growth was taking place in covered industries than in farming and other non-covered occupations. The 1951 changes brought coverage to 79 percent; the 1955 amendments boosted it to 90 percent. Subsequent additions, representing relatively small groups, gradually moved coverage to 91 percent of paid employment in 1964.

Associated with the expansions in coverage and rate-base increases has been a comparable growth in OASDI tax collections, both in absolute terms and relative to pertinent economy-wide measures. Table 5 shows these increases since 1942, the earliest year for which comparable social security tax collection totals are available.

Predictably, the absolute total of annual collections has increased markedly, from $1.0 billion in 1942 to $17.2 billion in 1965. Similarly, the portion of the worker's covered wage which goes for the tax has also increased, from 1.7 percent in 1942 to 5.2 percent in 1963, nearly tripling over 21 years.

Total collections also have become more significant from the point of view of the entire economy, increasing from 0.8 percent of personal income and 0.6 percent of gross national product in 1942 to 3.2 percent of PI and 2.7 percent of GNP by 1965, roughly a fourfold increase in both cases.

The pattern of social security tax collections as a percent of total Fed-

Table 4

Paid Employment Covered by OASDI[a] as Percent Of Paid Employment and Population

Selected Years, 1937 – 1964

Year	Paid Employment Covered by OASDI[a]		
	Number (Thousands)	As percent of paid employment[b]	As percent of total labor force[b]
1964	65,800	91.1	85.9
1962	63,100	91.2	84.5
1960	61,000	90.9	83.4
1959	60,800	90.9	84.5
1957	59,600	90.7	84.2
1955	59,400	90.4	86.2
1953	51,000	80.7	75.7
1951	49,900	79.2	75.6
1950	40,400	65.9	62.4
1945	38,900	67.9	59.6
1940	30,400	64.5	54.1

a. OASI only prior to 1956.

b. Paid employment and total labor force include persons insured under other Federal programs, such as railroad retirement and Federal civil service retirement, as well as those covered under state and local government retirement plans. Labor force also includes the unemployed.

Source: **Social Security Bulletin Annual Statistical Supplement 1962; Social Security Bulletin, June, 1965; U. S. Department of Labor, Employment and Earnings, May, 1966.**

Table 5

Tax Collections for OASDI[a] as Percent of Wages and Salaries, Personal Income, GNP, and Federal Tax Collections

Selected Calendar Years, 1942 – 1965

Year	Total (millions)	Tax collections for OASDI[a] as percent of —			
		Wages and salaries of covered workers	Personal income	GNP	Total Federal tax collections
1965	$17,205	–	3.2	2.7	15.0
1963	15,640	5.2	3.4	2.5	14.8
1962	13,105	4.6	3.0	2.4	13.2
1960	11,876	4.5	3.0	2.4	12.9
1959	8,943	3.5	2.3	1.8	11.2
1957	7,527	3.3	2.1	1.7	9.4
1955	5,713	2.9	1.8	1.4	8.6
1953	3,945	2.3	1.4	1.1	5.7
1951	3,363	2.3	1.3	1.0	6.7
1949	1,666	1.7	.8	.6	4.1
1945	1,285	1.8	.8	.6	2.9
1942	1,012	1.7	.8	.6	7.8

a. OASI only prior to 1956.

Source: Computations based on Social Security Bulletin Annual Statistical Supplement 1962; Historical Statistics of the United States; 1964 Annual Report of the Commissioner of Internal Revenue.

eral tax collections is somewhat less clearcut, partly as consequence of the changing nature of the Federal tax structure and partly because the prewar base for many taxes was low. In the first year for which data are available, the OASI tax accounted for a surprisingly high percentage of total Federal collections – 7.8 percent – and may have been even higher in the earlier years, though the evidence is not definite because of the way the data are reported. But by 1945, when the country was financing World War II, the relative importance of social security taxes declined to 2.9 percent of the total. From that point they have moved steadily upward, reaching 15 percent in 1965. By fiscal 1963, OASDI taxes had approximately equalled excise receipts, and by fiscal 1964 they had exceeded excise collections.

The large OASDHI tax liability in 1966 – for many individuals a rise from the prior year of more than $100 (or $200 counting the employer's share) – alongside the fact that Federal income and excise tax rates have been decreased, suggests that the relative importance of the OASDHI payroll tax will continue to increase. For example, the Treasury projects OASDHI collections of $17.6 billion, or 15 percent of total tax collections, in fiscal 1966 and $23.3 billion, or 16.7 percent, in fiscal 1967. Treasury estimates place OASDHI taxes at $3.7 billion higher than excise receipts for fiscal 1966; $9.7 billion higher in fiscal 1967.

Growth of Benefits

The major expansions of benefits have derived from the addition of survivor, disability, and medicare benefits, but the level of primary benefits also has risen, as shown in Table 6. The statutory provision for minimum benefits has increased from $10 to $44, and for maximum benefits, from $60 to $168. In terms of constant dollars the minimum has doubled since the beginning. But the maximum in constant dollars, surprisingly, remained at about the same level as in 1939, until the very sharp increase, nearly 25 percent higher than the prior maximum in constant dollars, authorized by the 1965 amendments. At no time have maximum benefits in real terms reached the levels set up by the original act.

Inevitably, total benefits paid have increased, in response not only to the rising levels of pensions payable but to the increased number of beneficiaries as well. As indicated in Table 7, the increase since the early days is extremely large. This is partly because few qualified for retirement in the early period; but even taking the benefits in 1945 for comparison, 1965 payments were more than 50 times the total 20 years earlier. Similarly, as a fraction of personal income or GNP, payments have gone from insignificant fractions in the early years (0.02 percent of both PI and GNP in 1939, 0.16 percent of PI and 0.13 percent of GNP in 1945) to relatively substantial fractions in 1965 — 3.4 percent of personal income and 2.7 percent of GNP.

Future of the System

An unmistakable pattern emerges from this brief historical survey. Benefits constantly increase, in terms of kinds of risks covered as well as actual dollars; and the tax rate and base also

Table 6

Individual Retirement Benefits under OASDI[a]

In Current and Constant Dollars

Selected Years, 1935 – 1965

Year	Minimum individual monthly benefits		Maximum individual monthly benefits	
	Statutory provision	In constant dollars[b]	Statutory provision	In constant dollars[b]
1965	$44	$44	$168	$168
1961	40	42	127	134
1958	33	36	127	139
1954	30	35	108.5	127
1952	25	30	85	101
1950	20	26	80	105
1939	10	23	60	136
1935[c]	10[c]	23[c]	85[c]	195[c]

a. OASI only prior to 1956

b. Adjusted by consumer price index, 1965 = 100, rounded to nearest dollar

c. Benefit schedule enacted but superceded before becoming effective.

Source: **Social Security Bulletin Annual Statistical Supplement 1958,** pp. 96, 99; U. S. Department of Health, Education and Welfare, **Annual Report,** p. 42.

Table 7

OASDI[a] Benefits as Percent of Personal Income and Gross National Product

Selected Years, 1937 – 1964

Year	Benefits paid (millions)	Benefits as percent of personal income	Benefits as percent of GNP
1965	$18,310	3.4	2.7
1964	16,223	3.3	2.6
1963	14,748	3.2	2.5
1962	14,462	3.3	2.6
1960	11,245	2.8	2.2
1959	10,299	2.7	2.1
1957	7,404	2.1	1.7
1955	4,968	1.6	1.2
1953	3,066	1.1	.8
1951	1,885	.7	.6
1949	667	.3	.3
1945	274	.2	.1
1939	14	(b)	(b)
1937	1	(b)	(b)

a. OASI only prior to 1956.
b. Less than .1 percent.
Source: Computations based on 1966 Annual Report of the Board of Trustees of the Federal OASDI Trust Funds; Survey of Current Business, March, 1966.

grow ever larger. Collections for, and payments from, the system become increasingly significant as a part of the total economy.

There are very few indications that the pattern is likely to be reversed. While one might hesitate to predict the exact direction in the future, almost anyone could prophesy generally that attempts will be made to extend health benefits, and that present basic benefits will be declared out of line with current needs. In fact, President Johnson has announced he will seek benefit increases in 1967.

Recently some concern has begun to arise about the effects of the kind of tax which finances the social security system. For instance, Representative Martha W. Griffiths, chairman of the Subcommittee on Fiscal Policy of the Joint Economic Committee, has warned, "We must not expand the [social security] system until we know more about the impact of a payroll tax . . [12]"

While the social security tax stimulated considerable discussion during the late 1930's and early 1940's, it has been considered during the past two decades almost entirely in its function as a revenue raiser. As Mrs. Griffiths suggests, however, this tax – in common with other kinds of taxes – brings in its trail a host of other economic effects, many of which are only dimly perceived, either by those who pay the tax or by those who impose it.

Thorough analysis of a tax requires examination of several major aspects: effects connected with incidence, equity, resource allocation, and economic growth and stability. The following sections will provide tentative answers, which take into account such empirical material as is available, to questions about these major effects.[13]

12. As quoted in *Business Week*, February 6, 1965, p. 76.
13. This study cannot, however, compare these effects with those which would result from more intensive use of other taxes to raise equivalent revenue.

III.

Effects on Resource Allocation And Growth of the Economy

Although it is customary first to consider the incidence of a tax and then its other effects, the procedure will be reversed in this study. Because of the nature of its base, and because it applies to one specific factor of production, labor, the OASDHI tax exhibits a number of unique effects in connection with resource allocation and growth. One might expect these unfamiliar effects to have some bearing on the incidence process, so they will be examined first.[1]

It is not usual to combine a consideration of growth with resource allocation. The line between these two topics, however, is tenuous. After the following brief explanations of the two concepts, the tax effects discussed in this section will not be separated rigorously into those affecting growth and those affecting resource allocation.

Economic Growth

Economic growth is commonly defined as the increase in national product measured in dollars of constant purchasing power; a better concept, perhaps, is a rise in output per capita. Growth applies, not to the expansion phases of business cycles, but to the longer run. Neither concept is fully satisfactory, but the details of refinement cannot be considered in a brief examination. By and large, growth occurs when the economy's potential for production increases. Gains also result, of course, when the utilization of productive capacity is improved.[2]

Labor constitutes by far the largest portion of total input — about 75 percent as customarily defined. It is an element which the OASDHI tax might be expected to influence. Changes in the size, education, age-sex composition, and average hours of the labor force all affect total labor input and thereby affect economic growth.

Changes in output per unit of input (of labor or of capital) also affect growth. In this connection resource allocation becomes important.

Resource Allocation

For any given batch of resources — men, raw materials, machinery, buildings, and so forth — there exists one or more sets of ways in which these re-

1. This section necessarily will make implicit assumptions about incidence. In order to keep the discussion as uncluttered as possible, these assumptions will not be spelled out until the next section.

2. Denison, the author of a recent study concerned with growth in the United States, attributes this country's economic growth in the past to five primary causes: changes in the labor force and working hours, larger capital input, the advance of knowledge, more education, and economies of scale associated with expansion of the national market. He anticipates growth to 1980 will be affected by the first three factors plus institutional restrictions and shifts from agriculture. Edward F. Denison, *The Sources of Economic Growth in the United States*, New York, Committee for Economic Development, 1962.

Table 8

Wages Taxable under OASDI as Percent of Total Wages, Value Added, and Value of Shipments, by Industry

1957 and 1962

Industry	1957 wages taxable under OASDI as percent of —		1962 wages taxable under OASDI as percent of —		
	Total wages	Value added	Total wages	Value added	Value of shipments
Manufacturing	76	41	80	40	18
Food & kindred products	81	32	82	34	10
Tobacco manufacturing	86	23	99	20	7
Textile mill products	89	57	95	52	21
Apparel and other	87	52	93	54	24
Lumber & wood products	87	54	89	53	23
Furniture & fixtures	82	46	86	49	25
Paper & allied products	78	38	80	38	17
Printing, publishing, etc.	70	39	NA	38	24
Chemical and allied	70	28	86	25	14
Petroleum products	65	32	NA	31	6
Rubber & plastic production	77	44	79	41	21
Leather & leather products	89	54	91	54	27
Stone, clay & glass products	80	42	86	41	23
Primary metals	77	43	74	40	16
Fabricated metal products	77	44	80	45	22
Machinery, except electric	74	43	76	44	25
Electric machinery	77	46	76	41	23
Transportation equipment	73	43	71	38	16
Instruments, etc.	73	40	70	36	24
Public utilities					
Trucking & warehouses	79		68		
Transport by air	68		68		
Pipe line transportation	65		54		
Telecommunication	80		65		
Utilities & sanitary services	75		67		
Wholesale & retail trade	79		69		
Finance, insurance & real estate	75		68		
Banking	80		66		
Brokers	56		55		
Insurance carriers	71		69		
Real estate	83		77		
Services	83		87		
Hotel, rooms, etc.	93		80		
Personal service	91		78		
Miscellaneous business service	72		55		
Motion pictures	73		67		
Amusement & recreation	84		68		
Medical & Health service	93		92		
Legal service	84		70		
Non profit organizations	84		57		
Mining	77		67		
Metal mining	75		66		
Anthracite mining	89		71		
Bituminous coal	73		65		
Crude petroleum & natural gas	71		64		
Non metallic mining & quarrying	80		80		
Contract construction	81		71		

Source: Computations based on data provided by Social Security Administration and U. S Bureau of Census, **Annual Survey of Manufacturers** 1957 and 1962; **Handbook of OASDI Statistics 1957,** Social Security Administration 1965; **Survey of Current Business,** July 1964.

sources can be used to produce a combination of goods and services which will give the economy the greatest total satisfaction. At the same time, there are ways these resources can be used which will result in lower total production than would be reasonably possible; if such ways are used, economists call what takes place a "misallocation of resources." Taxes can induce just such misallocation, by giving tax advantages to particular forms of business organization, to particular industries, to certain forms of financing, to various business practices, t~ some areas – all of which then become more attractive to decision-makers than their true value to the economy warrants. Usually, when a tax causes relationships in an economy to take a form different from what they would be in the absence of the tax one appropriately worries that the tax has caused a distortion and consequent misallocation of resources.

The social security tax, with its uneven impact on various industries – to be shown in the next section – raises precisely such worries. As a tax which is related to only one kind of business cost, labor, it seems doomed to tempt producers to rearrange the ways in which they combine the factors of production, merely to reduce the tax liability (particularly when the employer's rate rises to the scheduled 5.5 percent). If so, consequent economy-wide losses of total satisfaction from the tax-induced pattern of use of the factors may ensue.[3]

Industry Variations in Average Tax Rate

If OASDHI collections are taken to be a tax on wages or payroll, then these taxes must be said to fall with strikingly uneven impact on different industries. As shown in Table 8, taxable wages as a percentage of total wages range from less than 60 percent up through close to 100 percent. In 1962, the average proportion of total wages subject to tax was 80 percent in manufacturing, 68 percent in public utilities, 69 percent in wholesale and retail trade, 68 percent in finance, insurance, and real estate, 87 percent in services, 67 percent in mining, and 71 percent in contract construction.

These averages, however, suggest far more uniformity than actually exists. In manufacturing, taxable wages as a percent of total wages run from a low of 70 percent for instruments to a high of 99 percent for tobacco manufacturing. Public utilities range from 54 percent for pipe line transportation to 68 percent for trucking and warehouses; finance and related lines, from 55 percent for brokers to 77 percent for real estate; services, from 57 percent for non-profit organizations to 92 percent for medical and health service; mining, from 64 percent for petroleum and natural gas to 80 percent for nonmentallic mining and quarrying. Similar ranges appear in 1957 as well.

Other measures might be taken to indicate the variable intensity with which the OASDHI tax strikes industry. Table 8 gives two such possible measures, taxable wages as a percentage of value added and of value of shipments. Here, too, a considerable range appears. Significantly, however, the relative positions of industries change. For instance, tobacco manufacturing, with OASDHI taxes at the highest percentage of total wages,

3. The possibility exists, of course, that tax-induced behaviour may correct existing m allocations and thus increase total satisfaction. Moreover, if the same revenue were to be raised by other taxes, the adverse results might be even larger.

shows the lowest percentage of taxable wages to value added (20 percent). The figures range to a high of 54 percent of value-added for apparel and leather products. Measured in terms of value of shipments, the spread is from 6 percent for petroleum products to 27 percent for leather and leather products.[4]

Effect of Tax on Labor/Capital Ratio

Since the social security tax applies specifically to wages and salaries, a firm's OASDHI tax liability, generally speaking, will increase in approximate proportion to the number of employees (man hours) it utilizes. Therefore, an employer might be inclined to attempt to reduce his tax bill by introducing or using more labor-saving machinery or other forms of capital (including land) which to some extent substitute for man hours of labor. The feasibility of doing so, however, depends to a considerable extent on industry conditions.

Four major barriers to such a tax-reducing substitution can arise: technical problems, high absolute cost, financing difficulties, and union resistance to substitution.[5] Technical production problems unique to the industry will often limit or preclude the practicability of labor-saving machinery. For instance, no workable machine has yet been invented to pick grapes; vending machines substitute for clerks only to a limited extent. In some industries — petroleum refining, for one case — the absolute cost of labor-saving machinery can be formidable, whereas in others an almost trivial piece of equipment, such as an electric screwdriver, can result in considerable saving of labor costs. In other industries— mobile home manufacturing provides an example — manufacturers experience difficulty in obtaining financial support, especially if the change must be part of a more extensive program involving new plant layout or location, new handling of inventory, or computerization. When one must borrow from relatives, purchase of additional capital equipment becomes a remote possibility. Union resistance to automation has been well documented in some cases and reputedly exerts influence more broadly than the public record reveals.

Assuming such difficulties can be overcome, however, there still remains the question of how many employees a given piece of equipment must substitute for in order to be worth its price. The answer involves several variables: the current price of the contemplated capital equipment, the discounted cost of the equivalent labor over the expected life of the equipment, the effect of the substitution on quality of output, and possible differences in other inputs. All these variables differ considerably from industry to industry.

The relatively large increases scheduled by the Social Security Act of 1965 (particularly the base increase from $4,800 to $6,600) illustrate how a flat payroll tax up to a maximum base opens widely varying opportunities for capital equipment substitution. For in-

4. Unfortunately, these two dimensions are available for manufacturing industries alone in the only years for which the Social Security Administration could supply figures on tax collections by industry. Clearly, one should apply caution in drawing general conclusions from two-point data, and consider Table 8 merely a rough indicator of present or past relationships, especially since the Department of Commerce industry groupings are far from perfect.

5. In addition, the employer will be confronted with the usual problems associated with investment: uncertainty of future tax treatment of capital goods, uncertainty as to the income stream which will be generated by the additional investment, and the risk of decreased flexibility in output levels associated with a larger fixed investment.

stance, in an industry where the average annual wage lies near $4,800, the increase in the taxable base will make little difference in the employer's OASDHI tax liability. But in an industry with higher average annual wages, the added tax liability stemming from the base change alone can amount to as much as $75 per employee in 1966 for the employer's share of the tax alone, and successively higher amounts in subsequent years, as the rate increases. Table 9 shows how much the discounted cost of the worker, over a five-year period and a ten-year period, has been increased by the 1965 changes, thus increasing the attractiveness of labor-saving machinery.

The table shows the discounted present value of the OASDHI tax on one worker under the rates previously scheduled and under the new rates, for a five-year period and a ten-year period.

Table 9

Present Value of Employer OASDHI Tax on One Worker By Industry

1966-1970 and 1966-1975

Industry	Average annual earnings[a]	1966 value of employer OASDHI tax on one worker[b]					
		At rates under prior law		At rates under 1965 amendments		Additional tax under 1965 amendments	
		1966-1970	1966-1975	1966-1970	1966-1975	1966-1970	1966-1975
All manufacturing	$5,600	917	1,670	1,101	2,087	184	417
Furniture and fixtures	4,600	878	1,600	905	1,714	27	114
Primary metal	7,000	917	1,670	1,298	2,459	381	789
Machinery	6,600	917	1,670	1,298	2,459	381	789
Transportation equipment	7,200	917	1,670	1,298	2,459	381	789
Food and kindred	5,200	917	1,670	1,023	1,937	106	267
Apparel and related	3,500	668	1,218	688	1,304	20	86
Printing, publishing, etc.	6,100	917	1,670	1,200	2,273	283	603
Chemicals and allied	6,300	917	1,670	1,239	2,347	322	677
Petroleum refining, etc.	7,200	917	1,670	1,298	2,459	381	789
Metal mining	6,600	917	1,670	1,298	2,459	381	789
Coal mining	7,100	917	1,670	1,298	2,459	381	789
Heavy construction	7,200	917	1,670	1,298	2,459	381	789
Telephone communication	5,700	917	1,670	1,121	2,124	204	454
Wholesale trade	5,500	917	1,670	1,082	2,049	165	379
Retail trade	3,500	668	1,218	688	1,304	20	86
Banking	4,100	783	1,426	806	1,528	23	102
Laundries, cleaning, etc.	3,100	592	1,078	610	1,155	18	77

a. For 1965, rounded to nearest $100.
b. At 5 percent compound interest.
Source: Computations based on **Survey of Current Business**, March 1966, pp. 5-14, 5-15.

Since the average annual wage exceeded the previous tax base of $4,800 in all of the industries listed except furniture, apparel, retail trade, banking, and laundries and cleaning services, the present value of the OASDHI tax on one worker under 1965 rates exhibits a relatively small industry range under the present tax. But the base from 1966 on lies above the average wage for most industries – all but primary metals, machinery, transportation equipment, petroleum refining, metal mining, coal mining, and heavy construction – and therefore the present value of the tax varies considerably under the new law.

The difference between the present values of the two tax schedules, shown in the last two columns for a five-year and a ten-year period, indicates how much *more* an employer now can profitably pay for labor-saving equipment. The largest difference appears in the 12 industries with average salaries exceeding the old base. Thus, a firm engaged in petroleum refining now finds that a piece of equipment which lasts ten years and saves the labor of ten men will reduce its OASDHI tax costs by $7,890 *more* than before the tax increase. Hence, if the firm previously was considering such equipment with labor-saving potential not quite sufficient at the present price, the $7,890 tax inducement will make the investment worthwhile.[6] Moreover, the sum represents the employer portion of the tax only; if the firm has found it cannot pass along any portion of the employee tax, then the discounted tax value in each such case doubles – in this case to $15,780 – and the tax inducement for substitution becomes even stronger. On the other hand, if the firm is able to pass on all of its own tax to the employee, no tax inducement appears.

For a number of the industries, however, the tax inducement is relatively modest. For instance, in laundries a machine capable of replacing ten men, with a ten-year life, has a tax inducement of only $770; in retail trade, $960; in banking, $1,020. Over the long run, however, employers in these and other industries where average annual earnings are low will have a stronger tax inducement to substitute labor saving equipment for employees, if the minimum wage rises or if wages and salaries in general increase. In contrast, industries with average annual earnings of $6,600 and higher will have little if any added inducement to make more substitutions.

Effect on Labor Supply and Quality

Since the OASDHI tax applies specifically to wages, there seems reason to presume it might affect the quantity and quality of labor. Similarly, benefit provisions might influence the work decisions of beneficiaries. Any such effects would influence the growth of the economy. The possible effects on labor fall into two groups: those which would tend to exert a negative effect, and those which would enhance efficiency in resource allocation and encourage growth.

In the first group fall several possibilities. The OASDHI provisions may create an artificial inducement for workers to retire or work less than full

6. Some increase in the price of the machinery is probable, the amount depending on how labor-intensive the appropriate capital goods industry might be and how successfully it is able to pass on its own OASDHI tax increase via higher prices.

Table 9 also overstates the present value of the tax somewhat because of the unavailability of data on which to base a meaningful adjustment for variance about the mean. In the case of those industry subgroups and individual workers who lie below the industry mean, the increase in the mean will not affect their present value, or will affect it less than the average indicated.

time, or may discourage wives from working — both conditions which would reduce the labor force. There also exists the danger that retired people, in seeking sources of income which will not reduce their OASI benefits, will participate in a distorted pattern of income-earning activities which may not correspond with their natural preferences and capacities — thus leading to a misallocation of resources.

The positive effects include the small possibility that social security provisions may (indirectly) stimulate people to educate and train themselves better, creating a better quality labor force which in turn improves economy-wide growth. The available quantity of labor may be increased somewhat as workers seek overtime or second jobs to offset the tax increase. In addition, the social security system may make labor mobility easier in a period in which other relatively new institutional developments operate to create inefficient inflexibilities, thus mitigating the damage to growth which could result from the latter.

Most of these observations about the reactions of labor are difficult to confirm or deny. One problem stems from the fact that people must make more than a financial decision in most of the instances cited above. When personal, psychological choices arise, the researcher enters a misty world. It does very little good merely to ask people what they would do in hypothetical situations; as Erik H. Erikson has observed, ". . . man seldom knows what he really means; he as often lies by telling the truth as he reveals the truth when he tries to lie."[7] A psychoanalyst perhaps can cope with this tendency by relying on the progress of his patient to guide him, but an economist has no real check on the accuracy of people's estimates of their probable action. Consequently, unless an actual or comparable set of events has occurred at some time in the past (or currently in areas differing in this respect only) and there exists a record, or people can be relied upon to report accurately how they behaved under the circumstances, an economist probably can learn as much from theorizing as from interviewing when it comes to questions about what labor might do.

Effect on Labor Supply. In part because the social security system was far less than universal in its early years, and in part because not all qualified taxpayers retire, about 30 percent of today's elderly do not receive OASDHI pensions and hence can be assumed to make work decision relatively uninfluenced by social security provisions. Thus indirect evidence as to the effect of the system on the supply of labor can be gleaned by comparing the work behavior of beneficiaries and non-beneficiaries. The Social Security Administration in its 1963 survey of the aged[8] gathered information, which is summarized in Table 10, on precisely this point.

Table 10 indicates that the OASDI system, with its rules restricting beneficiaries' earnings, very likely does reduce the supply of labor forthcoming from workers in the 65-72 age group.[9]

7. Erik H. Erikson, *Young Man Luther*, New York, Norton, 1962, p. 210. Dr. Erikson, a psychoanalyst, is Professor of Human Development at Harvard.

8. The survey covered a multistage sample of more than 11,000 persons, drawn from the 50 states and the District of Columbia. See *Social Security Bulletin*, March, 1964, p. 23, for a description of methods.

9. Present provisions limit the amount beneficiaries may earn without reduction of benefits to $1,500 annually or $125 monthly. Benefits are reduced $1 for each $2 earned between $1,500 and $2,700; after $2,700 benefits are reduced $1 for each $1 earned.

Table 10

Work Experience of Persons Aged 65-72, By OASDI Beneficiary Status

1962

	Percent with some work in 1962	Percent with full-time work in 1962[a]	Mean earnings, full-time worker
All persons aged 65-72			
OASDI beneficiaries	22.9	3.8	$1,398
Non-beneficiaries	42.7	27.0	4,959
Men aged 65-72			
OASDI beneficiaries[b]	32.5	6.3	1,432
Non-beneficiaries	65.3	44.1	5,452
Women aged 65-72			
OASDI beneficiaries[b]	16.5	2.2	1,335
Non-beneficiaries	21.2	10.7	3,023

a. Full-time defined as 50 or more weeks of work in the year.
b. Excludes beneficiaries who first received benefits during 1962.
Source: Based on Social Security Bulletin, June, 1964, p. 4.

Whereas about 43 percent of non-beneficiaries reported some work experience in 1962, only 23 percent of OASDI pensioners had worked during the year. The differences between the two groups become even more striking when full-time work is considered: 4 percent of beneficiaries and 27 percent of non-beneficiaries worked full-time in 1962.

The same general relationships appear when aged persons are considered separately by sex, although relative proportions are different and the overall percentages are higher for men. About 32 percent of the male beneficiaries, contrasted with 65 percent of the non-beneficiaries, engaged in either part- or full-time work; 6 percent of the former group and 44 percent of the latter worked full time.

The contrast between pensioners and non-beneficiaries is less marked in the case of women. Of those who received OASDI payments, 16 percent worked at least some of the time and 2 percent full-time; 21 percent of female non-beneficiaries had some work experience in 1962 and nearly 11 percent worked full time.

Moreover, if the full-time wage provides some clue as to the productivity of work performed, Table 10 suggests that non-beneficiaries on the whole engaged in more productive work. Non-beneficiaries in all three groups reported higher average earnings than those of beneficiaries (men, 3.8 times as large; women, 2.3; total 3.5).

Unless non-beneficiaries as a group differ from beneficiaries as a group in some relevant respect — and this would be hard to demonstrate — it therefore follows from the data in Table 10 that the OASDI program has the effect of reducing the supply of labor to be drawn from the 65-72 age group.

A recent publication of the Social Security Administration comes to similar conclusions, although the author, Professor Gallaway, apparently did not have access to the survey on which Table 10 is based. He finds that "the impact of the OASDI retirement benefit provisions on labor force participation by the elderly is a significant reduction in (1) their overall labor force participation rate, and (2) the intensity of their labor force participation."[10] He estimates that but for the shift away from work toward leisure on the part of OASDI beneficiaries the output of the economy in 1961 might have been 2.4 percent larger than the actual GNP in that year. On the other hand, he feels that the retirement test provisions did not lower labor force participation *rates*, but only average earnings of beneficiaries. That is to say, approximately the same percentage in both groups worked, but the beneficiaries tended to earn less.

Whether OASDHI provisions discourage some wives from working must remain a matter of speculation. However, two aspects of the law operate in this direction. A working wife is disadvantaged under the benefit provisions.[11] Moreover, family incremental income earned by the wife (up to $6,600) is taxed at the full rate, in contrast to incremental income earned by the husband, which would be tax-free after the first $6,600. It is by no means certain, of course, that the amounts and disadvantages involved are sufficient to overrule other reasons which induce the wife to work, or that people even consider OASDHI taxes and benefits when making such decisions, which involve many noneconomic issues.

Effect on Labor Quality. A later section will demonstrate that the tax initially falls more heavily on lower-paid labor,[12] which presumably represents unskilled and poorly educated labor. Unless he can shift his tax, the unskilled laborer will find that the gap widens between the returns to his labor and returns to skilled labor. In addition, because the tax can encourage employers to substitute labor-saving equipment and more productive labor for unskilled labor,[13] the overall effect of the tax may be to reduce the number of jobs available to the unskilled. One would think such a combination of forces might tend to induce the unskilled to try to improve their capacities through additional training and education. So many non-economic elements enter into a decision to upgrade oneself and the practical possibility of doing so, however, that the effect of the OASDHI tax on the quality of the labor force must remain an open question.

Distortions of Income-Earning Activities

The social security law provides for a reduction in benefits when the beneficiary's earnings in covered employment exceed a particular sum ($1,500 annually at present). Does this provision encourage the elderly to divert their time to income-earning activities not subject to OASDHI tax? Table 11 tentatively suggests that it may.

Table 11, which is based on a survey conducted in 1962, shows the percentage of persons aged 65 and older who receive income from various sources,

10. Lowell E. Gallaway, *The Retirement Decision: An Exploratory Essay*, Research Report No. 9, Office of Research and Statistics, Social Security Administration, 1965, p. 47.
11. See Table 12 and accompanying text in section on equity.
12. See Charts 5 and 6, which give the effective rate on tax on various earnings and income levels.
13. See discussion on "Employer's Reaction," Section IV, pp. 36-38.

Table 11

Sources of Money Income for Persons Aged 65 and Over, By OASDI Beneficiary Status

1962

Source of money income	Percentage receiving any income from source								
	All aged persons		Married couples[a]		Nonmarried men		Nonmarried women		
	OASDI beneficiaries	Non-beneficiaries	OASDI beneficiaries	Non-beneficiaries	OASDI beneficiaries	Non-beneficiaries	OASDI beneficiaries[b]		Non-beneficiaries
							Retired	Widowed	
Earnings	36	31	50	64	24	31	34	17	16
Retirement benefits	100	16	100	25	100	16	100	100	11
OASDI	100	—	100	—	100	—	100	100	—
Other public	7	14	9	24	6	14	8	2	10
Private group pensions	13	2	20	3	13	3	7	2	1
Veterans' benefits	11	8	14	14	11	12	6	8	5
Interest, dividends, and rents	59	44	65	62	50	34	56	58	38
Private individual annuities	4	2	4	4	2	1	5	2	2
Public assistance	8	27	6	14	10	35	10	8	30
Contributions by relatives[c]	3	6	3	3	2	1	4	5	8
Payment under any public program	100	48	100	47	100	59	100	100	45

a. With at least 1 member aged 65 or over.
b. The retired women receive benefits based on their own wage record, regardless of eligibility as widows; the widowed receive benefits based on the husband's wage record.
c Relatives or friends not in household.
Source: Social Security Bulletin, March, 1964.

broken down by OASDI beneficiary status. As indicated earlier, a much higher percentage of non-beneficiaries report earnings as a source of income. Non-beneficiaries also receive more public aid other than OASDI beneficiaries. Beneficiaries, however, receive higher proportions of the principal sources of income which do not reduce OASDI benefits – interest, dividends, and rents. For all elderly individuals surveyed, regardless of marital status, 59 percent of the OASDI beneficiaries and 44 percent of the non-beneficiaries received income from this source. The difference between the two groups is less marked for married couples but sharper for unmarried men and women. While other variables may be involved, still one may tentatively conclude on the basis of this evidence that OASDI benefit provisions may influence the income sources of the elderly.[14]

Summary

Several resource allocation effects stemming from the social security tax and the associated benefit program can be observed. Labor intensive industries and industries with a low average wage are taxed more heavily than others, presumably deflecting resources from the pattern which would have prevailed in the absence of the tax. The tax increases the attractiveness of labor-saving capital in many industries. The tax and benefit provisions may reduce the supply of wives and the elderly who enter or remain in the labor market. The benefit provisions may also distort income-earning choices of the elderly, and may improve labor mobility.

14. If the benefit-reduction provisions are a factor, the percentage for OASDI beneficiaries will be understated, since the sample presumably includes an unknown proportion of individuals over 72, to whom the restriction does not apply.

IV.

Burden of the Social Security Tax

To deal effectively with problems of equity, resource allocation, growth and stability, and so on, one should be able to identify those points where the burden of the tax rests. Such identification is the problem of incidence. Rational behavior demands that the taxpayer on whom the tax is assessed will try to cause someone else to bear the burden – a process known as shifting the tax or passing on the burden. This result might be achieved by increased prices, thus shifting the burden to consumers, or by reducing wages, thus shifting the tax to employees, or by any one of a number of other actions. It may happen that the individual or firm to whom the tax has been shifted will also be able to pass it on, by one device or another, so that a chain of tax-response activity results.

Difficulties in tracing the chain, and determining where it stops, arise because for each category of taxpayer there exists an array of potential tax-shifting actions. These steps may or may not be successful, because they encounter barriers of varying strength. Moreover, each successful action passes the tax on to different individuals or groups.

In an attempt to organize this complex arena of potential activity, Charts 2-4 summarize the possible action, the barriers to success of the action, and the recipient of the tax burden should the action succeed, for the larger groups of taxpayers[1] and burden-receivers potentially involved in the social security tax.

The person or firm who actually pays the tax bears the initial impact. Even if realized, the possibilities for tax-shifting require varying lengths of time to implement, and consequently the immediate incidence of a newly imposed or increased tax can differ considerably from the long-run result. Also, it should be emphasized that, since the OASDHI tax is a tax of almost universal application in this country, many of the avenues of reaction available in the case of a partial tax (such as an excise tax on specific commodities) may be all but closed for substantial numbers of employers or employees. For instance, while some employees might compensate for reduced after-tax income by obtaining overtime work, such a solution undertaken by employees generally would probably depress wage rates to such an extent that, in the long run, the additional overtime would not increase after-tax wages. Nonetheless, because the working force might try such solutions, they are catalogued in the following analysis in spite of the probability they would be inefficacious over the long run.

For simplicity, the following analysis assumes that the government makes no change in monetary policy as a conse-

1. No attempt will be made to analyze the intermediate case of the self-employed taxpayer.