the two special samples of individual tax returns for 1960 and 1971 discussed in the Appendix to Part V. The BEA data used for this purpose consist of estimates of the distribution of families and income by family income class for the years 1958, 1960, 1964, 1970 and 1971 and the distribution of dividend income by family income class for 1964.<sup>41</sup> The SOI data used are those on the distribution of income tax returns, AGI and dividends by AGI class for all years from 1958 to 1971. The methodology followed in combining these different sources utilized the SOI data on changes in the distribution of returns and dividends by AGI class in 1958, 1960, 1969 and 1971 relative to a 1964 base to estimate the corresponding changes in the BEA distribution of dividends by family income class. Appropriate price-dividend ratios were then applied to obtain estimates of the distribution of the market value of stock held by different family income classes (see Appendix to this Part for details).

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<sup>41</sup> The 1964, 1970 and 1971 figures on the income distribution of family income are from Radner and Hinrichs, *op. cit.*, the 1958 and 1960 figures from the Survey of Current Business, April 1964, and the 1964 figures on the distribution of dividends from Size Distribution of Family Personal Income: Methodology and Estimates for 1964, BEA Staff Paper No. 21, U.S. Department of Commerce, June 1973. The 1964 estimates are the most reliable; the 1958 and 1960 estimates use a somewhat less satisfactory methodology than those for 1964, 1970 and 1971, while figures for the last two years do not incorporate as much information as those for 1964. The main conceptual differences between the pre- and post-1964 income estimates are the inclusion of income (including dividends) retained by fiduciaries and private pension and annuity benefits in the more recent but not in the earlier series, while the reverse change occurred for benefits received from health and welfare funds and employer contributions to pension funds. The conceptual differences will affect modestly the comparability of the measures of total income presented in this article but not that of dividend income since the 1964 procedures for dividend income have been applied to the other years.

The distribution of dividend income by BEA family income class, which were obtained as an intermediate step in this analysis, shows a smaller shift in Lorenz curves from 1958 to 1971 and in the concentration of dividend income among the top income recipients than the income tax data described above.<sup>42</sup>

The results of this analysis are presented in tables 3 and 4 and in Lorenz curve form in chart 1. They show a continued downward movement in the share of dividends received and stock held by upper income groups for the period 1958 to 1969, with little change from 1969 to 1971. The share in stock ownership of the richest 1 percent of the population changed very little over the entire period, in contrast to an appreciable decline from 1958 to 1969 in the share of the other upper income groups. The absence of any clear decline over this period in the concentration of total family income shown in table 4 may reflect the fact that the 1958 and 1960 income distributions tend to overstate somewhat the share of the bottom quintile in total income as compared with the 1964, 1970 and 1971 income distributions.<sup>43</sup>

Thus, there does not seem to be any support over this period

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<sup>42</sup>The BEA family income data differ from the adjusted gross income reported on tax returns not only by using a family (or unrelated individual) instead of the tax return as the basic economic unit and covering income which does not have to be reported or is under-reported on tax returns, but also by including non-money income and excluding all capital gains and personal contributions for social security.

<sup>43</sup>Radner and Hinrichs, op. cit.

Table 3.- Percent Distribution of Families,<sup>1</sup> Dividend Income and Value of Stock by Family Income Level, 1958-71

Family Income <sup>2</sup>	1958	1960	1964	1969	1970	1971
	Number of Families (Percent)					
under \$5,000	48.75	43.9	37.2	26.9	23.9	22.0
\$5,000-\$10,000	37.9	39.4	38.6	32.7	31.9	31.4
\$10,000-\$15,000	8.5	10.6	16.0	21.8	23.1	23.5
\$15,000-\$25,000	3.5	4.6	6.0	15.2	15.9	17.3
\$25,000-\$50,000	1.1	1.2	1.7	2.3	4.3	4.8
\$50,000-\$100,000	0.2	0.25	0.4	0.7	0.7	0.8
\$100,000 and over	0.05	0.05	0.1	0.2	0.2	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
	Aggregate Dividend Income (Percent)					
under \$5,000	4.6	5.0	4.0	3.0	2.9	2.8
\$5,000-\$10,000	10.5	10.7	10.6	9.9	8.6	8.2
\$10,000-\$15,000	12.9	11.7	11.0	9.4	9.4	9.3
\$15,000-\$25,000	17.4	18.2	15.1	14.6	14.1	13.8
\$25,000-\$50,000	20.7	21.8	20.5	20.2	19.7	18.9
\$50,000-\$100,000	15.5	13.5	17.2	19.8	20.1	20.0
\$100,000 and over	18.4	19.1	21.6	23.1	25.2	26.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
	Aggregate Market Value of Stock (Percent)					
under \$5,000	4.4	4.8	3.9	2.6	2.5	2.4
\$5,000-\$10,000	10.2	10.3	10.3	8.6	7.4	7.0
\$10,000-\$15,000	12.6	11.2	10.7	9.0	8.4	8.9
\$15,000-\$25,000	17.2	17.6	15.0	13.7	13.2	12.8
\$25,000-\$50,000	20.6	21.9	20.4	19.2	18.8	17.8
\$50,000-\$100,000	15.8	14.0	17.4	20.7	21.2	20.9
\$100,000 and over	19.2	20.2	22.3	26.2	28.5	30.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

<sup>1</sup> Includes unattached individuals.

<sup>2</sup> Family personal income before income taxes.

Source: BEA data on income distribution by family income class, IRS data on distribution of dividends by AGI, and results from two special samples of IRS returns for 1960 and 1971. See Appendix to Part IV for details.

Table 4.- Trends in the Distribution of Stock Ownership by Selected Total Income Percentiles, 1958-71

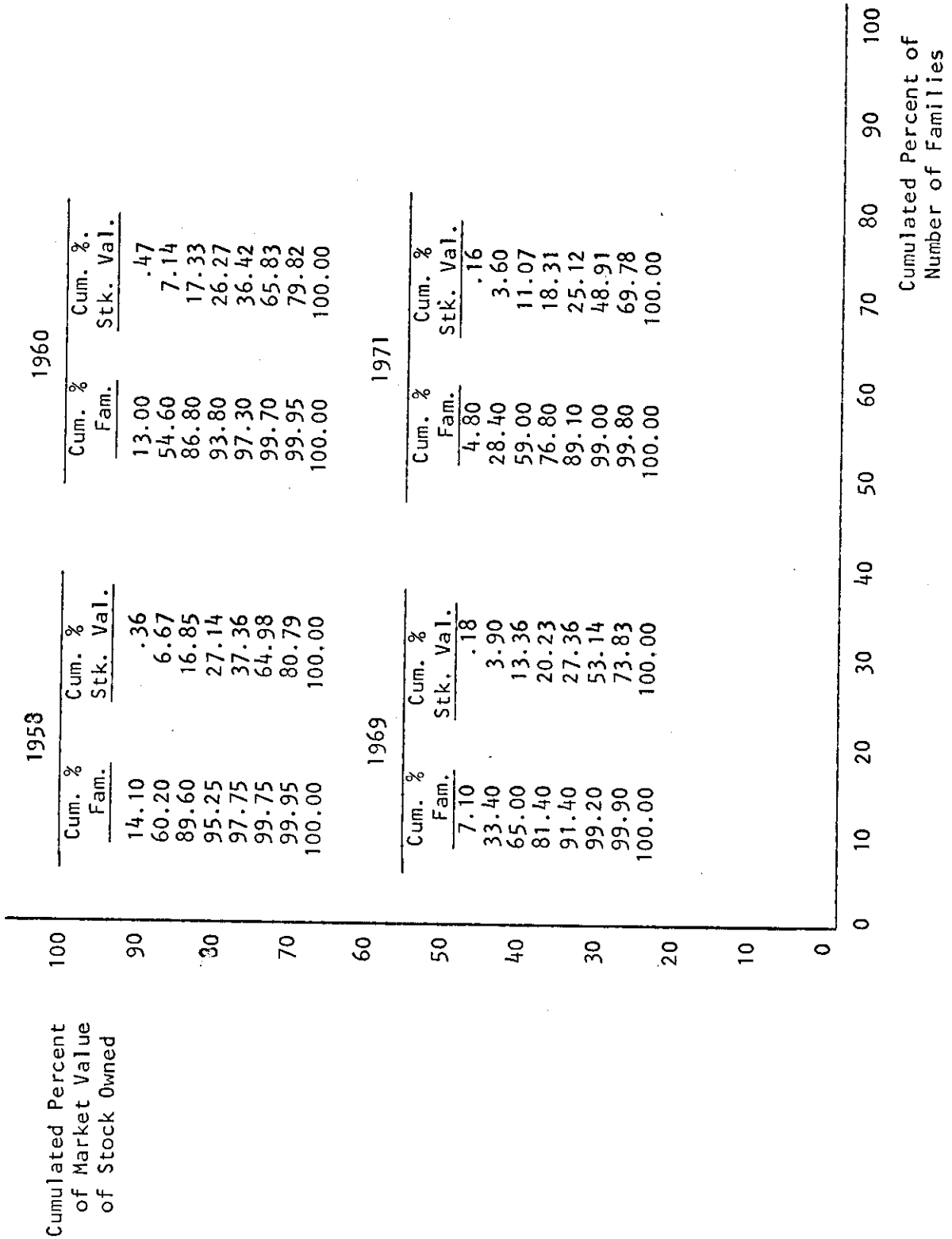
	Percentage of Total Income Received by Highest <sup>1</sup>					Percentage of Dividend Income Received by Highest <sup>1</sup>					Percentage of Stock Value Owned by Highest <sup>1</sup>				
	1%	5%	10%	50%		1%	5%	10%	50%		1%	5%	10%	50%	
1958	7.5	19.9	29.4	76.7		50.6	72.8	82.6	95.2		51.7	73.7	83.2	95.5	
1960	7.2	19.4	29.0	76.8		48.4	69.8	78.3	93.5		50.5	71.3	79.5	94.0	
1964	8.0	20.0	30.0	77.6		48.5	69.3	75.9	93.1		49.1	70.5	77.1	93.3	
1969	n.a.	n.a.	n.a.	n.a.		45.9	63.9	72.1	91.3		50.4	66.6	74.5	92.5	
1970	7.6	19.2	29.2	77.1		46.9	64.8	72.1	91.1		51.5	68.0	75.4	92.4	
1971	7.5	19.1	28.9	76.7		46.9	63.8	71.6	90.5		51.1	67.1	75.1	92.0	

<sup>1</sup>The numbers 1 percent, 5 percent, ... 50 percent refer to the specified percentage of families with highest total income.

Source: See Appendix to Part IV for details.

Chart 1

Trends in the Distribution of Stock Ownership  
Lorenz Curves, 1958-1971



Source: See Appendix to Part IV for details.



for the belief in the financial community that small individual investors have been switching out of stocks to a greater extent than individuals with large holdings. On the other hand, it is true that the substantial rate of decline in the concentration of stock ownership among upper income groups, which characterized the period preceding 1958, seems to have slowed. To some extent, the slowing in the historical trend towards a more equal distribution in the direct ownership of stock among different income groups might be considered to reflect this rise in indirect ownership by the lower and middle income groups as a result of their growing beneficial ownership of stock through financial institutions which do not issue their own stock. However, such beneficial ownership largely reflects the growing importance of corporate pension funds, where as a result of contractual pension obligations the corporations are more likely than the employee beneficiaries to gain (or lose) by the composition of the funds' portfolio. As a result, there is little reason for families to take into account their indirect interest in stock held by such funds in determining the proportion of their own assets to invest directly in stock. While families may well treat equity in a pension fund as a partial substitute for other forms of saving as a whole, any effect of an increase in a family's pension equity on a single form of saving such as investment in stock is likely to be small.

A question which naturally arises is how these trends in the income distribution of stock ownership compare with the trends in the income distribution itself. Though the data on the distribution of total income by income class are subject to a considerable margin of error, they probably are sufficiently accurate to depict significant changes over time. The data show very little change in the concentration of total income by income class in the entire period

Another question which can be raised is how the trends in the income distribution of stock ownership compare with those in total wealth or net worth (i.e., the market value of assets less liabilities). While the data available for answering these questions are rather weak, they again point to a decline in the share of wealth owned by the top income groups (highest 1 percent) from the 1920's to 1945, with no definite trend thereafter.<sup>47</sup>

The finding that a clear trend towards a more egalitarian distribution of dividend income and stock ownership persisted after 1945, unlike the behavior of net worth or income, may reflect the fact that the ownership of corporate stock was (and to a lesser degree still is) much more concentrated among upper income groups than is true of wealth generally. Thus, the observed trend is consistent with a greater diversification of asset structure by both upper and lower income groups. It may also reflect increased use by wealthy investors of other forms of investment such as municipal bonds and real estate ventures to minimize taxes in view of the marked rise in tax rates from the pre-war period, the publicity given to the high stock market returns realized over the post-war period until recent years, and the extensive efforts made by the Wall Street community to attract small investors into the market.

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<sup>47</sup>Smith and Franklin, op. cit.; J. B. Lansing and J. Sonquist, "A Cohort Analysis of Changes in the Distribution of Wealth," Six Papers on the Size Distribution of Wealth and Income, National Bureau of Economic Research, Inc., 1969; and Lampman, The Share of Top Wealth-holders in National Wealth, op. cit.

Finally, it should be noted that the reduction in concentration of stock ownership among upper income groups which has taken place over the past half century does not necessarily imply any reduction in the concentration of corporate control. What has occurred is that many individual holdings of all sizes have been replaced by a small number of very large institutional holdings, and an extremely large number of new and generally rather small stockholders have acquired shares through the reduction in holdings of a comparatively small number of much more substantial individual investors.<sup>48</sup> Both developments would appear to facilitate managerial control of U.S. corporations, at least until institutions play a more active role in corporate affairs.

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<sup>48</sup> This is reflected both in the much more rapid increase in the number of individual stockholders than the growth in the value of outstanding stock attributable to new issues, and in the substantial reduction in the proportion of the market value of stock held by the upper income groups.

Part V. Distribution and Performance of Stockholdings by  
Types of Investors and by Type of Stock

Besides providing an estimate of the market value of stock held by individuals and permitting an analysis of the trends in the concentration of holdings, the 1971 special sample of individual income tax forms collected for this study<sup>49</sup> can be used to gain insight into the distribution and performance of stockholdings by types of investors and by types of stock. This part begins with an analysis of the distribution of stockholdings first by employment status and then by the type of security held. In some cases, the results based upon the 1971 sample are compared to earlier evidence. Following these analyses, is an examination of the diversification and return characteristics of stock portfolios held by individuals.

Employment status

The 1971 special sample of individual income tax forms reveals that employed persons, including for the purposes of this paper the self-employed, accounted for 60.3 percent of the Forms 1040 filed in 1971, but only 49.0 percent of the market value of stock held by individuals (table 5). As a group, therefore, employed persons accounted for a lesser percentage of stock held than of the number of forms filed. Within this group, however, a more detailed breakdown shows that managers were responsible for only 10.2 percent of the forms filed, but accounted for 19.0 percent of the stock held by individuals.

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<sup>49</sup> The appendix to Part V describes the 1971 special sample in detail.

Table 5.- Distribution of Individuals' Stockholdings by Employment Status, 1960 and 1971

Employment Status	Percentage of Forms, 1971	Market Value		Change From 1960 to 1971
		1971	1960	
Employed	60.3%	49.0%	55.2%	- 6.2%
Managers	10.2%	19.0%		
Professional	14.4	10.9		
Clerical	4.6	1.4		
Sales	7.0	3.9		
Farmers	2.1	1.4		
Other	22.0	12.4		
Retired	16.5	19.3	13.6	5.7
Not Gainfully Employed	4.5	6.5	6.1	0.4
Unknown	18.7	25.2	25.1	0.1
	100.0%	100.0%	100.0%	0.0

<sup>1</sup>The employment categories were defined by the Bureau of the Census.

Source: 1971 special sample and Friend and Crockett, *op. cit.*

In 1971, retired persons filed only 16.5 percent of the forms but owned 19.3 percent of individual stockholdings. The other two broadly defined groups, "not gainfully employed" and "unknown," own, like the retired, larger percentages of stock than the percentages of forms filed. The not gainfully employed undoubtedly include some unemployed, some wealthy individuals with no need to work, and some minors who file forms separately from those of the economic head of the household. The unknown category represents forms for which the occupation box was left blank. These filers could have any employment status, but data to be presented below suggest that a large portion of these forms represents retired and not gainfully employed persons.

A more detailed analysis of the occupational data suggests that the larger percentage of stock held by managers relative to the percentage of forms filed and the correspondingly smaller holdings of other employed persons stem not from any greater predilection of managers qua managers to hold stock but rather from the fact that managers have higher incomes than other employed persons. If managers were to have a greater predilection for stock, one would expect that at any level of income the ratio of the proportion of stock owned to the proportion of forms filed would be larger for managers than for other employed persons. However, an examination of such ratios for each of several income classes<sup>50</sup> revealed no

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<sup>50</sup>This analysis is based upon the income classes given in table 6.

consistent tendency for managers to hold any more stock relative to the number of forms filed than any other occupational class. Thus, for any class of employed persons, the percentage of market value held by filers in any adjusted gross income (AGI) class<sup>51</sup> of less than \$50,000 is smaller than the percentage of forms filed and greater for those in any AGI class in excess of \$50,000.

For each of the three remaining categories--retired, not gainfully employed, and unknown--filers in any AGI class in excess of \$25,000 account for more stock than their numbers would imply, while the reverse occurs for those in lower AGI classes. Since individuals in the first two categories would be receiving little, if any wage income, it might be expected that more of their AGI would come from dividend income than for employed persons. Therefore, the levels of AGI at which the percentage of stock held exceeds the percentage of forms filed would be expected to be lower for these two groups than for the employed groups. A comparison of the percentage of stock owned with the percentage of forms filed in the unknown category reveals a pattern more like that of the retired and not gainfully employed than of the gainfully employed. This fact suggests that most of the filers in the unknown category are not employed.

Compared with the 1960 results,<sup>52</sup> the share of the market value of individual holdings attributable to employed filers fell by 6.2 percentage points. Over the same period, the retired increased their

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<sup>51</sup> As the previous section pointed out, there are distinct limitations of the use of AGI as a measure of economic earnings. Nonetheless, this section will use AGI as a surrogate for such earnings for lack of a better measure.

<sup>52</sup> Crockett and Friend, op. cit.

share 5.7 percentage points. Since the proportion of retired in the population of persons over 21 increased by only 1.0 percentage point, this absolute increase in stock ownership also represents a relative increase. Because the breakdown of the employed in 1960 appears to be based upon slightly different definitions, a satisfactory comparison with the new results is not possible.<sup>53</sup>

#### Types of stocks held

To analyze the kinds of stock held by AGI class, the total value of each issue held by filers within each AGI class was estimated. Each issue was then classified into one of several broadly defined stock categories and the total market value within each category calculated. Table 6 lists these categories and the market values expressed as a percentage of the total stock held within each AGI class. With the exception of the unidentified stocks, the descriptions are self-explanatory. The unidentified banks and insurance companies consist of those companies whose names were clearly those of a bank or an insurance company but for which additional financial data were for one reason or another unavailable. The stocks in the unidentified miscellaneous category represent for the most part closely held over-the-counter (OTC) stocks with limited markets or OTC stocks with a small number of shares outstanding.

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<sup>53</sup>That the changes in the not gainfully employed and unknown categories--two categories which were presumably defined identically in both 1960 and 1971--are small suggests that the identified breakdowns both in 1960 and 1971 are consistently defined.



The proportion of stock invested in NYSE issues and held in an individual's own name tends to decrease with income. The rank order correlation is  $-0.67$ , which is significant at the 10 percent level. Within the NYSE, this negative relationship is apparent for those issues in excess of \$500 million and smaller than \$100 million. For the middle-sized issues, \$100 to \$500 million, the relationship is positive but not significant.<sup>54</sup> OTC, agency and street name, and trusts and estates are strongly positively related to AGI with rank order correlations of  $0.73$ ,  $0.60$ , and  $0.88$ , respectively. If not a statistical aberration, the larger percentage of assets in agency and street name for those with AGI in excess of \$500,000 may stem from the desirability for individuals with extremely large portfolios to delegate the custodial function. For the unidentified stocks, the relationships between the percentage of stock held and AGI class are very weak.<sup>55</sup>

A percentage distribution for each AGI class by industry group instead of by broad market type was also prepared. An analysis of this distribution reveals a remarkable similarity in the percentages of each industry held across AGI classes. The only major differences across AGI classes occurred in the telephone and communication industry and in the utilities. Both of these industries tended

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<sup>54</sup>The rank order correlation is  $0.23$ .

<sup>55</sup>The large percent for unidentified banks and insurance for the lowest AGI class may result from the misreporting of interest from privately owned banks and thrift institutions and "dividends" from participating policies of stock companies as dividends. As explained in the Appendix to Part V, there was substantial evidence of such misreported dividends from mutual companies in the special sample of individual tax forms.

Table 6.-Percentage Distribution of Market Value of Individuals' Stockholdings in Various AGI Classes by Market Type of Issuing Firm, 1971

AGI Class	New York Stock Exchange By Market Value of Outstanding Shares (Millions)			American Stock Exchange	Over-The-Counter	Unidentified		Agency Custodial and Street Name	Mutual Funds	Trusts And Estates	Total	
	\$500 or more	\$100 to \$500	\$100 or less			Total	Banks and Insurance					Stocks Miscellaneous
Under \$5,000	30.5	7.6	3.9	42.0	2.0	7.9	24.1	2.5	15.2	5.4	100.0	
\$5,000 under \$10,000	24.9	4.6	3.7	33.2	6.5	1.3	12.8	4.5	23.5	15.2	100.0	
\$10,000 under \$15,000	32.0	9.5	2.0	43.5	3.3	4.6	16.0	7.4	9.6	14.2	100.0	
\$15,000 under \$25,000	29.9	9.1	2.2	41.2	5.4	4.7	18.9	4.9	11.2	11.7	100.0	
\$25,000 under \$50,000	28.3	10.9	2.7	41.9	6.1	4.1	17.2	6.1	5.0	17.5	100.0	
\$50,000 under \$100,000	24.0	8.0	2.5	34.5	4.9	6.2	23.5	7.2	3.0	17.9	100.0	
\$100,000 under \$200,000	24.1	6.4	1.6	32.1	8.0	4.0	26.8	7.5	1.7	16.6	100.0	
\$200,000 under \$500,000	26.0	6.2	2.1	34.3	7.3	2.8	21.3	4.5	0.5	26.9	100.0	
\$500,000 and Over	10.9	12.1	2.7	25.7	7.4	2.8	20.3	12.9	0.0	27.7	100.0	

<sup>1</sup>"Street Name" stock is stock held by a broker in his name on behalf of a customer.

to be a much more important part of the portfolios of lower income filers than of upper income filers. For filers with AGI classes of less than \$25,000, the percentages in utilities ranged from 4.7 to 6.5 percent; while above \$200,000, the percentages were less than 1.0 percent. While the 1960 study found a similar pattern by AGI, it might be noted that the percentages of individual portfolios held in utility stock at all levels of AGI were larger in 1960 than in 1971.

For filers with incomes of less than \$25,000, the percentage invested in the telephone and communication industry ranged from 5.0 to 10.5 in 1971; while above \$200,000, the percentage ranged from 0.6 to 3.6. In the 1960 study, the comparative importance of holdings in this industry in portfolios of persons in the lower relative to the upper AGI classes was even more pronounced than in the current sample.

#### Diversification and return characteristics

To measure the diversification and return characteristics of the portfolios of individuals, several statistics for each portfolio were calculated. Table 7 presents averages of these statistics by AGI class and in total. Before examining these averages, however, it may be useful to review some of the fundamental tenets of portfolio theory

Under several alternative assumptions,<sup>56</sup> it can be shown that an investor, whether he be risk-averse or not, can evaluate a

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<sup>56</sup> H. Markowitz, Portfolio Selection: Efficient Diversifica-  
tion of Investments (John Wiley, 1958).

Table 7.-Measures of Risk, Diversification and Realized Returns By AGI Class, 1971<sup>1</sup>

AGI Class	No. of Items per Portfolio	Diversification Measure	Realized Returns		
			NYSE Only		
			1/70-12/70	7/71-6/72	All Items 7/71-6/72
Under \$5,000	3.2	0.59	2%	5%	10%
\$5,000 under \$10,000	3.8	0.55	3	-1	8
\$10,000 under \$15,000	4.0	0.47	4	5	9
\$15,000 under \$25,000	4.3	0.48	4	6	11
\$25,000 under \$50,000	6.7	0.47	0	5	11
\$50,000 under \$100,000	9.2	0.52	0	6	12
\$100,000 under \$200,000	13.2	0.56	-2	7	12
\$200,000 under \$500,000	16.8	0.55	-3	9	12
\$500,000 and Over	18.7	0.64	2	3	10
Total	4.5	0.52	1	5	11

<sup>1</sup>The measures are weighted averages of the measures for the individual portfolios. The weight given to a specific portfolio is proportional to the product of the market value of the sample portfolio and the appropriate blow-up factor given in the Appendix.

portfolio<sup>57</sup> in terms of the prospective expected return and standard deviation of those returns where return includes all dividends and capital gains or losses. Further, a risk-averse investor would always want to minimize the standard deviation of the return for any given level of expected return. In this theoretical framework, the risk of a portfolio might be equated with the standard deviation of returns. As long as returns on individual securities are not perfectly positively correlated, diversification will always pay.<sup>58</sup>

The 1971 special sample does not provide an ideal basis for estimating the extent to which individuals have diversified their portfolios of common stocks because the sample contains information only on dividend-paying items. Yet, an analysis of just these dividend-paying items does give a great deal of insight into the amount of diversification in individual portfolios of common stocks.<sup>59</sup> The results are so strong that it is doubtful that the inclusion of issues with no dividends would substantially alter the qualitative nature of the conclusions.

One theoretically appealing index of diversification would be a function of the potential reduction in the variability of the returns on a portfolio through further diversification, holding expected

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<sup>57</sup>In theory, such a portfolio should include all assets held by an individual, including human wealth. In practice, the risk of a portfolio of common stocks is typically evaluated in isolation from other assets because of limitations of data. The empirical work based on the 1971 special sample can only and therefore will only evaluate the characteristics of the common stock portion of an individual's assets.

<sup>58</sup>P. A. Samuleson, "General Proof That Diversification Pays," Journal of Financial and Quantitative Analysis, March 1967.

<sup>59</sup>The Survey of Financial Characteristics of Consumers in 1962 would seem to be an ideal survey to analyze diversification. The Rodney L. White Center for Financial Research is currently in the process of analyzing this file to provide confirmation of the results derived from the 1971 special sample.

return constant. Since the data needed to construct such an index are unavailable, other less satisfactory measures must be used. One measure of diversification which has been used in other studies is the number of issues in a portfolio. The underlying assumption is that the greater the number of issues the greater is the potential for diversification. On average, this statistic ranges from 3.2 for filers with AGI of less than \$5,000 to 18.7 for filers with AGI in excess of \$500,000 (table 7). It is not until an AGI of \$100,000 is reached that the average number of items per form exceeds 10.0.

In 1963, the IRS also collected information on the number of payer corporations per return by AGI class.<sup>60</sup> Because of changes in the levels of income and definition of AGI, it is difficult to compare the 1971 results with those for 1963. Nonetheless, it does not appear that there have been marked changes in the number of issues held per portfolio at comparable levels of AGI. Below an AGI of \$50,000, the number of dividend-paying issues held per portfolio was less than 10 in 1963; above this AGI, the number was greater than 10. If an AGI of \$50,000 in 1963 is roughly comparable to an AGI of \$100,000 in 1971, the 1963 and 1971 results are strikingly similar.

With any reasonable estimate for the number of non-dividend items, the portfolios in 1971 or 1963 are not what would be considered highly diversified, even at the higher levels of AGI.<sup>61</sup> At the lower levels

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<sup>60</sup>S01: Individual Income Tax Returns, 1963.

<sup>61</sup>The empirical evidence in Lawrence Fisher and James H. Lorie, "Some Studies of Variability of Returns on Investment in Common Stocks," Journal of Business, April 1970, show that equally weighted portfolios of 128 securities are considerably better diversified than equally weighted portfolios of only 8 or 16 securities.

of AGI, diversification is extremely limited; at higher levels of AGI, there is still considerable room for further diversification.

To achieve the full potential of diversification within a fixed number of issues not too much of one's assets should be concentrated in any 1 or 2 securities. A measure of the extent to which the value of a portfolio is concentrated in a few stocks can be constructed by summing the squares of the proportions invested in each security. Thus, a portfolio of 2 securities with 90 percent in one and 10 percent in the other would have a diversification measure of 0.82, the sum of the squares of 0.9 and 0.1, while an equally weighted portfolio of two securities would have a diversification measure of 0.5. In general, this diversification measure will be between 1.0 and the reciprocal of the number of items in the portfolio. The lower the diversification measure, the more diversified is the portfolio.

The average values of these measures, given in table 7 by AGI class, range from 0.47 to 0.64. This range is roughly consistent with the level of diversification achieved in an equally weighted portfolio of 2 securities. Thus, at least on average, individuals tend to concentrate their holdings in a limited number of stocks, probably taking on considerably more risks than they need to.<sup>62</sup>

The inherent danger in reporting only an average of some statistic is that there is always a tendency to attribute to each component the average value and not to recognize that the values for the components can vary quite widely. Consider for instance an average di-

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<sup>62</sup>To determine whether trusts, custodial, or agency accounts might have biased the average values for the diversification measures, the average diversification measures were recalculated excluding any form with this kind of item. The averages were not substantially changed, and in some cases even increased.

versification measure of 0.46 for two portfolios, each of which contains 10 securities. This figure of 0.46 could be obtained from two poorly diversified portfolios in which 48 percent is invested in each of two securities and the remaining 4 percent spread equally over the remaining 8 stocks. The same average could be obtained from one well diversified portfolio with 10 percent invested in each security and a virtually undiversified portfolio having 90 percent in one security and the remainder spread equally over the other nine securities.

To examine the dispersion in the diversification measures, the data underlying table 7 were further analyzed. This analysis showed that there is a wide diversity in the extent of diversification of individual portfolios. It is estimated that 13 percent of those filers reporting dividends and holding 24 percent of stock had a diversification measure of 0.23 or less, while more than 40 percent of filers holding 22 percent of stock had a diversification measure of 0.88 or larger.

One reason why a person might hold an undiversified portfolio is to be able to realize the potential of superior security analysis. In this connection, it might be noted that there is no evidence that any substantial group of investors, except for exchange specialists and to some extent corporate insiders, have outperformed the market consistently over long periods of time. A second reason is that an individual may have a large holding in a particular security in order to maintain effective control over the company. A third reason is that over time the 1 or 2 securities with the highest returns will tend



to dominate a portfolio if because of tax considerations or other reasons, no adjustments are made. A fourth reason is that some investors do not understand the principles of diversification and therefore the standard deviation of returns on a portfolio is not the appropriate measure of risk in explaining their behavior. The explanation for these poorly diversified portfolios must await further research.

Though these two measures of diversification suggest that some investors may be assuming greater risks than necessary through improper diversification, the measures are deficient in that they do not distinguish among stocks with different degrees of non-diversifiable risk. A preliminary analysis using the so-called beta coefficient -- a standard measure of non-diversifiable risk<sup>63</sup> -- showed that the filers with larger AGI tended to hold stocks with greater non-diversifiable risk. This analysis also showed that managers tended to hold the riskiest portfolios and the retired and not gainfully employed the least risky.

The final characteristic to be measured in this part is the rate of return including dividends and capital gains which individuals realized on their stock portfolios. Returns have been calculated for NYSE issues for both the calendar year 1970 and the period July 1971 through June 1972. Returns were also calculated for all items in the latter period.<sup>64</sup> Since the composition of individuals' portfolios is estimated from the dividends received over all of 1971, the estimated composition would be expected to be closest to the actual composition on June 30, 1971 -- the midpoint of the year. Thus,

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<sup>63</sup>Marshall E. Blume, "On the Assessment of Risk, Journal of Finance, April 1971, contains a summary of the rationale underlying this measure and procedures for calculating it.

<sup>64</sup>Any item for which the return was unknown was assigned a default value as explained in the Appendix to Part V.

the returns from July 1971 through June 1972 can be interpreted as those which would have been realized on the portfolios attributed to individuals in mid-1971 if there were no changes in these portfolios over the subsequent year. The rates of returns for 1970 are more suspect since they are based upon the composition of the portfolio as estimated from dividends in 1971 even though the 1970 composition would be expected to be somewhat different. However, the turnover rate of the aggregate of stocks held by individuals is not great, so that these returns probably approximate quite closely the returns realized by individuals in 1970.

In 1970, individuals on average gained 1 percent on their NYSE dividend-paying investments. Using the files of the Rodney L. White Center, the value-weighted return on all dividend-paying stocks was 0.7 percent, so that individuals fared as well as the market.<sup>65</sup> On average, filers with AGI less than \$25,000 realized somewhat greater returns than those with higher AGI.

In the more recent period, July 1971 through June 1972, individuals on average realized 5 percent on their NYSE stocks and 11 percent on all items. The larger returns on all items resulted from the substantially better performance of OTC issues in this period. From the Center's files, the value-weighted return on all NYSE dividend-paying stocks was 8.8 percent.<sup>66</sup> Individuals thus

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<sup>65</sup>The NYSE Composite Index in 1970 fell 2.5 percent before adjustment for dividends. After a 3.1 percent adjustment for dividends, the Center's files and the NYSE index give virtually the same results.

<sup>66</sup>During the same period, the NYSE Composite Index implies a return of 7.7 percent before adjustment for dividends and 10.8 percent after adjustment. It is not known what the actual reasons are for the difference of 2.0 percent between the Center's estimate and the NYSE's estimate. There are however several conceptual differences between the two indexes: First, the Center's return includes preferred

fared somewhat worse than the market, at least on their NYSE stocks.<sup>67</sup>  
In contrast to the 1970 results, individuals with higher AGI averaged marginally higher returns than those with lower AGI.

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market weights the number of shares authorized to be issued and issued less treasury; the NYSE bases their index on the number of shares authorized to be listed and listed. The most significant difference from this source is the weights given to foreign companies traded on the NYSE. Third, the Center's returns include only dividend-paying stocks. While non-dividend-paying stocks performed better in this period, adjusting for them would change the Center's return by only 0.1 percent. Since the returns in table 7 were calculated from the Center's files, the Center's return of 8.8 percent is the most reliable benchmark for comparison.

<sup>67</sup>That individuals performed less well in this period means that non-individuals, primarily some groups of institutions, must have performed better. While mutual funds did not perform better than the market, there is some evidence that banks performed considerably better. (William G. Burns and Richard H. Klemm, "Performance of Bank Managers of Trust Funds," Rodney L. White Center for Financial Research, August 1973).

Sources and Procedures for Estimating Aggregate Shareholdings and the Distribution of Dividends and Shareholdings among Broad Ownership Groups

A. Estimation of the dividend gap (Table 1)

Items 1, 2 and 11: Statistics of Income, Preliminary 1971: Corporation Income Tax Returns, pp. 4 and 18. Item 2 adjusted to exclude dividends paid by Federal Reserve Banks, which do not enter into item 1. Item 11 slightly reduced on the basis of later information.

Item 3: Market value figure from R.B. Scholl, "The International Investment Position of the U.S.: Developments in 1972," Survey of Current Business, August 1973, p. 21. Dividends on the \$7 billion of foreign portfolio stock held by domestic ownership groups are estimated by multiplying market value by the ratio of aggregate dividends to aggregate market value for NYSE, AMEX and large OTC issues combined as of mid-1971. The resulting figure is slightly increased to allow for cash distributions other than dividends, and \$90 million is allocated to holding and investment companies on the basis of SOI information on the foreign dividends received by such companies. The remainder is assigned to individuals, fiduciaries and tax-exempt institutions.

Items 4 and 6-8: Market value data from SEC Statistical Bulletin, May 30, 1973, p. 520. End-of-year values are adjusted to mid-year, using the NYSE index of stock prices, and multiplied by the ratio of dividends to market value utilized for item 3. For item 8 this estimate of dividend receipts is augmented by 8 percent of the dividend receipts of estates and trusts, to allow for dividends retained by

fiduciaries on behalf of charitable organizations as beneficiaries. It is further augmented by \$150 million, estimated to be received by church and hospital endowments not covered by the SEC figure for foundations. The dividend receipts of corporate pension funds and of state and local retirement funds, as derived from SEC market value figures, were increased by \$150 million and \$50 million, respectively, to account for stockholdings of union pension funds, corporate profit sharing funds and understatement of municipal retirement funds due to incomplete coverage.

Item 9: Market value of stockholdings of bank-administered estates and trusts from Trust Assets of Insured Commercial Banks, 1971, Federal Reserve Board, Federal Deposit Insurance Corporation, Controller of the Currency. Dividends derived by multiplying market value by the ratio utilized for item 3. This dividend estimate is then expanded to cover dividend receipts of all estates and trusts by multiplying by the ratio of the 1970 S01 figure for dividend receipts for all estates and trusts (Statistics of Income, 1970: Fiduciary Income Tax Returns, p. 14) to receipts of bank-administered estates and trusts estimated in the manner described above from the 1970 stockholdings reported to bank regulatory agencies by these fiduciaries. The ratio of 1.5 thus obtained is somewhat below the ratio implied by 1962 S01 data, which segregated bank-administered from other estates and trusts (Statistics of Income, 1962: Fiduciary, Gift, and Estate Tax Returns, pp. 16, 22, and 26).

The proportion of fiduciaries' dividend receipts not distributed to beneficiaries is estimated from the 1965 breakdown of the uses of

fiduciary income from all sources (Statistics of Income, 1965: Fiduciary, Gift and Estate Tax Returns, p. 25). In the table below the percentage allocation, among uses, of gross income less business deductions and distributions to other fiduciaries is developed from the SOI data and applied to the 1971 dividend total. (It is assumed that no business expense is incurred in the generation of dividend income and that administrative costs represent the same proportion of net income for dividend receipts as for all income.) The distributions to charitable organizations are included as part of item 8 in table 1. The distributions to individuals, augmented by a propor-

Estimates of Dividend Income of Fiduciaries  
Distributed to Individuals, to Charitable  
Organizations and Not Distributed, 1971

	Percentage Allocation of Gross Income of Fiduciaries Less Business Deductions And Distributions to Other Fiduciaries, 1965		Estimated Allocations of Dividend Receipts of Fiduciaries, 1971 (billions of dollars)		
	Taxable Fiduciaries	Non-Taxable Fiduciaries	Taxable Fiduciaries	Non-Taxable Fiduciaries	All Fiduciaries
Distributions to individuals	29.2%	73.3%	0.53	1.99	2.52
Distributions to charitable organizations	0.8	12.4	0.01	0.34	0.35
Retained in- come	52.2	3.8	0.95	0.10	1.05
Administrative costs	4.2	10.4	0.08	0.28	0.36
Taxes paid	13.6	---	0.25	---	0.25
Total uses	100.0	100.0	1.82	2.71	4.53

tional share of undistributed dividend income and reconverted to a market value figure, provide a control total of \$138 billion for individuals' beneficial ownership of stock through fiduciaries in the analysis of the 1971 sample.

Items 12 and 15: Statistics of Income, 1971: Individual Income Tax Returns, p. 62. Item 12 adjusted upward by \$50 million for estimated under-reporting and for nontaxable distributions to ownership groups other than individuals. To the extent that liquidating dividends are successfully excluded from item 1 but are included in nontaxable distributions reported on individual income tax returns, this figure may represent an overadjustment. Item 15 adjusted to delete \$88.5 million (based on findings from the 1971 sample) for the misreporting as dividends of income received from such sources as credit unions, mutual savings and loan associations, mutual life insurance companies, and mutual savings banks .

Item 13: Net realized capital gains of mutual funds from Mutual Fund Fact Book, 1971, p. 54. This is adjusted by adding an estimated \$100 million for capital gains distributions of closed-end funds and of mutual funds not members of ICI. Item 13 substantially exceeds the \$662 million reported on Forms 1040 as distributions taxable as capital gains (p. 62, S01, 1971, Individual Income Tax Returns), but the latter figure excludes capital gains distributions to ownership groups other than individuals.

B. Estimate of aggregate dividends on unlisted non-financial domestic stock, 1971

Aggregate dividends on unlisted domestic stock other than that

of mutual funds and bank and insurance companies are derived from total cash distributions of domestic corporations as indicated below.

	(\$ millions)
1) Distributions (other than own stock) of domestic corporations	32,580
2) Less distributions which are non-taxable or taxable as capital gains	- 1,440
3) Less dividends taxable as partnership income	- 1,290
4) Less cash dividends on domestic NYSE issues	-21,250
5) Less cash dividends on other listed domestic issues	- 1,080
6) Equals dividends on unlisted domestic stock (excluding small corporations taxable as partnerships)	7,520
7) Less mutual fund dividends	- 1,460
8) Less dividends on stock of unlisted banks and insurance companies	- 880
9) Equals dividends on unlisted domestic non-financial stock (excluding small corporations taxable as partnerships)	5,180

Sources: See table 1 for items 1, 2 and 3. Item 4: Total cash dividends = \$21,616 million, NYSE Fact Book 1973, p. 79. Dividends on foreign issues were estimated at \$366 million (based on a market value of \$12.4 billion for listed foreign stock, NYSE Fact Book 1972, p. 34). Item 5: Derived by dividing the \$37 billion market value of domestic AMEX issues, plus an estimated \$5 billion for stock listed on regional exchanges, by a ratio of dividends to market value characteristic of AMEX issues. Item 7: Mutual Fund Fact Book 1972, p. 54. The published figure was increased by 10 percent for dividends of non-members of ICI. Item 8: SEC estimates of traded unlisted bank and life insurance companies adjusted to mid-year, increased by \$2 billion to allow for privately-held issues and multiplied by a sample-weighted ratio of dividends to total market value for identified OTC financial firms (.0214).

C. Estimation of market value of all domestic issues, by market type and ownership group

1960 data from Crockett and Friend, op. cit., p. 163, adjusted to remove foreign stock.

NYSE listed stock calculated by summing data for individual firms. Foreign stock listed on NYSE (\$12.4 billion) obtained from



the 1972 NYSE Fact Book. Total and foreign stock listed on AMEX (\$49 billion and \$12.3 billion respectively) obtained from the exchange. Domestic stock listed on regional exchanges estimated at \$5 billion. Mutual funds obtained by increasing the figure given in the Mutual Fund Fact Book, 1972, by 10 percent to allow for non-members of the ICI. Unlisted banks and insurance companies based on SEC figures, increased by \$2 billion to allow for privately-held issues.

The estimate of unlisted stock other than that of mutual funds and banks and insurance companies is based on the NYSE figure of \$366 billion for unlisted traded stock other than that of investment companies in early 1970. This is adjusted by subtracting the estimate for unlisted banks and insurance companies and adding an estimate for stock of closely-held companies derived as follows. Based on 1965 estate tax data, individuals' holdings of such stock are taken to be 15.5 percent of their holdings of traded stock as determined from the 1971 sample of individual income tax returns. This figure of \$75 billion is increased by 25 percent to allow for holdings of other ownership groups, giving a total of \$94 billion. However, a major part of this presumably represents the stock of small corporations taxed as partnerships, virtually all of which must fall in the present category. Based on dividends of \$1.3 billion for such stock, an assumed dividend yield of 3.5 percent (relatively high to reflect low prices due to lack of marketability), and the average ratio of total to dividend-paying market value for non-financial firms traded over-the-counter, the value of such corporations is estimated at about \$61 billion and this amount is subtracted from the \$94 billion total.

Individuals' direct holdings of listed stock are based on the market value of identified NYSE and AMEX holdings in the 1971 sample of income tax returns, with minor adjustments to incorporate a small fraction of the unidentified stock included in the sample and to remove estimated holdings of listed foreign stock. Individuals' direct holdings of mutual funds and the stock of unlisted bank and insurance companies are obtained by removing from the total outstanding market value in these categories the relatively small holdings (13 percent and 20 percent, respectively) of other groups, including fiduciaries. Other direct holdings of unlisted stock by individuals are determined from the residual remaining after dividends already accounted for by the assigned amounts of listed stock, mutual funds and unlisted bank and insurance company stock have been removed from total sample dividends for all direct holdings. The ratio of dividends to total market value used in converting this residual to a market value figure is the sample-weighted ratio for medium-sized firms traded over-the-counter (market value, \$15 million to \$100 million), since it seems unrealistic to assume that individuals would be inclined to hold nondividend-paying stock of small corporations (market value under \$15 million) in the proportions in which such stock is represented in our sample of firms in this size class.

Twenty-five percent of the stock held by fiduciaries or in agency accounts and 10 percent of stock held in street name is assumed to be unlisted. These proportions are consistent with the sample estimate of total dividends on beneficial holdings of individuals, when sample-weighted ratios of dividends to total market value for listed and

unlisted stock, respectively, are applied.

Ten percent of the stock held in the portfolios of non-profit institutions or foreigners is assumed to be unlisted. Again, this is roughly consistent with the dividends assigned previously to non-profit institutions and foreigners, given ratios of dividends to total market value appropriate to the two classes of stock. The figure of \$135 billion for holdings of listed stock by non-profit institutions is roughly consistent with an estimate by the NYSE of \$124 billion of NYSE issues held by such institutions at the end of 1971 (NYSE press release, March 12, 1973).

Intercorporate holdings of listed and unlisted stock, respectively, are determined as residuals. As a rough check of reasonableness, we may examine the ratios of dividends to market value implicit in these estimates. If, as assumed earlier, unlisted stock accounts for about 27 percent of the \$5.504 billion of domestic dividends received, the implicit ratios are .029 for listed stock and .012 for unlisted, equal to the sample-weighted ratio in the case of listed stock and somewhat lower than the sample-weighted ratio (.016) characterizing traded unlisted firms other than mutual funds and banks and insurance companies. The latter finding results from our previous decision to apply a ratio somewhat higher than .016 in converting individuals' dividends on direct holdings of such stock to a market value figure.

## Appendix to Part IV

Estimation of the Distribution of Dividend Receipts  
and Stockholdings of Individuals by Family Income Class  
for Selected Years from 1958 to 1971

The basic source of recent information on the distribution of dividend income by family income class is BEA Staff Paper No. 21, op. cit., which presents such data for 1964. In order to derive comparable distributions for other years, average dividend receipts per family by income class were determined from the 1964 BEA data and adjusted to other years by the change in average dividends per return for roughly equivalent AGI classes, as obtained from SOI individual income tax data for those years. The adjusted average receipts were then combined with BEA data on number of families by income class for those years to yield aggregate dividends by family income class.

The first step in the integration of BEA data on family income with the IRS data on AGI was to determine the approximate range of AGI corresponding to each of several fairly broad family income classes. The upper limit of the AGI range was established by subtracting from the upper limit of the family income class an amount based on the average proportion of income due to transfer payments and to imputed income and by adding an amount based on the average proportion represented by personal contributions for social insurance, within that class, as determined from the 1964 BEA study. In addition, the average dividend exclusion claimed in 1964 and the average adjustment required to convert gross income to adjusted gross income for the most nearly corresponding AGI class were removed and the average net capital gain was added.

The equivalences thus established are very rough. It is not certain that the relative importance of transfers, imputed income, and other reconciliation items for 1964 are equally applicable for other years. More importantly, multiple returns may be filed by members of the same consumer unit and, therefore, a return with relatively low AGI may relate to a member of high income family. Thus, at low incomes the returns in the equivalent AGI range, while reflecting the dividend receipts of consumer units in the corresponding family income class, will be somewhat distorted by the presence of other returns representing individuals from higher family income classes. In particular, the number of returns in the AGI range corresponding to family income of \$2,000 to \$6,000 far exceeds the number of consumer units in that family income class. The same is true for family income under \$2,000 (roughly corresponding to AGI under \$600) if allowance is made for the fact that a substantial fraction of consumer units in this range may well be non-filers. On the other hand, for families with incomes of \$15,000-\$50,000 and especially \$15,000-\$20,000, the number of consumer units somewhat exceeds the number of returns in the corresponding AGI range. For family incomes of \$6,000-\$15,000, results are variable from year to year but the general tendency is for the number of returns in the corresponding AGI range to exceed slightly the number of consumer units.

The second step was to estimate average dividends per consumer unit by family income class for years other than 1964 by adjusting the 1964 value based on BEA data by the sometimes considerable change from 1964 to the desired year in average dividend per return for the corresponding AGI range. To the extent that this movement fails to

reproduce movements in average dividends per consumer unit, errors will be introduced. Since underreporting of dividend income declined somewhat over the 1958-71 period and since this underreporting was somewhat more prevalent among the lower income families, the estimated concentration of dividend income among the upper income groups in the years subsequent to 1964 may be slightly understated relative to the earlier years. Finally, the average dividend thus obtained is multiplied by the number of consumer units in the appropriate income class in the given year, as determined in Radner and Hinrichs, op. cit. The distribution of consumer units by family income class is not directly available for the years 1965-69 and the 1969 distribution was obtained by interpolation, utilizing the 1964, 1970 and 1971 distributions.

A check of the results thus obtained is available for 1960 and 1971 by comparing the summation over income classes of dividends derived as above with the total dividend receipts of individuals obtained by augmenting S01 reported dividends by estimates of illegal underreporting, and of dividends received by non-filers and by filers who fail to report dividends totalling less than the dividend exclusion. The two alternative estimates are very close in 1960 and within 4 percent in 1971, with the approach followed in the second step yielding the higher figure.

The third step was to construct distributions of market values of holdings from the BEA distribution of dividend receipts. Since the ratio of market value to dividends tends to increase with income, as demonstrated for 1960 by Crockett and Friend, op. cit., and for 1971 by the results presented in Part V of this paper, the distribution of

market value should be somewhat more concentrated than that of dividend receipts. To make this adjustment, the logarithms of the ratios of total market value to dividends by AGI class were regressed upon the logarithm of  $(100 - p)$ , where  $p$  is the average of the percentiles from the distribution of all filers corresponding to the lower bound of an AGI class and that of the upper bound. Such a regression was fitted using the 1960 data (Crockett and Friend, op. cit.) and the results from the 1971 special sample given in table E of the Appendix to Part V.

Using the same definition of  $p$  but calculated from the BEA distribution of income, the regressions were used to estimate price-dividend ratios applicable to each of the BEA income groups. The 1960 regression was used in 1958, 1960, and 1964; the 1971 regression, in 1969, 1970, and 1971. These estimated price-dividend ratios were interpreted as those applicable to the BEA classes up to a multiplicative constant varying from year to year. Multiplying the BEA dividends by the corresponding estimate from one of these regressions gives the distribution of market value up to a multiplicative constant. Expressing the resulting values as percentage distributions gives the required distributions of market value.

A final step is necessary for interpolation of these distributions of dividend income and market value of stock by income class in order to obtain the percentage of each accounted for by specified percentiles of families with highest total income. For 1964 there was no significant problem of interpolation since the BEA

dividend distribution shows information for 22 income classes and both linear and curvilinear interpolation gave almost identical results. However, this was not true for the other years for which data on dividend income and market value were available only for 7 broader total income groups. For these years, the method of interpolation used assumed that the distribution of families and dividends among the several narrower income classes corresponding to each of the 7 broader income groups was identical with that in 1964. While the results of curvilinear and linear interpolation applied to the narrower income classes were fairly close, the curvilinear interpolation seemed preferable and was used. Curvilinear interpolation of data for the broader income groups gave similar results.



Appendix to Part V  
The 1960 and 1971 Sample of Individual  
Income Tax Forms 1040

This appendix presents detailed descriptions of the sampling procedures followed in selecting the 1971 special sample of Individual Income Tax Forms 1040 and the adjustments made to the sample in deriving the various estimates presented in the text.<sup>1</sup> In order to preserve confidentiality, the Internal Revenue Service (IRS) was the only group which had access to the original forms.

The appendix is organized into three parts according to the order in which the sample was selected and processed. The first section describes the sampling design and analyzes the extent and magnitude of potential biases in the special sample relative to the population of Individual Income Tax Forms filed in 1971. The second section presents the procedures followed by the Bureau of Census in preparing a tape for subsequent processing at the Bureau of Economic Analysis and indicates the steps taken to preserve complete confidentiality of the original returns. The third section discusses the adjustments made to the sample and then derives estimates of the dividends received and the value of stock owned by individual investors by AGI classes.

A. The first stage

In the first stage, the IRS designated a subsample of the 1971 Statistics of Income (SOI) sample for further processing--henceforth called the 1971 special sample. The SOI sample itself is a sample

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<sup>1</sup> Crockett and Friend, op. cit., contain a similar description for the 1960 special sample.

of Forms 1040 stratified on the following characteristics: (a) the presence or absence of business receipts and (b) the absolute size of the largest income item and, if a business return, the value of receipts. In addition, there is one small stratum which includes all forms with a tax in excess of \$17,000 on tax preference items exclusive of those in sample strata where all forms were sampled. Within either the business or non-business forms, the sampling rates increased with the absolute size of the largest income item or, where appropriate, receipts. Table A presents the explicit criteria for the strata, the number of forms for each stratum in the population, and the number drawn in the S01 sample.

In order to be sure that at the lower income levels there would be sufficient numbers of forms with dividends for later statistical analysis, our special subsample of the S01 sample was selected in such a way as to reduce the magnitude of the oversampling of upper income forms in the S01 sample. To this end, the IRS selected a subsample of the forms in each of the S01 strata according to a procedure which should yield a predetermined minimum number of randomly selected forms from each stratum. This predetermined minimum number of forms varied from stratum to stratum.<sup>2</sup>

A comparison of these minimum numbers with the actual numbers subsampled from the S01 sample shows that the actual numbers by sample strata are in excess of the minimum numbers as they should

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<sup>2</sup>Specifically, the procedure would be expected for each of the strata codes 11-15 to yield a minimum of 1 out of 10 of the S01 forms, for codes 21-26 a minimum of 1 out of 20, and for the remaining codes a minimum of 1 out of 40.

be, except for non-business forms with AGI under \$100,000 (table A). IRS personnel could provide no plausible explanation of why the numbers subsampled for these non-business forms were less than the predetermined minimum under the sampling design.<sup>3</sup> If it can be assumed that there was nothing unique about the forms which presumably should have been in the subsample but were not, the ratios of the population number of forms to the actual number sampled in each stratum provide the appropriate blow-up factors for subsequently estimating the market value and other characteristics of stock held by individuals (Table A).

As the forms were selected from the S01 sample, IRS personnel photocopied all those with completed Schedule B, Part 1, for later processing by the Bureau of the Census. These photocopies were done in such a way as to exclude the names, addresses, and social security numbers of the filers. Table A contains the number of forms with Schedule B's, Part 1, in the special 1971 sample.

Schedule B, Part 1, contains a list of the sources of any dividend income or capital gain distributions and the corresponding amounts. The sum of these amounts less capital gain distributions is entered on the front of Form 1040 in box 13a. After deducting the exclusion, which may range up to \$200 for a joint return, the dividends in AGI are entered in box 13c. Any single or joint filing with dividends and other distributions in excess of \$100 should contain a completed Schedule B, Part 1, even if there is ultimately no dividend income in AGI. Undoubtedly, some filings

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<sup>3</sup>Due to a clerical error at the IRS, an undetermined but, according to the IRS, a small number of forms with attachments to Schedule B's was not included. While the effect should be minor, the subsequent adjustments should minimize the potential impact of this error.

Table A - The S01 Sample and the 1971 Special Sample by Sample Strata

Sample Code	Description	Number of Forms				Final Blow-up Factors <sup>3</sup>
		Population <sup>1</sup>	S01 Sample	Min. Exp. in 1971 Special Samp.	Actual Number in 1971 Special Samp. With Sch. Part <sup>2</sup>	
	Total . . . . .	74,841,993	269,421	16,907	17,056	6,421
	Nonbusiness, total . . . . .	65,759,059	133,605	10,978	10,893	3,951
	Absolute size of largest income item--					
11	Under \$10,000 . . . . .	43,027,789	21,529	2,153	2,095	129
12	\$10,000 under \$15,000 . . . . .	12,935,622	19,475	1,948	1,896	180
13	\$15,000 under \$20,000 . . . . .	5,795,885	17,164	1,716	1,672	319
14	\$20,000 under \$50,000 . . . . .	3,660,142	21,724	2,172	2,114	823
15	\$50,000 under \$100,000 . . . . .	273,848	21,952	2,195	2,139	1,731
16	\$100,000 under \$200,000 . . . . .	52,042	18,030	451	582	128
17	\$200,000 and over . . . . .	13,731	13,731	343	395	89
	Business, total . . . . .	9,082,725	135,607	5,929	6,136	35
	Absolute size of largest income item--					
	and Business receipts--					
21	Under \$20,000 . . . . .	3,996,188	14,117	706	707	66
22	\$20,000 under \$50,000 . . . . .	2,364,823	16,636	832	833	141
23	\$50,000 under \$100,000 . . . . .	1,217,378	18,345	917	919	222
24	\$100,000 under \$250,000 . . . . .	880,725	17,480	874	876	316
25	\$250,000 under \$500,000 . . . . .	403,630	18,035	902	903	504
26	\$500,000 under \$750,000 . . . . .	168,565	16,919	846	847	199
27	\$750,000 under \$1,000,000 . . . . .	34,608	17,267	432	502	69
28	\$1,000,000 and over . . . . .	16,808	16,808	420	549	31
30	Tax preference Size of minimum tax \$17,000 and over . . . . .	209	209	5	27	23

<sup>1</sup> S01, 1971: Individual Income Tax Returns, p. 316.

<sup>2</sup> Calculated by dividing Blow-up Factors into Population figure.

<sup>3</sup> Supplied by IRS.

Table B. - Comparison of Blown-Up Number of Forms and Dividends  
Per Form from S01 Sample and the 1971 Special Sample by Adjusted Gross Income

Size of Adjusted Gross Income	Number of Forms				Dividends Per Form	
	S01 Sample		1971 Special Sample	S01 Sample With Dividends in AGI	1971 Special Sample	
	With Dividends and Other Dist.	With Dividends in Adj. Gross Income				
Under \$5,000	2,340,424	1,535,734	1,595,845	717	730	
\$5,000 under \$10,000	2,623,800	1,529,975	1,649,438	967	1,267	
\$10,000 under \$15,000	2,838,590	1,428,073	1,629,254	1,013	1,022	
\$15,000 under \$25,000	3,118,856	1,688,032	2,118,620	1,634	1,292	
\$25,000 under \$50,000	1,333,920	967,150	1,054,527	3,426	2,848	
\$50,000 under \$100,000	334,327	290,744	306,139	8,691	7,881	
\$100,000 under \$200,000	66,003	62,139	59,762	26,870	24,888	
\$200,000 under \$500,000	14,272	13,858	13,266	82,143	79,345	
\$500,000 and over	2,983	2,916	2,680	323,667	362,995	
Total	12,673,175	7,518,621	8,429,581			

Source: S01, 1971: Individual Income Tax Returns and the 1971 Special Sample.

contain a completed Schedule B, Part 1, even though dividends and other distributions were less than \$100. Likewise, some filings probably do not contain a completed Schedule B, Part 1, even though required, particularly if after the exclusion there were no dividends in AGI.

Thus, the forms in the 1971 special sample which were photocopied for subsequent processing can be viewed as a sample of forms with completed Schedule B's, Part 1 -- henceforth referred to simply as Schedule B. If Schedule B's were properly completed and only when required, the population implicit in the special sample would include all filings with dividends in AGI plus all filings with dividends and distributions in excess of \$100 but with dividend income equal to the allowable exclusion. If as is probably the case, some Schedule B's are completed even though not required and some not completed even though required, this clear interpretation becomes blurred. Although implicit in the above discussion, it should be pointed out explicitly that the photocopied forms in the 1971 special sample do not cover all dividends received by individuals; therefore, in estimating the market value of stock held by individuals, it will be necessary to make a series of adjustments for these omitted dividends.

Before describing the work done by the Bureau of the Census, the extent and magnitude of any biases in this subsample of the S01 sample will be assessed by comparing the blown-up figures for numbers of forms in the 1971 special sample and the average dividends reported per form with blown-up figures from the S01 sample (table B). Unfortunately, figures tabulated from the S01 sample are not exactly comparable with the 1971 special sample of forms with Schedule B's. Nonetheless, there are both published and unpublished figures from the S01

sample which can be used as rough checks.

Consider first the number of forms. The S01 sample for individual income tax forms in 1971 provides an estimate of the number of forms which reported the receipt of dividends on the front of Form 1040 in box 13a. Since not all of these forms would have a Schedule B, these numbers should be larger than the population number of forms implicit in the 1971 special sample which was subsequently processed by the Bureau of the Census. The S01 sample also provides population estimates of forms with dividends in AGI. Every form in this category should have had a Schedule B attached. Since some filers may have attached unnecessarily a Schedule B or were required to attach one even though no taxable dividend income resulted, the number of forms implicit in the 1971 special sample of forms with Schedule B's would be expected to exceed the number with dividends in AGI. Only if a substantial number of filers reported dividends in AGI on the front of Form 1040 and failed to complete a Schedule B would this last expectation be in error.

Thus, the estimates of the number of forms with Schedule B's from the 1971 special sample should fall between the S01 estimates of the number of forms reporting dividends in box 13a and the number of forms with dividends in AGI. Table B shows that for forms with AGI of less than \$100,000, the estimates of the number of forms from the 1971 special sample do fall between the appropriate S01 estimates. For forms with AGI in excess of \$100,000, the estimates from the 1971 special sample are marginally below the expected range.

Consider next dividends per form. Again tabulations based upon the S01 sample do not contain figures exactly comparable with those from the 1971 special sample with Schedule B's, but perhaps conceptually the closest number available from the S01 sample is dividends in AGI per form. This number differs from the corresponding number for the 1971 special sample in two principal respects: First, dividends in AGI are after deduction of capital gain and non-taxable distributions and after provision for the dividend exclusion which could range up to \$200 per filing. Second, the 1971 special sample undoubtedly includes some forms with Schedule B's but no dividends in AGI. The first effect should result in some tendency for the dividends per form from the 1971 special sample to exceed the S01 estimate. The second effect should cause the reverse; but on balance, particularly for the larger AGI classes or sampling codes, the first effect is probably more important than the second.

An examination of table B discloses that the dividends per form as estimated from the 1971 special sample tend to be marginally less than those estimated from the S01 sample for AGI between \$15,000 and \$200,000. Most of the understatement in these middle income categories can be traced to the non-business forms though there is some evidence of a slight understatement in the business forms. IRS personnel were unable to provide any reasonable explanation of these phenomena. For most of the analyses in this paper, the adjustments in Stage 3 will provide appropriate corrections. The only analysis which might be af-



fecte*d* is that of diversification presented in Part V, but external figures presented in Part V suggest that this bias is not serious.

B. The second stage

After completing its work, the IRS forwarded the photostats of the sampled Forms 1040 with Schedule B's to the Bureau of the Census for coding. As pointed out above, names of filers, addresses, and social security numbers were deleted from these photostats. The Bureau key-punched selected information from these photostats including socio-economic-demographic characteristics, the names of all sources of dividends and other distributions listed on Schedule B, and the associated dollar amounts. From the resulting file, the Bureau prepared a list of these names and sent it to the authors. Personnel at the Rodney L. White Center for Financial Research copied onto this list an identification number for each stock which was contained in the ISL tapes. The ISL tapes are a standard source of security prices and cover all NYSE and AMEX stocks, roughly 400 mutual funds, and more than 3,000 OTC stocks. In addition, a small number of stocks not listed on the ISL tapes, principally small OTC companies, were assigned unique identification numbers.

For each of these identified stocks, the data files at the Rodney L. White Center and standard financial publications were used to develop stock characteristics. If the value of an important characteristic for an identified stock was missing, what is technically known as a default value was assigned. These default values listed in table C were usually based upon available data for similar kinds of assets.<sup>4</sup>

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<sup>4</sup>For any category of stock in table C, generally less than 1 percent and never more than 2.5 percent of the blown-up dividends used default values in ascertaining the associated market values. These market values are the basic input for estimating the distribution of market value of stock held by AGI class.

Table C. -Defaults Values for Identified Securities by Types

Type	Size of Issue <sup>1</sup> (millions of dollars)	Ratio of Divid. & Dist. to Price (6/71)	Ratio of Total Stock to Stock with Divid. or Dist. <sup>2</sup>	Return from 7/71 to 6/72
NYSE-COM	500 and over	3.05	1.0172	10.2%
	100 under 500	3.14	1.1315	5.4
	under 100	3.66	1.3404	8.0
NYSE-PREF		4.54	1.2076	1.5
AMEX-COM	100 and over	3.24	1.1693	24.6
	15 under 100	3.39	1.9936	5.3
	under 15	3.42	2.9099	6.7
AMEX-PREF		6.26	1.2502	11.2
MUTUAL FUNDS		3.03	1.0049	11.1
OTC-FIN-COM	50 and over	2.68	1.0505	14.3
	10 under 50	2.80	1.2189	16.7
	under 10	3.03	2.7138	19.0
OTC-FIN-PREF		2.83	1.0000	13.3
OTC-IND-COM	100 and over	2.40	1.1418	18.0
	15 under 100	3.04	1.6397	12.4
	5 under 15	3.33	2.8975	5.9
	under 5	4.25	6.7595	7.9

1 Any issue for which the size of issue was unknown was classified in the smallest category of its type.

2 The ratios for banks and bank holding companies irrespective of other characteristics were 1.0025 and 1.0116 respectively.

Table D. - Default Values, Names, and Importance of Generic Categories

Generic Category	Percentage of Sample Dividends in Category	Ratio of Divid. & Dist. to Price (6/71)	Ratio of Total Stock to Stock with Divid. or Dist. (6/71)	Return from 7/71 to 6/72
Agency or Custodial Accounts	4.34	(1)	(1)	10.4%
Agency, Custodial or Trust Accounts	1.10	(1)	(1)	10.4
Banks	3.54	3.04	1.0025	25.3
Bank Holding Companies	0.25	3.88	1.0116	18.1
Brokerage Houses	2.24	(1)	(1)	10.4
Insurance Companies (Stock)	0.69	2.61	1.0000	10.4
Investment Clubs	0.03	3.10	1.0916	10.4
Holding Companies	0.11	2.87	1.0558	19.2
Mutual Funds	0.47	3.03	1.0049	11.1
NYSE (Oil Companies)	0.08	5.00	1.0000	10.4
NYSE (Unidentified)	0.06	3.14	1.0520	9.0
Professional Partnerships	1.13	3.00	1.0000	10.4
Real Estate and Mortgage Trusts	0.02	6.76	1.0000	-0.1
Trusts and Estates	18.27	(2)	(2)	9.0
Miscellaneous (Preferred)	0.75	4.54	1.2047	40.4
Miscellaneous (Unidentified) <sup>3</sup>	17.14	2.71	1.6667	16.4
Deleted Items:				
Credit Unions	0.00			
Insurance Companies (Mutual)	0.01			
Other Non-Stock Items	0.43			

<sup>1</sup> The ratio of dividends and other distribution to price and the ratio of total stock to stock with dividends or distributions was calculated separately for each of the AGI classes shown in Table B. The first ratio was calculated as the ratio of the total dividends and distributions received by filers in a given AGI class on all dividend-paying items other than those received through agency, custodial, and street name accounts to the market value of these items. The second ratio was calculated as the ratio of the market value of all items other than those received through agency, custodial, and street name accounts to the previously derived value of dividend-paying items.

<sup>2</sup> The ratios were calculated as in the previous footnote except that they were based only on identified NYSE issues.

<sup>3</sup> The ratios for miscellaneous (unidentified) were derived from the total holdings of industrial OTC stocks with no control for AGI.

A dividend or distribution source was not assigned a unique identification number if the ISL tapes did not cover the company or if the name of the source was incomplete, like "First National Bank." These sources were classified as accurately as possible into one of several generic categories using the names of the sources as guides. Table D lists these categories, the percentage of sample dividends falling in each, and the default values of selected characteristics used in the subsequent processing. Because of the diversity of these categories, the miscellaneous (unidentified) stocks are most likely closely-held or small publicly-traded industrial corporations. There were in addition some items, such as interest payments, which should not have been reported as dividend income. These items were deleted in some of the calculations presented in the text.

### C. The third stage

The Bureau of the Census merged the stock characteristic file with the tax form information and forwarded the resulting file to the Bureau of Economic Analysis for the final processing. In order to estimate the dividend and market value of all stock held by individuals by size of AGI, the following calculations were performed:

1. The population estimates of the dividends and **other** distributions for those filers with dividends and the distributions reported on Schedule B's as derived from the 1971 special sample were made to conform to the corresponding S01 estimates for all filers for each of the AGI classes given in table E. The specific adjustment was to multiply every dividend and distribution on all

forms within a specific income class by the ratio of the S01 aggregate estimate for that class<sup>5</sup> to the 1971 special sample aggregate estimate.<sup>6</sup> This adjustment accounts for those dividends reported on the front of the Forms 1040 but not on Schedule B's. It also has the desirable property of making the 1971 special sample less sensitive to any sampling bias which may be associated with the level of AGI.

2. From Part III, the dividends which should have been reported on Schedule B's but were not are estimated at roughly \$336 million. This sum was distributed over reported dividends and other distributions in such a way that the non-compliance ratio for each income class would be a multiple of that for persons with AGI in excess of \$50,000. For AGI less than \$10,000, the multiple was 4.0, for AGI of \$10,000 or more but under \$15,000, 5.5; for AGI of \$15,000 or more but under \$25,000, 4.5; and for AGI of \$25,000 or more but less than \$50,000, 3.5. These relative ratios of non-compliance were derived from an IRS study in 1959<sup>7</sup> by equating the fractile ranges of AGI in 1959 with those in 1971.

3. From Part III, \$433 million represent dividends received by persons not required to file. These dividends were allocated to the lowest AGI class.

4. From Part III, it is estimated that \$217 million of dividends were received by filers who had dividend income less than the

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<sup>5</sup>S01, 1971: Individual Income Tax Returns, p. 62, Col. 2.

<sup>6</sup>The 1971 special sample estimate excluded those items which should not have been reported on Schedule B. A similar adjustment, however, was not made to the S01 estimate. This lack of adjustment will result in an approximately 0.5 percent overstatement of dividends and other distributions. To offset this overstatement, no adjustment was made for underreporting of capital gain and non-taxable distributions which is roughly of the same magnitude.

<sup>7</sup>Holland, op. cit.

allowable exclusion and failed to report them in box 13a of Form 1040. This sum was distributed according to the same distribution by AGI as returns which did report dividends but failed to exhaust the exclusion. This distribution was taken to be proportional to the difference in each AGI class between the SOI estimates of the number claiming dividend exclusion<sup>8</sup> and the number of returns with dividends in AGI. About 60 percent of such returns fall in the AGI range \$15,000-\$25,000, with 90 percent under \$25,000.

5. To allow for dividends retained by trusts and estates for their beneficial owners, each dividend from a trust was increased by 57 percent. This adjustment moves the market value of these kinds of assets implicit in the 1971 special sample to \$130 billion in rough conformity with the external estimate developed in Part III.

6. All but \$7.5 million of dividends reported as received from publicly-traded brokerage firms were reclassified as dividends received on stocks held in a "Street Name" account.

With these adjustments, the 1971 special sample implied that individuals received \$20.3 billion dollars in dividends and other distributions. Table E shows the breakdown by AGI class. After subtracting the SOI estimates of capital gain and non-taxable distributions,<sup>9</sup> the dividends received by individuals including retentions by estates and trusts are estimated at \$19.1 billion (table E). The dividends

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<sup>8</sup>This fails to allow for the probable increase as income rises in the average dividend of those falling short of the exclusion. However, the distribution of dividends received by this group cannot be determined from available data without an arbitrary assumption as to the average exclusion by income class on joint returns for those with dividends in AGI.

<sup>9</sup>SOI, 1971: Individual Income Tax Returns, p. 62.

Table E. -Dividends, Other Distributions, and Market Value of Stockholdings  
of Individual Investors by Adjusted Gross Income

Size of Adjusted Gross Income	Dividends and Other Distributions (millions)	Dividends (millions)	Market Value (millions)	1971 Dividends to Market Value Ratio	1960 Dividends to Market Value Ratio
Under \$5,000	\$1,973	\$1,827	\$65,731	.027	.035
\$5,000 under \$10,000	2,132	1,932	64,656	.030	.034
\$10,000 under \$15,000	2,068	1,922	70,554	.027	.034
\$15,000 under \$25,000	3,160	2,924	112,776	.026	.035
\$25,000 under \$50,000	3,718	3,515	143,956	.024	.036
\$50,000 under \$100,000	2,926	2,812	126,084	.022	.033
\$100,000 under \$200,000	1,861	1,807	85,118	.021	.031
\$200,000 under \$500,000	1,340	1,303	59,302	.022	} .031
\$500,000 and over	1,143	1,102	52,606	.021	
Total	\$20,322	\$19,144	\$780,783	.025	.034

Source: SOL, 1971: Individual Income Tax Returns, 1971 Special Sample, and Friend and Crockett, op. cit.

and other distributions together with the stock characteristics and the default values in tables C and D imply a market value of individual stockholdings of \$780 billion.

Finally, table E gives the dividend yield rates which were used in analyzing the change in the concentration of holdings over time in Part IV. For comparison purposes, table E also presents the dividend yield rates for 1960 calculated conceptually in the same way as those for 1971.