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Stockownership in the United States:

Characteristics and Trends

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Part 1: Introduction and Summary

RELATIVELY little is known about the patterns of stockownership or changes in these patterns over time, although stockholdings are a highly important component of total wealth, especially for individuals at upper income levels. Even the available historical series on the total market value of stock owned by U.S. individuals (and by individuals and nonindividuals combined) are subject to a substantial margin of error. More deficient still is the information on the value and characteristics of individual issues and stock portfolios held by various income and other sociodemographic groups and on the investment experience of these groups. Such information is valuable for analyses of a wide range of economic issues, including problems associated with the 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.

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The purpose of this article is to fill in some of these deficiencies, 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 (forms 1040) for 1960 and 1971. Although the information from the 1960 special sample was analyzed in earlier papers, this article represents the first use of the 1971 data.¹

The 1971 results are based on a special random sample of 17,056 returns, stratified so as to oversample 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 payer corporations, and the income and other sociodemographic characteristics of the taxpayers (but not their names) were transmitted to the Census Bureau. The authors provided to Census the information on the dividend yield, market rates of return, industry, size, and risk characteristics for each of the payer corporations listed in the sample returns; Census then prepared tapes matching the corporate information with the

1. J. J. Crockett and I. Friend, "Characteristics of Stock Ownership," *Proceedings of the Business and Economic 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 Economic Statistics Section of the American Statistical Association*, 1966.

data on the individual returns. These tapes, which were designed to preserve the anonymity of individual returns, were used by BEA to carry out the tabulations necessary for this study. Only IRS had access to the actual returns.

The 1960 and 1971 special samples are unique in that, by permitting the matching of characteristics of individual stockholders with those of the stock-issuing corporations, they make it possible to estimate the market value of stock owned by different sociodemographic groups. Although IRS publishes annually the distribution of dividends by income class of recipient, 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 payer corporations and applicable price-dividend ratios, the 1960 and 1971 special samples provide the basis for estimating average price-dividend ratios for stock held by different groups of individuals. While the market value of stock held by these groups can 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 estimated price-dividend ratio for each income class to the aggregate IRS figure for dividend receipts by that class. The distributions of market value by other sociodemographic characteristics estimated from the sample data are made to conform to the distribution by income class obtained in this way. (A detailed description of the procedures followed, including the adjustments made for nondividend-paying stock, is provided in the appendix to part 5.)

From the 1960 and 1971 data, it is possible not only to obtain fairly reliable estimates of the distribution among sociodemographic groups of the market value of all stock held by individuals but also to determine other characteristics of the stock held by these groups. The data can further be used to analyze portfolio performance and risk characteristics and to improve the accuracy of estimates of the total market value

of outstanding stock in the United States.

Some information—specifically, estimates of the distribution of dividend income and market value of all stock by income class—will be presented for 1958, 1964, 1969, and 1970, as well as for 1960 and 1971. However, the market value estimates for the first 4 years are not as reliable as for the last 2.

Summary of main result

The main results and implications of the analysis are:

1. The concentration of dividend income and market value of stock among upper income groups continued to decline from 1958 to 1969, but not from 1969 to 1971. The share in stockownership of the wealthiest 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 1958–71 period was characterized by stability, or a slight decline, in the concentration of total family income and net worth, although these estimates—especially those for net worth—are subject to substantial error.

2. Although data on the distribution of income and net worth after 1971 are not available, the sharp drop in stock prices since then, relative to prices of other assets, implies a significant decline in the concentration of net worth, inasmuch as stock constitutes a major part of the assets of the upper, but not of the lower, income groups. However, no similar effect on the distribution of total income between the two groups would be expected, since dividends, unlike stock prices, have not been depressed.

3. Although the distributions of both total income and dividend income became considerably less concentrated from the 1920's to the end of World War II, only the latter continued to show a significant trend toward less concentration in the following years, and even that trend seems to have abated substantially in recent years.

4. Despite the fairly substantial movement in the postwar period, and

probably earlier, toward a more egalitarian distribution of stockownership, the 1971 distribution 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. The 1971 and 1960 figures, each of which is based on a single year's income, probably understate the concentration of stockownership that 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, U.S. individuals owned an estimated \$780 billion in stock. (This is moderately higher than the corresponding Securities and Exchange Commission (SEC) and Federal Reserve Board (FRB) estimates and may be compared with \$335 billion for mid-1960.) Of the \$780 billion, \$460 billion was held in domestic New York Stock Exchange (NYSE) and other listed issues, \$50 billion in mutual fund stock, \$35 billion in unlisted bank and insurance company stock, and \$190 billion in direct holdings of other traded and privately held unlisted stock.

6. The two employment status groups with the largest stockownership in 1971 were the managerial and the retired. The relative share of stock owned by families headed by retired persons was appreciably higher than in 1960.

7. In 1971, a surprisingly high proportion of the portfolios held by individuals was dominated by a very small number of issues; thus, the portfolios were not well diversified. This

finding applies to all income groups. Since there is ample evidence that investors are risk-averse, the lack of effective diversification 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 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 many with moderate means—must have experienced catastrophic losses.

8. The lower income groups tended to hold somewhat less risky stock than did the upper income groups. Although the latter owned substantially more stock 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 stock, the lower income groups were relatively more likely to hold telephone and electric and gas utility stock than the upper income groups, but the differences for telephone stock were smaller in 1971 than they had been in 1960. Electric and gas utility stock constituted a much smaller proportion of holdings of all income groups in 1971 than in 1960.

9. Among employment status groups, managers tended to hold the riskier stock and retired and other not gainfully employed persons the less risky stock.

10. Investors in the upper income groups tended to hold stock with higher price-dividend ratios than other investors did. This tendency is consistent with the greater tax advantages to high-income individuals of stock with low dividend payout, that is, a high

earnings retention ratio. The same tendency was observed in 1960, but became more pronounced by 1971.

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

12. There were no noteworthy differences in 1971 investment performance among occupational or regional groups holding a substantial amount of stock. This article provides the first comprehensive data on this subject.

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 remained much higher than in the earlier period), the percentage of stock owned by individual investors declined appreciably. This decline reflects 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.

Part 2: Earlier Studies of Trends in Stockownership

Earlier studies have provided historical insights into a number of different facets of stockownership, though much of the information provided by these studies was based on fairly tenuous data. There are reasonably useful, but rough, long-term estimates of the: (1) total market value of stock outstanding in the United States, (2) aggregate amounts owned by the two major groups of investors—financial institutions and families or households, (3) number of individuals owning stock, and (4) amounts of dividends and of total income received by groups of families classified by total income.²

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.³ For many years, stock has

been by far the largest of the financial assets held by families and has constituted one of the two major components of household net worth.

Importance of institutions

Excluding personal trusts, most of which are 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; even by 1950 this percentage was less than 8, in contrast with over 24 percent currently. Stock held in personal trust funds experienced little change in relative importance over the past half-century, accounting for about 10 percent of all outstanding stock owned by noncorporate entities. A relatively small number of institutions now hold close to 35 percent of all outstanding stock; the remainder is owned by somewhat under 32 million individual stockholders.⁴

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

3. 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 Securities and Exchange Commission (SEC) *Statistical Bulletins* and the Federal Reserve Board (FRB) *Flow of Funds* publications.

4. New York Stock Exchange (NYSE) *1973 Fact Book*. The NYSE shareownership series started in 1959.

Despite the marked decline in the share of the market value of all stock owned by individuals, the number of such stockholders has increased greatly since the turn of the century. Earlier studies have indicated that the number of individual stockholders in the first three decades of this century may have risen from about 1 million to 10 million.⁵ In the next two decades, the number 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, and by early 1972 a peak of 32.5 million was recorded.

Information on 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 consumer units (families or households) owning stock, since several members of the same basic unit may hold stock in their own names and the number doing so may vary over time as a result of changes in tax laws.

The two major sources of information on historical trends in the distribution of stockownership among different groups are the dividends reported by income class on income tax returns (forms 1040) and the asset data on estate tax returns.⁶ Of the two, the estate tax data are less useful information sources because they cover a considerably smaller range of incomes, and, more importantly, because they require a number of questionable assumptions to estimate the assets of wealthy survivors from those reported for wealthy decedents (see part 4).

Importance of upper income groups

The analyses of trends in the distribution of dividend income based on income tax data point to a substantial decrease in the proportion of dividend income received by the highest income classes over the 1919-57 period. On the other hand, over this period, estimates derived from estate tax data point to a moderate increase 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 that 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 stock held by upper and lower income families or of differential movements in the relation of income to wealth for these two groups. As noted previously, the findings from the income tax data seem more reliable and appear to suggest some decrease 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.⁷

Data 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 after the late 1950's. These will be discussed in part 4 of this article in conjunction with the data for 1971.

Probably the most comprehensive and reliable data previously available on the distribution of stockownership by income class and by other socio-demographic characteristics are contained in the 1960 study, which is the precursor of the present analysis.⁸ The 1960 and 1971 studies make possible the first reliable estimates of the market value and of the ownership trends of stock held by different groups of families over this period. In addition to giving information on the distribution of stockownership, the two studies also make possible improved estimates of the market value of outstanding stock in the United States and provide new information in the risk, rate of return, and other characteristics of the stock held by different groups.⁹

Part 3: Distribution of Dividends and Stockholdings Among Broad Groups

A basic input in estimating the aggregate value and distribution by income class of the shareholdings of individuals is the information on dividends reported on Individual Income Tax Forms 1040. Such information, based on a very large sample of returns, is developed each year by the Internal Revenue Service (IRS) and published in *Statistics of Income: Individual Income Tax Returns*. However, the *Statistics of Income (SOI)* data omit two components of dividends allocable to individuals: (1) dividends retained by estates and trusts on individuals' behalf as beneficiaries, and (2) dividends received by individuals, but not reported on individual tax returns, either because recipients were not legally re-

quired to report them or because recipients illegally underreported them.

The dividend gap

The aggregate magnitudes of the two omitted components were estimated by the following procedure. The first aggregate was derived from total dividend receipts of estates and trusts as reported on fiduciary income tax returns, after allowance for distribu-

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

6. The income tax data have been analyzed in S. Kuznets, *Shares of the Upper Income Groups in Income and Savings*, National Bureau of Economic Research, 1953, and Cox, *Trends*. The estate tax data have been analyzed in R. Lampman, *The Share of Top Wealth-holders in National Wealth*, National Bureau of Economic Research, 1962.

7. Kuznets, *Shares*, and D. B. Radner and J. C. Hinrichs, "Size Distribution of Income in 1964, 1970, and 1971," *SURVEY OF CURRENT BUSINESS*, October 1974.

8. The earlier results are presented in Crockett and Friend, "Characteristics," and Friend and de Cani, "Stock Market Experience."

9. The 1960 figure on the market value of outstanding stock was used as a new benchmark by the SEC.

tions of fiduciary income to individuals and other categories of beneficiaries. The income tax data, which are available for 1970, were updated by using the market value of stock held by bank-administered trusts and estates in 1971 (see appendix to part 3). The second aggregate was derived by comparing domestic corporations' total cash distributions to stockholders, as reported on corporation income tax returns, with total dividend receipts as reported on forms 1040, after allowance for dividend receipts of other stockownership groups and a number of reconciliation items (see table 1).¹⁰

Total cash distributions of domestic corporations exceed the receipts of domestic individuals by the dividends paid to domestic corporations, non-profit institutions, and foreigners and by the dividends paid to fiduciaries, but retained by them or used to pay taxes or defray expenses. Such dividends therefore had to be subtracted in arriving at the cash distributions paid to individuals.¹¹ On the other hand, cash distributions paid by foreign corporations to domestic individuals had to be added. These adjustments produce a figure of \$20.5 billion for 1971 cash distributions by domestic and foreign corporations to domestic individuals (see table 1).

Some portion of this total is not reportable as dividend income on individual income tax returns: (1) distributions of small business corporations electing to be taxed as partnerships, (2) distributions taxable as capital gains, and (3) nontaxable distributions. For comparability with dividends ac-

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

[Millions of dollars]	
1. Distributions (other than own stock) of domestic corporations	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 ¹	26,390
6. Less: Dividends received by corporate pension funds.....	2,460
7. Dividends received by State and local government retirement funds.....	330
8. Dividends received by other tax-exempt institutions (including those distributed through fiduciaries).....	1,440
9. 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 ²	20,500
11. Less: Distributions of small business corporations taxed as partnerships.....	1,290
12. Nontaxable distributions.....	560
13. 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

1. Includes a small amount of nondividend cash distributions paid to domestic corporations and foreigners.

2. Includes a small amount of nondividend cash distributions paid to other ownership groups.

Source: See appendix to part 3.

tually reported on forms 1040 in 1971, these distributions had to be subtracted; this procedure yields a figure of \$17.8 billion for dividends reportable on individual income tax returns. Compared with the \$16.8 billion reported in 1971, there is a dividend gap of about \$1 billion.

This dividend gap is presumed to consist of three components: (1) the small amount of illegal underreporting of dividends revealed by audit checks, (2) dividends received by nonfilers—either those with gross income so low that they were not legally required to file or those who escaped audit checks, and (3) dividends below the exclusion, which the recipients neglected to indicate on their tax forms and which were not found on audit.¹²

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

information reports against stockholders' income tax returns.¹³ No current estimates on this basis have been published, but unpublished IRS studies show a substantial reduction in underreporting since 1959. This reduction is partially attributable to increased enforcement effort by the IRS and partially to the policy of making available to the individual stockholder a statement of the dividends ascribed to him in corporate information reports to IRS. A lower limit to current underreporting is probably represented by the 1½ percent implied by the IRS 1963 Taxpayer Compliance Measurement Program data, which do not attempt to match individual reports with corporate information reports.

The dividends attributable to nonfilers are estimated at \$430 million, or two-thirds of the remaining gap. This figure is considerably above the 1960 estimate, in part because the gross income requirement for filing was subsequently raised from \$600 to \$1,700 (\$2,300 on joint returns and higher for retired persons). In addition, New York Stock Exchange (NYSE) figures indicate a very large increase (of almost 1 million from 1965 to 1970) in the number of minors owning stock,¹⁴ a high proportion of whom are likely

10. A detailed explanation of the sources and procedures utilized in deriving the items in this table is given in the appendix to part 3. A comparable table for 1960 appears in Crockett and Friend, "Characteristics."

11. For some ownership groups, dividend receipts had to be inferred from the market value data provided by Government sources. This required that market value be multiplied by a ratio of dividend-paying stock to total stock appropriate to the types of stock held, to obtain the value of dividend-paying stock only. This figure then must be multiplied by a dividend yield (dividend-price ratio) appropriate to the portfolio held, to obtain dividends. For estates, 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 (OTC). For simplicity, the two steps described were combined, and market value was multiplied by the ratio of dividends to total market value for the broad class of stock appropriate to the portfolio of a particular ownership group.

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

13. D. M. Holland, *Dividends Under the Income Tax*, Princeton University Press, 1962, p. 90.

14. NYSE, *Shareownership, 1970*, p. 6.

to have gross income below the current requirement for filing.¹⁵

The remaining \$210 million of the dividend gap is attributed to the omission of dividend receipts from tax returns in cases where receipts were within the legal exclusion. Although about 4½ million filers in 1971 listed dividends totaling less than the exclusion to which they were entitled, the NYSE stockholder census indicates that there were 12½ million holders with portfolios under \$5,000 at the beginning of 1970.¹⁶ Receipts of a large proportion of these stockholders would be expected to fall below the \$100 exclusion, so that the total number of individuals receiving dividends in this amount may substantially exceed the 4½ million filers who reported dividends below the exclusion. The average dividend received in such cases would, of course, be very small.

Unlisted domestic stock

The information in table 1, augmented by data drawn from Government or industry sources and from the 1971 special sample of individual income tax returns described in the appendix to part 5, can be used to generate estimates of the aggregate market value of unlisted domestic stock and of 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 Securities and Exchange Commission (SEC) estimates the market value of unlisted stock of banks and insurance companies, no similarly reliable estimates are available for other unlisted stock. This residual group is largely nonfinancial; and a significant proportion is not traded over

the counter (OTC), in which case, price quotations are unavailable.¹⁷

Two basic approaches that have customarily been used to estimate the value of the residual group of unlisted stock are followed here. A third procedure, depending in part on the 1971 special sample of individual income tax returns, is also presented.

The first approach is based on aggregate cash distributions on all categories of stock, which can be determined with a high degree of accuracy from corporate income tax data. From this, 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, are removed.¹⁸ Next, nondividend distributions are removed, leaving dividends on other unlisted stock as a residual. (These computations are shown in the appendix to part 3.) An estimate of the aggregate value of dividend-paying stock in the residual category is obtained from aggregate dividends by dividing by an appropriate dividend yield, based on a large market value-weighted sample of stock in the category under consideration.

This method, however, provides no firm basis for estimating the value of nondividend-paying stock. Evidence 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 can then be correspondingly augmented. However, little confidence can be placed in such an estimate because samples are necessarily drawn from an

incomplete listing that consists only of issues for which price quotations are available, and because the large sample that is available from the Rodney L. White Center files almost certainly overrepresents large firms to a very substantial, but unknown, degree.¹⁹ Since it is clear, from classifying this sample by market value of stock, that the proportion of nondividend-paying stock increases sharply as firm size decreases, 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*, 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 stock of banks and insurance companies to arrive at the aggregate that is being measured.

Apart from the mutual fund component, any estimate of the market value of unlisted stock not traded OTC is subject to a wide margin of error. The procedure in this study follows that of Tri in basing the estimate on 1965 estate tax data, which distinguish privately held stock²⁰ from the holdings of traded stock reported in the 97,000 Federal estate tax returns filed in that

15. Furthermore, the 2 percent estimate used for illegal underreporting in 1971 may not fully correct for nonfilers who were legally required to file. If so, a small but undetermined amount of dividends received by such nonfilers, who are assumed to fall predominantly in the adjusted gross income (AGI) class under \$5,000, may be included here.

16. NYSE, *Shareownership, 1970*, p. 9.

17. Unlisted stock not traded OTC (that is, 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 smalltown bank or retail enterprise. When the return on such stock is taxed as partnership income, the market value is excluded from the total. This is consistent with national income accounts procedure, which excludes such return from dividend income.

18. 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 stock of banks and insurance companies.

19. Similar sampling limitations apply to the estimate of average dividend yield utilized in obtaining the aggregate value of dividend-paying stock, but the consequences are less serious since the sample of dividend-paying stock probably covers a large fraction of total market value for the universe sampled. No such presumption can be made for the sample of nondividend-paying stock.

20. Stock that was not identified by executors as traded was considered to be privately held if no price quotations were readily available.

year.²¹ Such stock amounted to 15½ percent of other stockholdings, as reported in these returns.

In the 1971 special sample of individual income tax returns, a basis exists for approximating, for that year, the aggregate holdings that correspond to the category of traded stock recognized in the breakdown of stockholdings from the 1965 estate tax returns.²² An estimate is then derived for individuals' ownership of privately held stock in 1971 by taking 15½ percent of traded holdings. This procedure assumes that the relationship of privately held 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 figure for total market value of privately held stock, a small allowance must be made for holdings of other ownership groups (which may be expected to constitute a rather small proportion of such stock), and the stock of small corporations electing to be taxed as partnerships must be deducted. (This last category of stock is apparently included in the privately held category in the estate tax data, although it is excluded here.)

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 approach en-

counters particular problems in the estimation of the nondividend-paying component and the second in the estimation of the privately held component. In addition, inaccuracies are certain to be introduced in any process that converts dividends to market value, or vice versa, on the basis of sample estimates of the ratio of one to the other for a particular class of stock.

The third procedure depends, as does the first, on an estimate of the total dividends paid on stock of the requisite type, but it uses the 1971 special 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, but it must 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.²³

Total dividend receipts for stock held in agency and custodial accounts and in street name are obtained from the 1971 special sample; for fiduciaries and other ownership groups, dividend receipts have already been estimated for the purposes of table 1. (See appendix to part 3 for details.) If plausible assumptions are made as to the proportion of dividend income derived from unlisted stock, an estimate can 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 one constraint: the total dividends allocated to listed stock (including individuals' direct holdings as determined from the 1971 special 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.²⁴

To this estimate of the dividends on unlisted stock not held directly by individuals, the sample-based estimate of dividends on individuals' direct holdings of unlisted stock other than mutual funds must be added. After subtracting the small amount of mutual fund dividends received by groups other than individuals and the aggregate dividends on unlisted stock of banks and insurance companies, an estimate is obtained—alternative to that developed by the first approach—of dividends on the category of stock for which the market value is being determined. 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 special sample provides some assistance here also. To derive a figure for nondividend-paying stock from the estimated aggregate of dividend-paying stock, it is necessary to estimate the overall ratio of nondividend-paying to dividend-paying issues for the class of stock under consideration. 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 large firms, but it should provide a relatively unbiased estimate of the required ratio within each size class. If appropriate weights were available (ideally, the population aggregate of dividend-paying stock within each size class),

21. *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.," SEC Office of Policy Research, June 1971, pp. 20-21.

22. Sample holdings that can be identified as listed stock, mutual funds, unlisted stock of banks or insurance companies, or other unlisted stock traded OTC are presumed to fall in this category, as is stock held in agency or custodial accounts or in street name—that is, 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 stock in question is a reliable one. (See part 5 for further details of the conversion procedures.)

Individuals' beneficial ownership of stock through fiduciaries is excluded here, 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 of unidentified paying corporations is in fact traded.

23. 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 payers, at least as to listing status, the proportion cannot be large. The 10 percent assumed here is probably an upper limit. There is also an element of arbitrariness in determining how much of the dividend receipts attributed to banks represents dividends on bank stock and how much represents return on stock held in bank-administered trusts that has been distributed to the individual as beneficiary.

24. Since domestic corporations are known to invest heavily in unlisted as well as listed subsidiaries, the assumption is made that the proportion of intercorporate dividend receipts coming from unlisted stock is as high as for individuals' direct holdings, that is, 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 than those held directly by individuals, 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.

a weighted average of the ratios for individual size classes would provide a suitable estimate of the overall ratio. The 1971 special sample data on the relative importance of each size class in individuals' holdings of dividend-paying stock within the relevant category is used to indicate population weights.²⁵

This use of sample information on individual holdings of dividend-paying stock to approximate population weights is equivalent to assuming that, for each dollar of dividend-paying stock held in a given size class, an amount of nondividend-paying stock is held equal to the ratio of nondividend-paying to dividend-paying stock for that size class. When this weighting scheme is used for averaging over size classes, the average ratio obtained is termed "sample-weighted ratio."

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

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

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		Non-profit institutions, 1971 ³	Domestic corporations, 1971	For- eigners, 1971
	1960	1971	Direct holdings ¹	Beneficial ownership ²			
Listed.....	326	760	317	144	135	138	26
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	59	51				
Banks and insurance companies.....	36	41	33				
Other.....	108	358	189				
All domestic stock.....	486	1,218	590	187	153	259	29

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

2. Stock held by fiduciaries, in agency and custodial accounts and in street name, for the beneficial interest of individuals.

3. Includes pension funds and other nonprofit organizations. See text for complete coverage of item.

Sources: See text and appendix to part 3.

panies. The third approach yields a dividend estimate of \$5.7 billion and, utilizing the same dividend yield and proportion of nondividend-paying stock as in the first approach, a market value of \$350 billion—intermediate between the first two estimates, but close to the second. Thus the second and third approaches tend to confirm each other, and this provides some support for the assumptions as to portfolio composition that are utilized in the third approach.

All domestic stock

Market value figures for domestic listed issues, mutual funds, and unlisted stock of banks and insurance companies, as obtained from industry and Government sources are combined with the second estimate for other unlisted stock to obtain total market value of domestic issues (table 2).²⁷ The second estimate, the largest of the three, is chosen partly because it utilizes a direct attempt to measure market value, rather than an indirect approach via dividends, and thus avoids the difficult problem of evaluating nondividend-paying stock by inference, and partly because its conceptual shortcomings lie in the direction of understatement rather than overstatement. This understatement arises because the NYSE sample cannot have completely exhausted the universe of unlisted traded stock other than mutual funds and because some price rise almost certainly occurred between early 1970 and mid-1971.

27. A detailed explanation of the sources and procedures used in deriving table 2 appears in the appendix to part 3.

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 special sample of income tax returns, after adjustment to exclude holdings of foreign stock (see table 2). Those of foreigners and nonprofit institutions (corporate pension funds, State and local government retirement funds, foundations, and educational endowments) are derived from Government sources and adjusted as shown in the appendix to part 3. 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 it is computed as a residual (see table 2).

Individuals' direct holdings of listed stock can also be obtained from the 1971 special sample. Information on other holdings of listed stock depends on the assumptions mentioned earlier as to portfolio composition. Specifically, the assumptions are that, (1) for estates and trusts and agency and custodial accounts, 25 percent of the market value (and hence a smaller percentage of the dividends) is assignable to unlisted stock, and (2) for nonprofit institutions, foreigners, and the stock of individuals held in street name, 10

25. Even on this basis, some bias probably still exists toward overrepresentation of large firms, leading to an underestimate of nondividend-paying stock.

26. In view of the unavailability of a broadly based price index for unlisted stock other than mutual funds, no adjustment is attempted to reflect the general price rise that occurred in the first half of 1971, after a very slight decline during 1970.

percent of market value (and hence a smaller percentage of dividends) is assignable to unlisted stock.

Corporate holdings of listed stock are again determined as a residual. When this value is compared with the amount of intercorporate dividends previously assumed to arise from listed domestic issues (that is, 27 percent of the \$5.5 billion aggregate obtained from corporate income tax returns), the resulting ratio of dividends to market value²⁸ is that characteristic of listed stock as a whole. This tends to confirm the reasonableness of the assumptions as to portfolio composition.

Since the stock of mutual funds and unlisted stock of banks and insurance companies is to a very large extent held directly by individuals, and since there are good external estimates 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 the sample-derived dividends on all direct holdings, the dividends already accounted for by the estimated direct holdings of listed stock, stock of mutual funds, and unlisted stock of banks and insurance companies. The residual dividends are then converted to a market value figure.²⁹

The value of unlisted holdings of fiduciaries, nonprofit institutions, and foreigners is already determined by the portfolio composition assumptions,

28. This ratio is the product of the proportion of stock paying dividends and the dividend yield.

29. The ratio of dividends to total market value used is somewhat higher than the sample-weighted ratio for nonfinancial firms traded OTC. This is done 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 there is dividend information.

30. In comparing this residual market value with intercorporate dividends previously assigned to unlisted domestic issues, the ratio of dividends to market value is found to be somewhat lower than the sample-weighted ratio. This is a consequence of the decision to use a somewhat higher ratio in converting dividends on individuals' direct holdings to a market value figure, since the dividends on individuals' direct holdings and corporate holdings combined 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 decrease the holdings of domestic corporations correspondingly.

given the data on total stockholdings. The holding of corporations are again determined as a residual.³⁰

The total market value for domestic issues was \$1,220 billion in mid-1971 (table 2). This is 2½ times the corresponding estimate for 1960. (The total includes intercorporate holdings—financial and nonfinancial—unlike the SEC figures that are discussed in part 4.) The value for listed stock increased at a slightly lower rate, unlisted nonfinancial stock at a somewhat more rapid rate, and mutual funds, of course, at a much more rapid rate, than the total.³¹ In view of the substantial trend during the intervening years toward the listing of bank holding company stock, it is perhaps not surprising that the market value of unlisted stock of banks and insurance companies increased very little.

In 1971, individuals' direct holdings accounted 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, amounted to about 60 percent of listed stock and 70 percent of unlisted stock. Nonprofit institutions accounted for 18 percent of listed stock and, under the assumptions here, for very little unlisted stock. Intercorporate holdings accounted for 18 percent of listed stock and over one-fourth of unlisted stock. The latter result depends to some extent on the assumption that corporations are considerably more likely than individuals to hold substantial amounts of nondividend-paying stock in small unlisted firms other than mutual funds and banks and insurance companies.

Part 4: Trends in Concentration of Stockownership Since Late 1950's

The most widely publicized structural developments in the securities markets over the past two decades have 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. These developments, associated with a corresponding decline in the relative importance of individual investors, have been cited as having seriously adverse effects 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 to concentrate their activity on a relatively small number of large issues. Also, it has been 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, institutions are

more often than not on the same side of the market. The result is said to be much greater price volatility in the stock in which institutions trade than would exist in a market dominated by individual investors.³² 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 that would otherwise have been invested in small and risky issues, they tend to depress the prices of such issues and, as a result, penalize new ventures.

Trends in institutional stockownership

Pension funds accounted for the largest growth in institutional stockowner-

32. There is no convincing evidence that institutional trading is in fact associated with greater price volatility. The Securities and Exchange Commission (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.

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

ship. Mutual funds, which were a not-too-close second for the period as a whole, were of diminishing relative importance in recent years. Until this study, there had been no systematic examination of the types of individuals who accounted for the decline in the individuals' share of stockownership 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 of market liquidity and unfavorable investment experience. Before presenting the new data on trends since the 1950's in the distribution of stockownership among different family income classes, it is useful to review the available information on the changing relative importance of aggregate institutional and family stockholdings.

In 1950, stockholdings of financial institutions, other than stock in bank-administered personal trusts, were about 7.6 percent of the market value of all noninvestment company stock outstanding in the United States owned by domestic individuals, institutions, and foreigners.³³ This figure increased 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 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. Institutions' relative importance in stockownership 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 to a lesser extent, the price performance of the stock they held

compared with the performance of the market as a whole.³⁴ For 1950-73, institutional net stock purchases of \$153 billion substantially exceeded 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 moderately exceeded institutional net purchases until the late 1950's; since then, institutional net purchases have greatly exceeded net stock issues. This excess of institutional net purchases over corporate net sales of stock in recent years, averaging more than \$7 billion annually since 1965, represented almost exclusively net stock sales by domestic individuals.

Trends in individuals' stockownership

Some insights into the characteristics of the individuals who sold these substantial amounts of stock to institutions can be obtained from data available before this study. Thus, it is known 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 1950-73, increased over the period and reached a level of about \$2.0 billion annually after 1970.³⁵ 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. 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. There is thus some reason to believe that, over this period, larger individual investors were also selling stock on balance, that is, the dollar value of their sales was greater than their purchases.

This belief is further supported by the extremely rapid rate of increase in the number of stockholders after early 1959. This rate of increase was very much larger than the rate of growth in the value of all stock owned by individuals that is attributable to net purchases of stock rather than to changes in stock prices.³⁶ Thus the average stockholder owned a smaller proportion of all stock at the end of the period than at the beginning. These results seem to suggest an increase in the diffusion of stockownership among small investors.

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

The first consists of Smith's and Franklin's estimates, based on estate tax returns, 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 in 1953, 1958, 1962, 1965, and 1969.³⁷ The second consists of the more comprehensive data on the income distribution of dividends by adjusted gross income (AGI) class available annually (currently through 1971) from the Internal Revenue Service (IRS) publication *Statistics of Income—Individual Income Tax Returns*.³⁸

33. Intercorporate holdings, other than investment company holdings of noninvestment 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 includes nonprofit organizations, is the SEC *Statistical Bulletin*. Estimates of the total market value of outstanding stock were also obtained from the SEC for 1950 and 1960, and from the procedures outlined in this article for 1971. Rough approximations were obtained for 1969 and 1973 by extrapolating the 1971 figure on the basis of the trends shown by the corresponding SEC series. All figures are year-end.

34. A number of studies document that the investment performance of institutional investors (that is, 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.

35. SEC *Statistical Bulletin* for monthly 1973 data; NYSE 1973 *Fact Book* and AMEX 1973 *Data Book* for annual data for other years.

36. See part 2 of this article for historical and recent data on number of stockholders; R. W. Goldsmith, *A Study of Savings in the United States*, Princeton University Press, 1955, for historical data on net stock purchases by individuals; and the SEC *Statistical Bulletin* for recent data on net stock purchases.

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

38. 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.

Smith's and Franklin's estimates point to a substantial decline in the share of the richest 0.5 percent and 1.0 percent of U.S. individuals in corporate shareownership over the 1953-69 period. This decline is associated with relatively little change in the share of such individuals in total net worth. There is some evidence of a decline of the share of these upper wealth 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 evidence 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 (1) 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, (2) deficiencies in the mortality rates used to characterize specific groups in the population,³⁹ (3) 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 (4) the treatment of individuals rather than families or households as the basic consumer units. Moreover, Smith's and Franklin's estimates of the ratio of the holdings of the upper income groups to the total market value of stock owned by all individuals appear to include the shares and certificates of savings and loan associations as part of stockholdings, and they use earlier estimates of total market value, which

Table 3.—Percentage Distribution of Families,¹ Dividend Income, and Value of Stock by Family Income Level, 1958-71

Family income ²	1958	1960	1964	1969	1970	1971
Number of families						
Under \$5,000.....	48.75	43.9	37.2	26.9	23.9	22.0
\$5,000-\$9,999.....	37.9	39.4	38.6	32.7	31.9	31.4
\$10,000-\$14,999.....	8.5	10.6	16.0	21.8	23.1	23.5
\$15,000-\$24,999.....	3.5	4.6	6.0	15.2	15.9	17.3
\$25,000-\$49,999.....	1.1	1.2	1.7	2.3	4.3	4.8
\$50,000-\$99,999.....	.2	.25	.4	.7	.7	.8
\$100,000 and over.....	.05	.05	.1	.2	.2	.2
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
Aggregate dividend income						
Under \$5,000.....	4.6	5.0	4.0	3.0	2.9	2.8
\$5,000-\$9,999.....	10.5	10.7	10.6	9.9	8.6	8.2
\$10,000-\$14,999.....	12.9	11.7	11.0	9.4	9.4	9.3
\$15,000-\$24,999.....	17.4	18.2	15.1	14.6	14.1	13.8
\$25,000-\$49,999.....	20.7	21.8	20.5	20.2	19.7	18.9
\$50,000-\$99,999.....	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						
Under \$5,000.....	4.4	4.8	3.9	2.6	2.5	2.4
\$5,000-\$9,999.....	10.2	10.3	10.3	8.6	7.4	7.0
\$10,000-\$14,999.....	12.6	11.2	10.7	9.0	8.4	8.9
\$15,000-\$24,999.....	17.2	17.6	15.0	13.7	13.2	12.8
\$25,000-\$49,999.....	20.6	21.9	20.4	19.2	18.8	17.8
\$50,000-\$99,999.....	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

1. Definition of families includes unattached individuals.

2. Family personal income before income taxes.

Sources: BEA estimates 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 4 for details.

are less reliable than the revised figures presented in this article.

The second published source of data for analyzing changes in the distribution of stockownership by different income groups—the Statistics of Income (SOI) data on the income distribution of dividends—is subject to fewer deficiencies than the estate tax data. It also has the great advantage that both the total of dividends reported by all individual taxpayers (on forms 1040) and the specific amounts reported on each return are subject to check against 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 3 of this article, and the IRS audits of many individual returns, also mentioned in part 3. The check results provide a reasonable degree of confidence in these data as an indication of the 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, have three significant deficiencies for

the purposes of this study. First, AGI per return is not a satisfactory economic measure of income for a household unit. It does not conform very closely to the concept of income used in the national income 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 stock with a relatively low dividend payout, a high growth rate of earnings, and, hence, a high price-dividend ratio.

39. 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*, Pennsylvania State University, 1973.

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

	Percentage of total income received by highest				Percentage of dividend income received by highest				Percentage of stock value owned by highest			
	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

N.a. Not available.

NOTE.—The percentages 1, 5, 10, and 50 refer to the specified percentage of families with highest total income.

Source: See appendix to part 4 for details.

Despite these deficiencies, the income tax data 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 1958-69, when there were no major changes in the definition of AGI or in the minimum income classes required to submit tax returns, there is again evidence of a reduction in concentration of dividend income by total income class.⁴⁰ The Lorenz curves for these years, with the cumulative percentage of returns on one axis and the cumulative percentage of dividends on the other, indicate a continued shift in dividend income (in percentage terms) away from the upper income groups. A further small movement in the same direction occurred in 1970, but in view of the very substantial upward revision in the minimum income classes required to submit tax returns, not too much reliance can be placed on this finding. No further change in the income distribution of dividends occurred in 1971.

Thus, the income tax, like the estate tax, data point to some tendency toward a further reduction in the concentration of stockownership among the upper income groups after 1958. However, the reduction implied 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

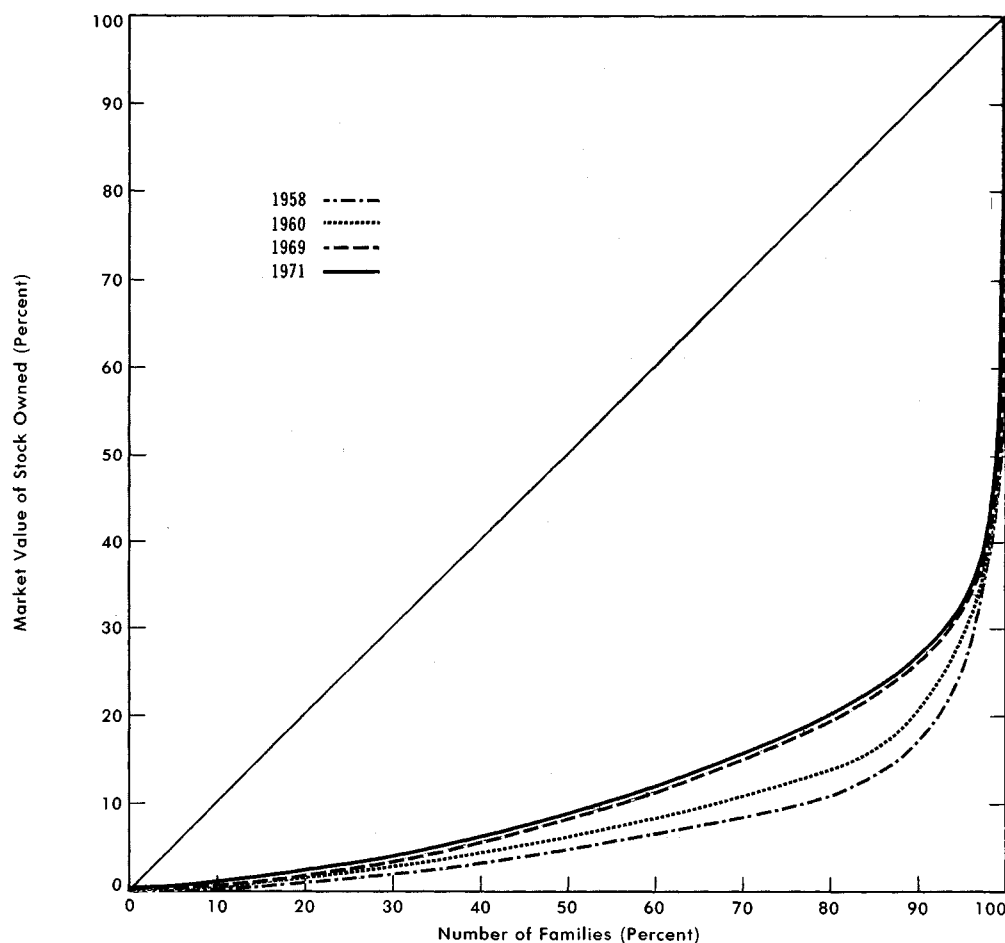
1958, 49 percent in 1960, 43 percent in 1969, and 42 percent in 1971. This trend implies a much smaller decline in the concentration of stockownership than the estate tax estimates mentioned earlier.

New data on distribution of stockownership

More satisfactory estimates of the recent trends in the distribution of stockownership by income class can be obtained by extrapolating the BEA estimates of the distribution of dividend income by family income class. These estimates can be extrapolated from the one year for which they are available to other years on the basis of the IRS data on dividend income by AGI class. The resulting time series can then be converted to a series on the distribution of market value on the basis of

CHART 6

**Trends in the Distribution of Stockownership
Lorenz Curves, 1958-71**



U.S. Department of Commerce, Bureau of Economic Analysis

74-11-6

40. In 1966, dividend income on form 1040A had to be reported separately for the first time and, hence, could be included in the SOI 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) was quite close to that in 1965.

appropriate price-dividend ratios derived from the two special samples of individual tax returns for 1960 and 1971 discussed in the appendix to part 5.

The BEA estimates used for this purpose consist of the distribution of families and income by family income class for 1958, 1960, 1964, 1970, and 1971 and the distribution of dividend income by family income class for 1964.⁴¹ The SOI data used are those on the distribution by AGI class of the number of income tax returns, AGI, and dividends for 1958-71. 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 part 4 for details). The distribution of dividend income by BEA family income class, which was obtained as an intermediate step, shows a smaller shift in Lorenz curves from 1968 to 1971 and in the concentration of dividend income among the top income recipients than the income tax data described previously.⁴²

41. The 1964, 1970, and 1971 figures on the income distribution of family income were obtained from Radner and Hinrichs, "Size Distribution," the 1958 and 1960 figures were derived from the SURVEY OF CURRENT BUSINESS, April 1964, and the 1964 figures on the distribution of dividends were obtained from *Size Distribution of Family Personal Income: Methodology and Estimates for 1964*, BEA Staff Paper No. 21, June 1973. The 1964 estimates are the most reliable; the 1958 and 1960 estimates used a somewhat less satisfactory methodology than those for 1964, 1970, and 1971, and figures for the last 2 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 somewhat the comparability of the measures of total, but not dividend, income presented in this article, since the 1964 procedures for dividend income have been applied to the other years.

42. The BEA family income estimates differ from AGI reported on tax returns (1) by using a family (or unrelated individual) instead of the tax return as the basic economic unit, (2) by covering money income that does not have to be reported or is underreported on tax returns, and (3) by including nonmoney income and (4) by excluding all capital gains and personal contributions for social security.

The results of this analysis show a continued downward movement in the share of dividends received and stock held by upper income groups for the period 1958-69, with little change for 1969-71 (see tables 3 and 4 and chart 6). The share in stockownership 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 in the concentration of total family income (see 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.⁴³

Thus, for this period, there does not seem to be any support for the belief that small individual investors have been switching out of stocks to a greater extent than large individual investors. On the other hand, it is true that the substantial rate of decline in the concentration of stockownership among upper income groups, which characterized the period preceding 1958, seems to have slowed. To some extent, the slowing in the historical trend toward a more equal distribution in the direct ownership of stock among different income groups might be considered to reflect the rise in indirect ownership by the lower and middle income groups as a result of their growing beneficial ownership of stock through financial institutions that 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 obligations, the corporations are more likely than the employee beneficiaries to gain (or lose) by the composition of the funds' portfolios. 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 that naturally arises is, How do these trends in the income distribution of stockownership compare with trends in the income distribution itself? Though the estimates 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 estimates show very little change in the concentration of total income by income class in the entire period after World War II. There is some evidence of a decline in the share of total incomes received by the top income brackets (the highest five or so percentiles).⁴⁴ However, the decline in concentration of income among the top five percentiles after the war was rather small, and the Census Bureau's Current Population surveys suggest that the share of the top percentile in total money income may have been rising since 1967.⁴⁵

It would appear, therefore, that given the margin of error in these estimates, the most impressive finding is the relative constancy of income shares by different income groups. This contrasts to the substantial movement toward a more egalitarian distribution of income from the 1920's to the postwar period—a movement that would be even more pronounced on an after-tax basis.⁴⁶ Thus, while the distribution of both total and dividend income became much less concentrated from the 1920's to the end of World War II, only dividend income continued to show a significant trend toward less concentration in the

44. E. C. Budd, "Postwar Changes in the Distribution of Income in the U.S.," *American Economic Review*, May 1970, and Radner and Hinrichs, "Size Distribution."

45. The more comprehensive BEA series are not available for the years between 1964 and 1970.

46. Kuznets, *Shares*. See also *U.S. Income and Output*, U.S. Department of Commerce, 1958, which presents estimates by S. F. Goldsmith for 1929 and 1956.

43. Radner and Hinrichs, "Size Distribution."

following years, and even that trend seemed to have been muted considerably in recent years.

Another question that can be raised is, How do the trends in the income distribution of stockownership compare with those in total wealth or net worth (that is, the market value of assets less liabilities)? While the data available for answering this question 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.⁴⁷

The finding that a clear trend toward a more egalitarian distribution of individual income and stockownership 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 (1) the increased use by wealthy investors of other forms of

investment (such as municipal bonds and real estate holdings) to minimize taxes, in view of the marked rise in tax rates from the prewar period, (2) the publicity given to the high stockmarket returns realized over the postwar period until recent years, and (3) the extensive efforts made by the Wall Street community to attract small investors into the market.

Finally, the reduction in concentration of stockownership among upper income groups that 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.⁴⁸ Both developments would appear to facilitate managerial control of U.S. corporations, at least until institutions play a more active role in corporate affairs.

persons, including (for this article) 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 (see table 5). As a group, therefore, employed persons accounted for a smaller percentage of stock held than 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.

In 1971, retired persons filed only 16.5 percent of the forms, but owned 19.3 percent of individual stockholdings. Like the retired, the other two broadly defined employment status groups, not gainfully employed and unknown, owned larger percentages of stock than the percentages of forms filed. The not gainfully employed undoubtedly included some unemployed, some housewives, some wealthy individuals who had no need to work, and some minors who filed 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 had any employment status, but data to be presented later suggest that most of these forms were filed by 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

Part 5: Distribution and Performance of Stockholdings by Types of Investors and by Types 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 1040 collected for this study can be used to gain insight into the distribution and performance of stockholdings by types of investors and by types of stock.⁴⁹

47. Smith and Franklin, "Concentration"; 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, 1969; and Lampman, *Share*.

48. 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.

49. The appendix to part 5 describes the 1971 special sample in detail.

Employment status

The 1971 special sample of individual income tax forms reveals that employed

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

Employment status	Percentage of forms, 1971	Percentage of market value			Change 1960-71
		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		.4
Unknown.....	18.7	25.2	25.1		.1
Total.....	100.0	100.0	100.0		.0

NOTE.—Employment categories were defined by the Bureau of the Census. Self-employed persons are included in the employed category.

Sources: 1971 special sample and Crockett and Friend, "Characteristics."

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

AGI class	NYSE by market value of outstanding shares (millions of dollars)				AMEX	OTC	Unidentified stocks		Agency, custodial, and street name	Mutual funds	Trusts and estates	Total
	500 or more	100 to 499	Under 100	Total			Banks and insurance companies	Miscellaneous				
Under \$5,000.....	30.5	7.6	3.9	42.0	0.8	2.0	7.9	24.1	2.5	15.2	5.4	100.0
\$5,000-\$9,999.....	24.9	4.6	3.7	33.2	3.1	6.5	1.3	12.8	4.5	23.5	15.2	100.0
\$10,000-\$14,999.....	32.0	9.5	2.0	43.5	1.4	3.3	4.6	16.0	7.4	9.6	14.2	100.0
\$15,000-\$24,999.....	29.9	9.1	2.2	41.2	2.0	5.4	4.7	18.9	4.9	11.2	11.7	100.0
\$25,000-\$49,999.....	28.3	10.9	2.7	41.9	2.2	6.1	4.1	17.2	6.1	5.0	17.5	100.0
\$50,000-\$99,999.....	24.0	8.0	2.5	34.5	2.6	4.9	6.2	23.5	7.2	3.0	17.9	100.0
\$100,000-\$199,999.....	24.1	6.4	1.6	32.1	3.2	8.0	4.0	26.8	7.5	1.7	16.6	100.0
\$200,000-\$499,999.....	26.0	6.2	2.1	34.3	2.3	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	3.1	7.4	2.8	20.3	12.9	0.0	27.7	100.0

Source: See text.

smaller holdings of other employed persons, stem not from any greater predilection of managers, as 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 classes⁵⁰ reveals no such tendency. Thus, for any class of employed persons, the percentage of market value held by filers in any adjusted gross income (AGI) class of less than \$50,000 is smaller than the percentage of forms filed, and greater for those in any AGI class of \$50,000 or over.⁵¹

For each of the three remaining categories—retired, not gainfully employed, and unknown—filers in any AGI class in excess of \$25,000 accounted for more stock than their numbers would have implied, while the reverse occurred 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 exceeded 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 employed. This fact suggests that most of the filers in the unknown category were not employed.

Compared with the 1960 results, the share of the market value of individual holdings attributable to the employed filers fell by 6.2 percentage points.⁵² Over the same period, the retired increased their 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 stockownership 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.⁵³

Types of stock 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 was 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 stock, the descriptions are self-explanatory. The unidentified banks and insurance companies consist of the companies whose names are clearly those of a bank or an insurance company, but for which additional financial data are unavailable. For the most part, the stock in the unidentified miscellaneous category represents closely held over-the-counter (OTC) stock with limited markets or OTC stock with a small number of shares outstanding.

The proportion of stock invested in New York Stock Exchange (NYSE) issues and held in an individual's own name tends to decrease as income increases. The rank order correlation is -0.67 , which is significant at the 10 percent level. Within the NYSE, this negative relationship is apparent for issues larger than \$500 million and smaller than \$100 million. For the middle-sized issues, \$100 to \$500 million, the relationship is positive but not significant (rank order correlation of 0.23). OTC, agency and street name, and estates and trusts are strongly positively related to AGI, with rank order correlations of 0.73, 0.60, and 0.88, respectively. (Street name stock is stock held as nominee by a brokerage house for the interest of the beneficial owner.) If not a statistical aberration, the large 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 stock, the relationships between the

50. This analysis is based upon the income classes given in table 6.

51. As the previous part pointed out, there are distinct limitations of the use of AGI as a measure of economic earnings. Nonetheless, for lack of a better measure, this part uses AGI as a surrogate for such earnings.

52. Crockett and Friend, "Characteristics."

53. That the changes in the not gainfully employed an unknown categories—two categories that were presumably defined identically in 1960 and 1971—were small suggests that the identified breakdowns in both years were consistently defined.

percentage of stock held and AGI class are very weak.⁵⁴

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 to be a much more important part of the portfolios of lower income filers than of upper income filers.

For filers in AGI classes of less than \$25,000, the percentages in utilities ranged from 4.7 to 6.5; for incomes of \$200,000 and above, the percentages were less than 1.0. While the 1960 study found a similar pattern by AGI, it may 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 percentages invested in the telephone and communication industry ranged from 5.0 to 10.5; for incomes of \$200,000 and above, the percentages ranged from 0.6 to 3.6. In 1960, 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 1971.

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, it can be shown⁵⁵ that an in-

vestor, whether he be risk-averse or not, can evaluate a portfolio in terms of the prospective expected return and standard deviation of the return, where return includes all dividends and capital gains or losses.⁵⁶ 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.⁵⁷

The 1971 special sample does not provide an ideal basis for estimating the extent to which individuals have diversified their portfolios of common stock because the sample contains information only on dividend-paying items. Yet an analysis of just these items does give a great deal of insight into the amount of diversification in individual portfolios of common stock.⁵⁸ 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 return constant. Since the data needed to construct such an index are unavailable, other less satisfactory measures must be used. One measure of diversification that 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 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 of \$500,000 and over (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 Internal Revenue Service (IRS) collected information on the number of payer corporations per return by AGI class.⁵⁹ 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 port-

56. 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 stock is typically evaluated in isolation from other assets because of data limitations. 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.

57. P. A. Samuelson, "General Proof That Diversification Pays," *Journal of Financial and Quantitative Analysis*, March 1967.

58. The Federal Reserve Board's Survey of Financial Characteristics of Consumers in 1962 would seem to be an ideal survey to analyze diversification. The Rodney L. White Center is currently analyzing this file to provide confirmation of the results derived from the 1971 special sample.

59. SOI, 1963: *Individual Income Tax Returns*.

Table 7.—Measures of Risk, Diversification, and Realized Returns by AGI Class, 1971

AGI class	No. of items per portfolio	Diversification measure	Realized returns (percent)		
			NYSE only		All items
			1/70-12/70	7/71-6/72	7/71-6/72
Under \$5,000.....	3.2	0.59	2	5	10
\$5,000-\$9,999.....	3.8	.55	3	-1	8
\$10,000-\$14,999.....	4.0	.47	4	5	9
\$15,000-\$24,999.....	4.3	.48	4	6	11
\$25,000-\$49,999.....	6.7	.47	0	5	11
\$50,000-\$99,999.....	9.2	.52	0	6	12
\$100,000-\$199,999.....	13.2	.56	-2	7	12
\$200,000-\$499,999.....	16.8	.55	-3	9	12
\$500,000 and over.....	18.7	.64	2	3	10
Total.....	4.5	.52	1	5	11

NOTE.—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 blowup factor given in the appendix to part 5.

Source: See text.

54. The large percentage for unidentified banks and insurance companies for the lowest AGI class may result from the misreporting, as dividends, of interest from privately owned banks and thrift institutions and "dividends" from participating policies of stock companies. As explained in the appendix to part 5, there was substantial evidence of such misreported dividends from mutual companies in the 1971 special sample of individual tax forms.

55. H. Markowitz, *Portfolio Selection: Efficient Diversification of Investments*, John Wiley and Sons, 1958.

folio 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 of the number of nondividend-paying items, the portfolios in 1971 or 1963 would not be considered highly diversified, even at the higher levels of AGI.⁶⁰ At the lower levels of AGI, diversification is extremely limited.

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 one or two securities. A better measure than number of items held of the extent to which the value of a portfolio is concentrated in a few issues can be constructed by summing the squares of the proportions invested in each security. Thus, a portfolio of two 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 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 two securities. Thus, at least on average, individuals tend to concentrate their holdings in a limited number of issues, probably taking on considerably more risk than necessary.

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 diversification 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 eight. The same average could be obtained from one well-diversified portfolio with 10 percent invested in each security and a virtually undiversified portfolio with 90 percent in one security and the remainder spread equally over the other nine securities.

For an examination of the dispersion in the diversification measures, the data underlying table 7 were further analyzed. This analysis shows that there is much variability in the extent of diversification of individual portfolios. It is estimated that 13 percent of 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.⁶¹

One reason why a person might hold an undiversified portfolio is to be able to realize the potential returns from 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, has 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 one or two 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; therefore, the standard deviation of returns on a

portfolio is not the appropriate measure of risk in explaining their behavior. The explanation for such 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 stock with different degrees of nondiversifiable risk. A preliminary analysis using the so-called beta coefficient—a standard measure of nondiversifiable risk—shows that filers with larger AGI tended to hold stock with greater nondiversifiable risk.⁶² This analysis also shows that managers tended to hold the riskiest, and retired and not gainfully employed the least risky, portfolios.

The final characteristic to be measured in this part is the rate of return, including dividends and capital gains, that individuals realized on their stock portfolios. Returns have been calculated for NYSE issues for 1970 and for July 1971 through June 1972. Returns were also calculated for all items in the latter period.⁶³ 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, the returns from July 1971 through June 1972 can be interpreted as those that 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 return 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 stock held by individuals is not great, so that these returns

60. 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, shows that equally weighted portfolios of 128 securities are considerably better diversified than equally weighted portfolios of only 8 or 16 securities.

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

62. Marshall E. Blume, "On the Assessment of Risk," *Journal of Finance*, April 1971, contains a summary of the rationale underlying this measure and the procedures for calculating it.

63. Any item for which the return was unknown was assigned a default value, as explained in the appendix to part 5.

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. From the files of the Rodney L. White Center, it was determined that the value-weighted return on all dividend-paying stock was 0.7 percent; thus, individuals fared as well as the market.⁶⁴ On average, filers with AGI less than \$25,000 realized somewhat greater returns than those with higher AGI.

From July 1971 through June 1972, individuals on average realized 5 per-

cent on their NYSE stock 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, it was found that the value-weighted return on all NYSE dividend-paying stock was 8.8 percent.⁶⁵ Individuals thus fared somewhat worse than the market, at least on their NYSE stock.⁶⁶ In contrast to the 1970 results, individuals with higher AGI averaged marginally higher returns than those with lower AGI.

Items 4 and 6-8: Market value data were derived from SEC *Statistical Bulletin*, May 30, 1973, p. 520. Yearend values were adjusted to midyear on the basis of the NYSE index of stock prices; they were then multiplied by the ratio of dividends to market value utilized for item 3. For item 8, this estimate of dividend receipts was 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. The estimate was 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 government 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 trusts and estates were obtained from *Trust Assets of Insured Commercial Banks-1971*, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency. Dividends were derived by multiplying market value by the ratio utilized for item 3. This dividend estimate was then expanded to cover dividend receipts of all estates and trusts by multiplying by the ratio of the 1970

Appendix to Part 3: Estimation of Aggregate Value and Distribution of Dividends and Stockholdings

The dividend gap (table 1)

Items 1, 2, and 11: These items were obtained from *SOI, Preliminary 1971: Corporation Income Tax Returns*, pp. 4 and 18. Item 2 was adjusted to exclude dividends paid by Federal Reserve banks, which did not enter into item 1. Item 11 was slightly reduced on the basis of later information.

Item 3: Market value figure was derived from R. B. Scholl, "The International Investment Position of

the United States: Developments in 1972," *SURVEY OF CURRENT BUSINESS*, August 1973, p. 18. Dividends on the \$7 billion of foreign portfolio stock held by domestic ownership groups were estimated by multiplying market value by the ratio of aggregate dividends to aggregate market value for NYSE, American Stock Exchange (AMEX), and large OTC issues combined as of mid-1971. The resulting figure was slightly increased to allow for cash distributions other than dividends, and \$90 million was allocated to holding and investment companies on the basis of SOI information on the foreign dividends received by such companies. The remainder was assigned to individuals, fiduciaries, and tax-exempt institutions.

64. 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.

65. In 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 stock, and NYSE-preferred stock returned only 1.5 percent in this period. Second, in determining market weights, the Center uses as the number of shares the number authorized to be issued and *issued*, less Treasury shares; the NYSE bases its 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 stock. Although nondividend-paying stock 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.

66. That individuals performed less well in this period means that nonindividuals, 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, University of Pennsylvania Press, August 1973.)

Table A.—Estimation of Dividend Income of Fiduciaries Distributed to Individuals, to Charitable Organizations, and Not Distributed, 1971

	Percentage allocation of gross income less business deductions and distributions to other fiduciaries		Estimated allocations of dividend receipts (billions of dollars)		
	1965		1971		
	Taxable fiduciaries	Nontaxable fiduciaries	Taxable fiduciaries	Nontaxable fiduciaries	All fiduciaries
Distributions to individuals.....	29.2	73.3	0.53	1.99	2.52
Distributions to charitable organizations.....	.8	12.4	.01	.34	.35
Retained income.....	52.2	3.8	.95	.10	1.05
Administrative costs.....	4.2	10.4	.08	.28	.36
Taxes paid.....	13.6		.25		.25
Total uses.....	100.0	100.0	1.82	2.71	4.53

Source: See text.

SOI figure for dividend receipts for all estates and trusts (*SOI, 1970: Fiduciary Income Tax Returns*, p. 14) to receipts of bank-administered trusts and estates estimated, in the manner described previously, 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 SOI data, which segregate bank-administered from other trusts and estates (*SOI, 1962: Fiduciary, Gift, and Estate Tax Returns*, pp. 16, 22, and 26).)

The proportion of fiduciaries' dividend receipts not distributed to beneficiaries was estimated from the 1965 breakdown of the uses of fiduciary income from all sources (*SOI, 1965: Fiduciary, Gift, and Estate Tax Returns*, p. 25). In table A, 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.) Distributions to charitable organizations are included as part of item 8 in table 1. Distributions to individuals, augmented by a proportional 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: These items were derived from *SOI, 1971: Individual Income Tax Returns*, p. 62. Item 12

was adjusted upward by \$50 million for estimated underreporting 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 was 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 were obtained from *Mutual Fund Fact Book, 1971*, p. 54. This item was 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 (*SOI, 1971: Individual Income Tax Returns*, p. 62), but the \$662 million figure excludes capital gains distributions to ownership groups other than individuals.

Dividends on unlisted domestic stock

Aggregate dividends on unlisted domestic stock other than that of mutual funds and banks and insurance companies were derived from total cash distributions of domestic corporations, as shown in table B.

Market value of all domestic stock

The 1960 data, which were obtained from Crockett and Friend, "Character-

istics," p. 163, were adjusted to remove foreign stock.

NYSE listed stock was calculated by summing data for individual firms. Foreign stock listed on NYSE (\$12.4 billion) was obtained from the *NYSE 1972 Fact Book*. Total stock and foreign stock listed on AMEX (\$49 billion and \$12.3 billion, respectively) were obtained from the exchange. Domestic stock listed on regional exchanges was estimated at \$5 billion. Stock of mutual funds was obtained by increasing the figure given in the *Mutual Fund Fact Book, 1972*, by 10 percent to allow for nonmembers of the ICI. Unlisted stock of banks and insurance companies was 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 was based on the NYSE figure of \$366 billion for unlisted traded stock other than that of investment companies in early 1970. This figure was adjusted by subtracting the estimate for unlisted stock of banks and insurance companies and adding an estimate for stock of closely held companies derived by the following method. Based on 1965 estate tax data, individuals' holdings of such stock were taken to be 15.5 percent of their holdings of traded stock, as determined from the 1971 special sample. This figure, \$75 billion, was increased by 25 percent to allow for holdings of other ownership groups, giving a total of \$94 billion. However, much 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 nonfinancial firms traded OTC, the value of such corporations was estimated at about \$61 billion, and this amount was subtracted from the \$94 billion total.

Individuals' direct holdings of listed stock were based on the market value of identified NYSE and AMEX holdings in the 1971 special sample, with

Table B.—Estimation of Dividends on Unlisted Nonfinancial Stock, 1971

(Millions of dollars)

1. Distributions (other than own stock) of domestic corporations.....	32,580
2. Less: Distributions that are nontaxable or taxable as capital gains.....	1,440
3. Dividends taxable as partnership income.....	1,290
4. Cash dividends on domestic NYSE issues.....	21,250
5. 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. Dividends on stock of unlisted banks and insurance companies.....	880
9. Equals: Dividends on unlisted domestic nonfinancial stock (excluding small corporations taxable as partnerships).....	5,180

Sources: For items 1, 2, and 3, see table 1, items 1, 11, 12, and 13. Item 4: Total cash dividends equal \$21,616 million, *NYSE 1973 Fact Book*, 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 1972 Fact Book*, p. 34). Item 5: This was 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 nonmembers of ICI. Item 8: SEC estimates of traded unlisted stock of banks and insurance companies were adjusted to midyear, 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 (0.0214).

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 unlisted stock of banks and insurance companies were 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 were determined from the residual remaining after dividends already accounted for by the assigned amounts of listed stock, mutual funds, and unlisted stock of banks and insurance companies had 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 was the sample-weighted ratio for medium-sized nonfinancial firms traded OTC (market value, \$15 million to \$100 million). The figure for medium-sized, rather than total, OTC firms was chosen because 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 the 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 was 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 nonprofit institutions or foreigners was assumed to be unlisted. Again, this is roughly consistent with the dividends assigned previously to nonprofit 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

nonprofit institutions is reasonably 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 of unlisted stock were determined as residuals. As a rough check of reasonableness, the ratios of dividends to market value implicit in these estimates may be examined. If, as assumed earlier, unlisted stock accounts for about 27 percent of the \$5.504 billion

of domestic dividends received, the implicit ratios are 0.029 for listed and 0.012 for unlisted stock, equal to the sample-weighted ratio in the case of listed stock and somewhat lower than the sample-weighted ratio (0.016) that characterizes traded unlisted stock of firms other than mutual funds and banks and insurance companies. The latter finding results from the previous decision to apply a ratio somewhat higher than 0.016 in converting individuals' dividends on direct holdings of such stock to a market value figure.

Appendix to Part 4: Estimation of Distribution of Dividends and Stockholdings of Individuals by Family Income for Selected Years

The basic source of recent information on the distribution of dividend income by family income class is BEA Staff Paper No. 21, which presents such estimates for 1964. To derive comparable distributions for other years, average dividend receipts per family by income class were determined from the 1964 BEA estimates 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 estimates on number of families by income class for those years to yield aggregate dividends by family income class.

The first step in integrating BEA estimates 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 (1) 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 (2) 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 aver-

age adjustment required to convert gross income to AGI 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; therefore, a return with relatively low AGI may relate to a member of a 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 \$5,999 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 nonfilers. On the other hand, for families with incomes of \$15,000-\$49,999, and especially \$15,000-\$19,999, the number

of consumer units somewhat exceeds the number of returns in the corresponding AGI range. For family incomes of \$6,000–\$14,999, 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. This was done by adjusting the 1964 value based on BEA estimates by the sometimes considerable change, from 1964 to the desired year, in average dividends 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 after 1964 may be slightly understated relative to the earlier years. Finally, the average dividend thus obtained was multiplied by the number of consumer units in the appropriate income class in the given year, as determined in Radner and Hinrichs, "Size Distribution." The distribution of consumer units by family income class is not directly available for 1965–69; thus, 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. The summation over income classes of dividends derived as mentioned was compared with the total dividend receipts of individuals obtained by augmenting SOI-reported dividends by estimates of (1) illegal underreporting and (2) dividends received by nonfilers and by filers who fail to report dividends totaling less than the legal dividend exclusion. The two alternative estimates are very close for 1960 and within 4 percent for 1971, with the approach based on SOI aggregates yielding the higher figure.

The third step was to use the BEA

distribution of dividend receipts to construct distributions of market values of holdings. Since the ratio of market value to dividends tends to increase with income, as demonstrated for 1960 by Crockett and Friend, "Characteristics," and for 1971 by the results presented in part 5 of this article, 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 two percentiles from the distribution of all filers corresponding, respectively, to the lower bound and upper bound of an AGI class. Such a regression was fitted using the 1960 data (Crockett and Friend, "Characteristics") and the results from the 1971 special sample given in table G of this appendix to part 5.

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 was necessary to interpolate 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 is no significant problem of interpolation, since the BEA dividend distribution shows information for 22 income classes and since both linear and curvilinear interpolations give almost identical results. However, this is not true for the other years for which data, on dividend income and market value, are available only for seven 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 seven broader income groups was identical to that in 1964. While the results of curvilinear and linear interpolations applied to the narrower income classes are fairly close, the curvilinear interpolation seemed preferable and was used. Curvilinear interpolation of data for the broader income groups gives similar results.

Appendix to Part 5: The 1960 and 1971 Samples 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.⁶⁷ To preserve confidentiality, the IRS was the only group that had access to the actual forms.

The appendix is organized in three stages, according to the three stages in

which the sample was selected and processed. The first stage describes the sampling design and analyzes the extent and magnitude of potential biases in the special sample relative to the population of forms 1040 filed in 1971. The second stage presents the procedures that the Census Bureau followed in preparing a tape for subsequent processing at BEA and indicates the steps taken to preserve complete confidentiality of the original returns. The third stage discusses the adjustments made to the sample and then derives estimates of the dividends received and

67. Crockett and Friend, "Characteristics," contains a similar description for the 1960 sample.

Table C.—The SOI Sample and the 1971 Special Sample by Sample Strata

Stratum	Description	Number of forms					Final blowup factors
		Population	SOI sample	Min. number expected in 1971 special sample	Actual number in 1971 special sample	Actual number in 1971 special sample w. sch. B, part 1	
	Total	74,841,993	269,421	16,912	17,056	6,444	-----
	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	20,538
12	\$10,000–\$14,999.....	12,935,622	19,475	1,948	1,896	180	6,823
13	\$15,000–\$19,999.....	5,795,885	17,164	1,716	1,672	319	3,467
14	\$20,000–\$49,999.....	3,660,142	21,724	2,172	2,114	823	1,731
15	\$50,000–\$99,999.....	273,848	21,952	2,195	2,139	1,654	128
16	\$100,000–\$199,999.....	52,042	18,030	451	582	494	89
17	\$200,000 and over.....	13,731	13,731	343	395	352	35
	Business, total.....	9,082,725	135,607	5,929	6,136	2,470	-----
	Absolute size of largest income item— and business receipts—						
21	Under \$10,000..... Under \$20,000.....	3,996,188	14,117	706	707	66	5,652
22	\$10,000–\$14,999..... Under \$50,000.....	2,364,823	16,636	832	833	141	2,838
	Under \$10,000..... \$20,000–\$49,999.....						
23	\$15,000–\$19,999..... Under \$100,000.....	1,217,378	18,345	917	919	222	1,324
	Under \$15,000..... \$50,000–\$99,999.....						
24	\$20,000–\$29,999..... Under \$250,000.....	880,725	17,480	874	876	316	1,005
	Under \$20,000..... \$100,000–\$249,999.....						
25	\$30,000–\$49,999..... Under \$500,000.....	408,630	18,035	902	903	504	447
	Under \$30,000..... \$250,000–\$499,999.....						
26	\$50,000–\$99,999..... Under \$750,000.....	168,565	16,919	846	847	550	199
	Under \$50,000..... \$500,000–\$749,999.....						
27	\$100,000–\$199,999..... Under \$1,000,000.....	34,608	17,267	432	502	343	69
	Under \$100,000..... \$750,000–\$999,999.....						
28	\$200,000 and over..... Any amount.....	16,808	16,808	420	549	328	31
	Under \$200,000..... \$1,000,000 and over.....						
30	Tax preference: Size of minimum tax \$17,000 and over.....	209	209	5	27	23	8

Sources: Population and SOI sample figures were obtained from *SOI, 1971: Individual Income Tax Returns*, p. 316. Actual number in 1971 special sample figures were calculated by dividing blowup factors into population. Final blowup factors were supplied by IRS.

the value of stock owned by individual investors by AGI classes.

The first stage

In the first stage, IRS designated a subsample of the 1971 SOI sample for further processing. The SOI sample itself is a sample of forms 1040 stratified by: (1) the presence or absence of business receipts and (2) the absolute size of the largest income item and, if a business return, (3) the value of receipts. In addition, one small stratum 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 nonbusiness groups, the sampling rates increased with the absolute size of the largest income item or, where appropriate, receipts. Table C presents the criteria for the strata, the number of forms for each stratum in the population, and the number drawn in the SOI sample.

To be sure that, at the lower income levels, there would be sufficient numbers of forms with dividends for later statistical analysis, the 1971 special sample was selected in such a way as to reduce the magnitude of the oversampling of upper income forms in the SOI sample. To this end, the IRS selected a subsample of the forms in each of the SOI strata according to a procedure that should have yielded a predetermined minimum number of randomly selected forms from each stratum. This predetermined minimum number varied from stratum to stratum.⁶⁸

A comparison of these minimum numbers with the actual numbers subsampled from the SOI sample shows that the actual numbers by sample strata are in excess of the minimum

numbers, as they should be, except for nonbusiness forms with AGI under \$100,000 (table C). IRS personnel could provide no plausible explanation of why the numbers subsampled for these nonbusiness forms were less than the predetermined minimum under the sampling design.⁶⁹ If it can be assumed that there was nothing unique about the forms that 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 blowup factors for subsequently estimating the market value and other characteristics of stock held by individuals (see table C).

As the forms were selected from the SOI sample, IRS personnel photocopied

68. Specifically, the procedure would have been expected for each of the strata 11–15 to yield a minimum of 1 out of 10 of the SOI forms, for strata 21–26 a minimum of 1 out of 20, and for the remaining strata a minimum of 1 out of 40.

69. Due to a clerical error at the IRS, an undetermined but, according to the IRS, small number of forms with attachments to schedule B's was not included. While the effect should be minor in any case, the subsequent adjustments should minimize the potential impact of this error.

all those with completed schedule B, part 1, for later processing by the Census Bureau. This photocopying was done in such a way as to exclude the names, addresses, and social security numbers of the filers. Table C shows the number of forms with schedule B's, part 1, in the 1971 special sample.

Schedule B, part 1, contains a list of the sources and corresponding amounts of any dividend income or capital gain distributions. 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 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 photocopied forms 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 1971 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 below the allowable exclusion. If, as is probably the case, some schedule B's were completed even though not required and some not completed even though required, this clear interpretation becomes blurred. Although implicit in this discussion, it should be pointed out explicitly that the photocopied forms do not include all dividends received by individuals; therefore, in estimating the market value of stock held by individuals, a series of adjustments for these omitted dividends were necessary.

Before describing the work done by the Bureau of the Census, the extent and magnitude of any biases in this subsample of the SOI 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 SOI sample (see table D). Unfortunately, figures tabulated from the SOI 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 SOI sample that can be used as rough checks.

Consider first the number of forms. The SOI sample for individual income tax forms in 1971 provides an estimate of the number of forms that included 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 im-

plicit in the 1971 special sample that was subsequently processed by the Bureau of the Census. The SOI 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 SOI estimates of the number of forms reporting dividends in box 13a and the number of forms with dividends in AGI. Table D 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 SOI estimates. For forms with AGI in excess of \$100,000 or above, the estimates from the 1971 special sample are marginally below the expected range.

Next consider dividends per form. Again tabulations based upon the SOI 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 SOI 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 gains and nontaxable 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 SOI estimate. The second effect should

Table D.—Comparison of Blown-Up Number of Forms and Dividends Per Form from SOI Sample and the 1971 Special Sample by AGI

Size of AGI	Number of forms			Dividends per form	
	SOI sample		1971 special sample	SOI sample	1971 special sample
	With dividends and other dist.	With dividends in AGI		With dividends in AGI	
Under \$5,000.....	2,340,424	1,535,734	1,595,845	717	730
\$5,000-\$9,999.....	2,623,800	1,529,975	1,649,438	967	1,267
\$10,000-\$14,999.....	2,838,590	1,428,073	1,629,254	1,013	1,022
\$15,000-\$24,999.....	3,118,856	1,688,032	2,118,620	1,634	1,292
\$25,000-\$49,999.....	1,333,920	967,150	1,054,527	3,426	2,848
\$50,000-\$99,999.....	334,327	290,744	306,189	8,691	7,881
\$100,000-\$199,999.....	66,003	62,139	59,762	26,870	24,888
\$200,000-\$499,999.....	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		

Sources: SOI, 1971: *Individual Income Tax Returns* and the 1971 special sample.

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 D discloses that the dividends per form as estimated from the 1971 special sample tend to be marginally less than those estimated from the SOI sample for AGI between \$15,000 and \$199,999. Most of the understatement in these middle-income categories can be traced to the nonbusiness forms, though there is some evidence of a slight understatement in the business forms. IRS personnel were unable to provide any adequate explanation of these phenomena. For most of the analyses in this article, the adjustments in stage 3 will provide appropriate corrections. The only analysis that might be affected is that of diversification presented in part 5, but external figures presented in part 5 suggest that this bias is not serious.

The second stage

Next, IRS forwarded the photocopies to the Bureau of the Census for coding. As pointed out above, names of filers, addresses, and social security numbers were deleted from these photocopies. The Bureau prepared a file that included socioeconomic and sociodemographic 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 dividend sources and sent it to the authors. Personnel at the Rodney L. White Center copied onto this list an identification number for each stock that was contained in the ISL tapes. The ISL tapes are a standard source of security prices and cover all NYSE and AMEX stock, roughly 400 mutual funds, and more than 3,000 OTC issues. In addition, a small number of issues not listed on the ISL tapes, principally small OTC companies, were assigned unique identification numbers.

For each of these identified issues, the Center's data files and standard financial publications were used to develop stock characteristics. If the value of an important characteristic

Table E.—Default Values for Identified Securities by Types

Type of securities	Size of issue ¹ (millions of dollars)	Ratio of divid. & dist. to price (6/71)	Ratio of total stock to stock with divid. or dist. ² (6/71)	Return from 7/71 to 6/72 (percent)
NYSE-common.....	500 and over..... 100-499..... Under 100.....	3.05 3.14 3.66	1.0172 1.1315 1.3404	10.2 5.4 8.0
NYSE-preferred.....		4.54	1.2076	1.5
AMEX-common.....	100 and over..... 15-99..... Under 15.....	3.24 3.39 3.42	1.1693 1.9936 2.9099	24.6 5.3 6.7
AMEX-preferred.....		6.26	1.2502	11.2
Mutual funds.....		3.03	1.0049	11.1
OTC-financial-common.....	50 and over..... 10-49..... Under 10.....	2.68 2.80 3.03	1.0505 1.2189 2.7138	14.3 16.7 19.0
OTC-financial-preferred.....		2.83	1.0000	13.3
OTC-industrial-common.....	100 and over..... 15-99..... 5-14..... Under 5.....	2.40 3.04 3.33 4.25	1.1418 1.6397 2.8975 6.7595	18.0 12.4 5.9 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.

Source: See text.

for an identified stock was missing, what is technically known as a default value was assigned. These default values, listed in table E, were usually based upon available data for similar kinds of assets.⁷⁰

70. For any category of stock in table E, 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.

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 by using the names of the sources as guides. Table F lists these categories, the percentage of sample dividends falling in each, and

Table F.—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 (percent)
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.....	.25	3.88	1.0116	18.1
Brokerage houses.....	2.24	(1)	(1)	10.4
Insurance companies (stock).....	.69	2.61	1.0000	10.4
Investment clubs.....	.03	3.10	1.0916	10.4
Holding companies.....	.11	2.87	1.0558	19.2
Mutual funds.....	.47	3.03	1.0049	11.1
NYSE (oil companies).....	.08	5.00	1.0000	10.4
NYSE (unidentified).....	.06	3.14	1.0520	9.0
Professional partnerships.....	1.13	3.00	1.0000	10.4
Real estate and mortgage trusts.....	.02	6.76	1.0000	— .1
Trusts and estates.....	18.27	(2)	(2)	9.0
Miscellaneous (preferred).....	.75	4.54	1.2047	40.4
Miscellaneous (unidentified) ³	17.14	2.71	1.6667	16.4
Deleted items:				
Credit unions.....	.00			
Insurance companies (mutual).....	.01			
Other nonstock items.....	.43			

1. The ratio of dividends and other distributions 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 D. 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.

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

3. The ratios were derived from the total holdings of industrial OTC stock with no control for AGI.

Source: See text.

Table G.—Dividends, Other Distributions, and Market Value of Stockholdings of Individual Investors by AGI

Size of AGI	Dividends and other distributions, 1971	Dividends, 1971	Market value, 1971	Dividends to market value (ratio)	
	(millions of dollars)			1971	1960
Under \$5,000.....	1,973	1,827	65,731	.028	0.035
\$5,000–\$9,999.....	2,132	1,932	64,656	.030	.034
\$10,000–\$14,999.....	2,068	1,922	70,554	.027	.034
\$15,000–\$24,999.....	3,160	2,924	112,776	.026	.035
\$25,000–\$49,999.....	3,718	3,515	143,956	.024	.036
\$50,000–\$99,999.....	2,926	2,812	126,084	.022	.033
\$100,000–\$199,999.....	1,861	1,807	85,118	.021	.031
\$200,000–\$499,999.....	1,340	1,303	59,302	.022	.031
\$500,000 and over.....	1,143	1,102	52,606	.021	.031
Total	20,322	19,144	780,783	.025	.034

Source: SOI, 1971: *Individual Income Tax Returns*, 1971 special sample, and Crockett and Friend, "Characteristics."

the default values of selected characteristics used in the subsequent processing. Because of the diversity of these categories, the miscellaneous (unidentified) stock are most likely to be closely held or small publicly traded industrial corporations. Some items, such as interest payments, should not have been reported as dividend income. These items were deleted in some of the calculations presented in the text.

The third stage

The Census Bureau merged the stock characteristic file with the tax form information and forwarded the resulting file to BEA for final processing. 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 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 SOI estimates for all filers for each of the AGI classes given in table G. The specific adjustment was to multiply every dividend and distribution on all forms within a specific income class by the ratio of the SOI aggregate estimate for that class⁷¹ to the 1971 special sample aggregate estimate.⁷² This adjustment accounts for the 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 that may be associated with the level of AGI.

2. From the estimates prepared in part 3, the dividends that 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 noncompliance ratio for each income class would be a multiple of that for persons with AGI of \$50,000 or over. For AGI less than \$10,000, the multiple was 4.0, for AGI of \$10,000–\$14,999, 5.5; for AGI of \$15,000–\$24,999, 4.5; and for AGI of \$25,000–\$49,999, 3.5. These relative ratios of noncompliance were derived from an IRS study in 1959⁷³ by equating the fractile ranges of AGI in 1959 with those in 1971.

3. From the estimates prepared in part 3, it is determined that \$433 million represent dividends received by persons not required to file. These dividends were allocated to the lowest AGI class.

4. From the estimates prepared in part 3, it is determined that \$217 million of dividends were received by filers who had dividend income less than the allowable exclusion and failed to report

72. The 1971 special sample estimate excludes items that should not have been reported on schedule B. A similar adjustment, however, was not made to the SOI 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 the underreporting of capital gain and nontaxable distributions, which is roughly of the same magnitude.

73. Holland, *Dividends*.

them in box 13a of form 1040. This sum was distributed according to the same distribution by AGI as returns that 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 exclusion⁷⁴ and the number of returns with dividends in AGI. About 60 percent of such returns fall in the AGI range \$15,000–\$24,999, with 90 percent under \$25,000.

5. To allow for dividends retained by estates and trusts 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, which is in rough conformity with the external estimate developed in part 3.

6. All but \$7.5 million of dividends reported as received from publicly traded brokerage firms were reclassified as dividends received on stock held in street name accounts.

With these adjustments, the 1971 special sample implies that individuals received \$20.3 billion in dividends and other distributions. Table G shows the breakdown by AGI class. After subtracting the SOI estimates of capital gain and nontaxable distributions,⁷⁵ the dividends received by individuals, including retentions by estates and trusts, are estimated at \$19.1 billion (see table G). The dividends and other distributions, together with the stock characteristics and the default values in tables E and F, imply a market value of individual stockholdings of \$780 billion.

Finally, table G gives the dividend yield rates that were used in analyzing the change in the concentration of holdings over time in part 4. For comparison, table G also presents dividend yield rates for 1960 that were calculated conceptually in the same way as those for 1971.

74. 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.

75. SOI, 1971: *Individual Income Tax Returns*, p. 62.

71. SOI, 1971: *Individual Income Tax Returns*, p. 62, col. 2.