4.0 INCOME DISTRIBUTION AND REDISTRIBUTION

This chapter is concerned with the concepts of income typically used to characterize the personal distribution of income among individuals and families. The motivation for the examination of data on income distribution may be classified into one of three broad groups: (1) interest may be focused primarily on the distribution itself, as a matter of both scientific and policy relevance. The current United States distribution, changes in the distributionovertime, and comparison of the distribution of income in the United States with that of other developed and underdeveloped nations are all topics which have occupied the attention of many scholars; (2) interest in the joint distribution of income and taxes stems from the desire to appraise the distributional implications of one or all forms of taxation on after tax income and to appraise the marginal rate of taxation by income class; (3) other scholars are mainly interested in examining the extent and distributional impact of redistribution, which includes not only taxation but the provision of transfer income. Within this group of studies, much current interest has been focused on the receipt of transfer income in kind, either by direct transfer of goods and services to individuals, or through sharing in the benefits derived from pure public goods. The discussion presented below addresses each of these sets of studies in turn.

4.1 Size Distribution of Income

Stanley Lebergott, in discussing the size distribution of income, points out:

> The distribution of power, prestige and self has been a topic of durable concern to most societies. In distant eras, and in simple cultures, the distribution of economic power and advantage could be fairly closely measured in simple terms (by wealth). . . . (Modern social) forces have vitiated the use of data on landed wealth, or even total wealth, as a clearcut measure of economic differences. Hence, interest in the distribution of wealth has largely given way, in our time, to interest in the distribution of income. (Lebergott, 1968, p. 145)

However, the picture of income distribution which emerges from the statistics depends crucially on the income concept adopted. Most studies have used a money income input. The deficiencies of this measure of income raise

doubts about the conclusions drawn, and suggest the use of alternative concepts of income.

Cash or Money Income

The concept of money income, as embodied in Decennial Census and Current Population Survey data, corresponds most closely to the layman's concept of income. Included are most regular and recurrent cash receipts, including gross wages and salaries, self-employment income, rent and royalty receipts, farm net income, dividends, annuities, public and private pensions, Social Security payments, alimony and child support, and cash welfare payments. Excluded are many irregular or nonrecurrent payments that would ordinarily be considered as income, such as realized capital gains, gifts, lump sum inheritances and insurance payments (note that if an insurance settlement is taken as an annuity, it is included). In addition, no sources of income received in forms other than cash are included, as the name "money income" implies. Table 4-l presents the components of money income.:

Because of their availability and comprehensive coverage, Decennial Census and Current Population Survey income data serve as the primary source of information on individual income distributions for the nation and also for geographic and demographic subgroups. In addition, until the recent advent of comprehensive longitudinal survey efforts (such as the Panel Study on Income Dynamics and the National Longitudinal Survey), it was the primary source of information on labor force behavior of individuals. Labor theory distinguishes between earnings and other forms of income (property income, transfer payments, etc.). The available detail in Bureau of the Census survey efforts typically allows this distinction to be made.

Consumer behavior studies are forced to rely on other data sources, since the Current Population Survey provides no detailed consumption data. Most prevalently used is the Consumer Expenditure Survey (CES) of the U.S. Department of Labor. Differences between the Decennial Census and CES Income Definition are (1) the information on taxes given by the CES; (2) the deduction of certain work related expenses from income (union

TABLE 4-1

CENSUS MONEY INCOME
UNIT OF ANALYSIS: FAMILY
ACCOUNTING PERIOD: ANNUAL

INCOME

A. **Labor** Income

A.1 Civilian Wages
A.2 Civilian Salaries
A.3 Tips and Gratuities.
A.4 Honoraria and Awards
A S Sick Pay
A.6 WIN Payments
A.7 Active Military Pay-Nonhazardous Duty
A.9 Military Reserve Pay

B. Business Income

B.1 Net Income from Business Proprietorship
B.2 Net Income from Business Partnership
B.3 Net Income from Farm Proprietorship
B.4 Net Income from Farm Partnership
B.6 Gambling Winnings or Losses (If Regular)

C. Property Income

c.1 Interest
c.2 Dividends
c.3 Net Income from Rental Property
c.4 Royalties
c.9 Receipts from Private Pension Plan
C.10 Receipts from Public Pension Plan
c.11 Income from a Trust

D. Public Cash Transfer Payments

D.1 Social Security Retirement Benefits
D.2 Social Security Disability Benefits
D.3 Social Security Survivor's Benefits
D.4 Railroad Retirement Benefits
D.5 Unemployment Benefits
D.6 Workmen's Compensation Payments
D.7 Veteran's Disability Pension-Service Connected
D.8 Veteran's Disability Pension--Nonservice Connected
D.9 Pension for Survivors of Veterans
D.10 Veteran's Educational Benefits
D.11 Aid to Families with Dependent Children
D.12 Supplemental Security Income
D-13 General Assistance
D.14 Other Public Assistance

E. Public In-kind Transfers

None

F. Private Transfers in Cash and in Kind

F.1 Alimony and Child Support Receipts
F.2 Gifts
F.5 Scholarships and Fellowships

EXPENDITURES

None

ASSETS AND LIABILITIES

None

dues, clothing, and tools); and (3) the availability of detailed information on household asset holdings, from which it is possible to construct broader definitions of income than that reported by the CES. Certain sources of income in kind, such as meals and shelter provided workers, are included in the CES income concept.[1]

Miller (1966) points out that the accounting period for Decennial Census data is the calendar year preceding the census date. This is also true for the estimates available annually from the Current Population Survey. This has major implications for the usefulness of the data in characterizing the economic position of the interview unit. Simon Kuznets cited the unavailability of longitudinal data on the same individuals for multi-year periods as the major limitation of income data then available (Kuznets, 1955).

Also pointed out by Miller are the difficulties created by the choice of interview unit. Individuals are grouped together into families if (1) they are related by blood, marriage, or adoption, and (2) if they reside together. Any individual who does not fit this criteria is classed as an "unrelated individual.." Family income is the aggregate of the income received by those individuals forming the unit at the time of the survey. The income of individuals no longer in the unit because of death or separation is not recorded, even if it provided the major source of support for the unit during the previous calendar year. On the other hand, newly arrived unit members (babies, spouses, etc.) are counted in the unit, even if they were never part of the unit and placed no claims on available income during the previous year. The Consumer Expenditure Survey, by contrast, treats nonmembers and members who shared the dwelling unit for only part of the year appropriately, counting their presence and recording their income only when they resided within the unit.

Miller also details the limitations of the money income concept. It does not measure income in-kind (food and shelter provided by workers, interest provided in the form of financial services, and rental income of homeowners). Realized or accrued capital gains are not included, nor are fringe benefits.

[1] For a more detailed discussion of the differences among income concepts used in statistics on personal income, see Schultz (1965) and Smith (1977).

Personal Income

The Personal Income concept embodied in the U.S. National Income Accounts is usually thought of as an aggregate income concept. As such, it is the most commonly used source of information for aggregate consumption studies (see Houthakker and Taylor (1970) for a classic example).

Personal incaue differs from aggregate cash inccme as defined by the Census by including the net rental value of owner-occupied homes, the value of financial services received in lieu of interest from banks, imputed interest from insurance policies, and various forms of income-in-kind, such as food grown for home consumption and meals provided for workers. It does not include the value of in-kind transfers to individuals from public sources, except for Food Stamps and Medicare payments.

All transfers between persons (gifts, bequests, and inheritances, etc.) are unrecorded, since they are intrasectoral flows. Like money income, personal income excludes all capital gains and losses. The aggregate definition of personal income is discussed further in Section 6.1.

Interest in the personal income concept focuses mainly on the income-size distribution of personal income. Budd, Radner and Hinrichs have recently created such a distribution, using CPS, IRS, and other data to distribute the aggregate components of personal income (see Budd and Radner, 1975; and Radner and Hinrichs, 1974).[1] They term their concept, "family income."

The authors report that adjustment of CPS data for under reporting and conversion to the Family Income concept results in a change in the composition of the poor, even after the poverty standard is adjusted upward to yield approximately the same total number of units in poverty. The number of unrelated individuals in poverty declines by 10.4 percent. In general, the work of Budd and Radner indicates that the extent of understatement of income by CPS data is a function of the ratio of earnings to total income. Since this ratio is highest for average income, middle aged families with a working head of household, the effect of adopting

[1] In constructing their size distribution, the authors adjusted the personal income concept by excluding the income of nonprofit institutions, trusts, and individuals living abroad or in military quarters and by crediting pension receipts when paid rather than when earned. Table 4-2 details the definition of income used in this work.

TABLE 4-2

PERSONAL INCOME--SIZE DISTRIBUTION DEFINITION
UNIT OF ANALYSIS: FAMILY
ACCOUNTING PERIOD: ANNUAL

INCOME

A.	Labor Income
A.1	Civilian Wages
A.2	Civilian Salaries
A.3	Tips and Gratuities'
A.4	Honoraria and Awards
A.5	Sick Pay
A.6	WIN Payments
A.7	Active Military Pay--Nonhazardous Duty
A.9	Military Reserve Pay
A.10	Insurance Provided by Employer
A.12	Earnings Paid in Kind
B.	Business Income
B.1	Net Income from Business Proprietorship
B.2	Net Income from Business Partnership
B.3	Net Income from Farm Proprietorship
B.4	Net Income from Farm Partnership
B.5	Value of Food Produced and Consumed by Owner of Farm
B.6	Gambling Winnings or Losses
C.	Property Income
C.1	Interest1
c.2	Dividends
c.3	Net Income from Rental Property
c.4	Royalties
c.7	Imputed Rent on Owner-Occupied Home
C.9	Receipts from Private Pension Plan
C.10	Receipts from Public Pension Plan
c.11	Income from a Trust
D.	Public Cash Transfer Payments
D.1	Social Security Retirement Benefits
D.2	Social Security Disability Benefits
D.3	Social Security Survivor's Benefits
D.4	Railroad Retirement Benefits
D.5	Unemployment Benefits
D.6	Workmen's Compensation Payments
D.7	Veteran's Disability Pension--Service Connected
D.8	Veteran's Disability Pension--Nonservice Connected
D.9	Pension for Survivors of Veterans
D.10	Veteran's Educational Benefits

[1] Includes imputed interest from checking a-counts and time deposits received as bank services and imputed interest from life insurance policies.

D.11 Aid to Families with Dependent Children
D.12 Supplemental Security Income
D.13 General Assistance
D.14 Other Public Assistance

E. Public In-kind Transfers

E.1 Bonus Value of Food Stamps
E.3 Medicare Benefits

F. Private Transfers in Cash and in Kind

F.1 Alimony and Child Support Receipts

EXPENDITURES

None

ASSETS AND LIABILITIES

None

the broader Bureau of Economic Analysis income measure is to augment the income of the very rich and very poor, and the very young and the very old, relative to the middle class.

Since data from the Current Population Survey are the basic instrument used to distribute the personal income data, the accounting period and recipient unit are identical to that used for money income. The authors note that "data do not exist to make regular income size estimates on an economic unit or spending unit basis. In addition, data are not available to reconstruct the units as they existed during the calendar year to which the income estimates pertain." (Radner and Hinrichs, 1974, p. 22)

Criticisms of the Available Income Distribution Data

Students of income distribution share general agreement on the limitations of the money income concept used to characterize the distribution of income in the United States. They differ only in certain matters of detail, and in their judgment of the practicality of improving this situation. Criticisms may be categorized into the following: (1) omitted or erroneously included sources of income: (2) use of an inappropriate accounting period; and (3) use of an inappropriate analytic unit.

Income Before Taxes and Transfers

One problem which the money income concept poses for analysts is that it is measured gross of taxes, but includes transfer payments. Thus it is neither a measure of income from production, nor a measure of income available for consumption. Labor economists interested in the size distribution of income prefer a measure of production. Typically they examine only earnings (see Chapter 3), but studies have been performed on total pre-tax income (wage and salary income, income from self employment, and income from property). Chiswick and Mincer (1972) utilized the human capital model to explain time series changes in personal income inequality in the United States. T. Paul Schultz (1975) also presents important evidence on the relevance of the human capital model to the explanation of personal income inequality. Both of these authors limit their study to the distribution of earnings. Schultz, in order to correct for life cycle variation,

limits his comparisons to individuals of similar age, examining each age cohort separately.

The analytic unit for the above studies was the individual (see discussion of Mincer (1974) in Section 3.3). Tannen (1976) has attempted to extend the human capital model to family income. However, his attempt-is rather unconvincing, since he uses "other family income" (all income other than earnings of the husband and wife. It is difficult to see how this procedure improves on that of Mincer.

Omitted or Erroneously Included Sources of Income

Even when the conceptual basis of money income as a pre-tax/post-transfer income concept is acceptable, a number of problems have been noted. Morgan (1962) says that real income is what matters, not money income. Real income includes the imputed rent on the equity in one's home and the value of home grown and consumed food. According to him, "other items like expense accounts and (unrealized) capital gains are of more doubtful significance." (p. 280). "Perhaps the major practical and conceptual difficulty in discussing welfare is the problem of how to trade leisure for other kinds of real. income." (p. 290) Morgan, Sirageldin, and Baerwaldt (1966) report the results of a survey which measured certain types of nonpaying productive activities. These were defined as "those which either save the family money or increase the value of its assets, including nontangible ones such as human capital. (p. 101) Examples include'home repairs, housework, education, volunteer work, and growing produce.

Goldsmith (1958) notes that income in-kind, deferred compensation, capital gains and increases in claims on the corporate sector (retained earnings of corporations) are not included. These would most likely increase inequality. Kuznet's assessment of Census data on income is more positive than some:

> Although deficient in that it excludes non-money income... and its coverage of money income is incomplete the survey provides considerable information . . . (and) . . . the data are adequate" (p. 224)

Mahoney (1974) notes that a review committee formed by the Office of Management and Budget, Executive Office of the President recommended research and

a new survey effort to gather information on the non-cash income received by families and individuals. Most important of these, in the view of the committee, were payments for food, housing and health expenses.

Jain (1974) presents a compilation of the available data on the size distribution of income in 79 developed and undeveloped countries. He notes,

> For purposes of welfare measurement, the income concept should obviously include income in both cash and in-kind (valued appropriately) and should also take account of the net effect of tax-subsidy operations. (p. 2)

However,

> many of the sources used in compiling these data do not give sufficient information on this subject to classify the data according to differences in concept. (p. 2)

Benus and Morgan (1975) consider four distinct income concepts: (1) earnings, (2) money income (earnings plus transfers, (3) disposable income (earnings plus transfers less taxes), and (4) net real income (earnings plus transfers less taxes less cost of earning income plus the value of in-kind income). They note that measures of inequality are very sensitive to the choice of concept.

Accounting Period

Morgan (1962) asks the question, "How much spurious inequality results from using one year income data from a cross section but thinking in terms of distribution of lifetime incomes?" (p. 272). He finds that summing life time incomes somewhat reduces inequality. Goldsmith (1958) notes that the annual accounting period is too short to base comparisons on it. Kuznets (1974) argues that demographic trends and noneconomic institutional differences which affect the income distribution may "in fact, represent life cycle and other near-biological differences that have a warranted reflection in income differentials and inequalities" and which **contribute to a wider measured income inequality that has none of the analytic meaning often attributed to it." (p. 244). Atkinson (1974a) stresses that the appropriate accounting period depends on the purpose for which the data are gathered. Shorter periods are appropriate for policy purposes, longer periods for analytic

purposes. Mirer (1974) using longitudinal data from the Panel Study of Income Dynamics, finds that variability in income over 1967-69 is negatively correlated with the average level of income. Even among those families in which the head of the household or spouse of head did not change, many of those shown to be poor on the basis of one year of information would not be so classified on the basis of permanent income. He also finds that variability in the head's income is less than the variability of total family earnings (labor income). By contrast, Benus and Morgan *examine* the effect of lengthening the accounting period for three data sets collected by the Survey Research Center, including the Income Dynamics Panel. They find slight impact on the measurement of inequality as the accounting period is increased from three months to *four years.* One of the problems with such measure based solely on distributional statistics tends to overstate inequality when compared over time. Paglin (1975) has suggested correcting the Gini coefficient measurement for the age distribution of the population and the consequent life cycle variation. His age-adjusted measure demonstrates a decline in time in inequality, which the conventional measure does not reveal. [1]

Lee Soltow (1960) has suggested an alternative procedure. He suggests computing Gini indices for each of several age cohorts, and constructing an overall index by weighing each cohort index by the share of the population in that cohort and the difference between the cohort and overall mean income. In this manner, one can distinguish between changes in inequality within cohorts, changes which are due to shifts in the age distribution of the population, and changes in the distribution of income among cohort groups.

Paglin's study has been criticized by Minarik (1976), who points out that correction for both age and years of schooling reverses Paglin's conclusion that inequality has declined. Danziger, Havemen, and Smolensky (1976) argue that the technique "confounds the effects on inequality of changes in the age-income profile, the age distribution of the population, and inter-family inequality within each age group." (Taussig, 1976, p. 50).

[1] This is essentially Kuznets' point, implemented statistically.

In his examination of recent papers dealing with the distribution of "well-offness," Taussig (1976) argues for limiting income comparisons to narrow age cohorts. Any overall income distribution measure confounds permanent, transitory and life cycle variation to such a degree as to be without useful information for anlaysis or policy.

Analytic Unit

Morgan asks, "How much difference does it make in the index of inequality whether one uses different units...?" (Morgan, 1962, p. 271). His answer is that "differences between spending unit and family data are small" (ibid.). Epstein (1969), on the other hand, says that use of the individual is too narrow because it ignores traditional dependency relationships and leaves unanswered the question of how to treat the substantial group of non-earners. The family is too broad -- the modern trend away from extended families toward nuclear families increases measured inequality spuriously. What is needed, according to her, is data for each potentially self-supporting adult, spouse, and minor children. The consuming unit (determined by the extent of pooled income and joint consumption determination for major types of spending) and the adult unit (treating each adult separately) are other alternatives she considers. Atkinson (1975) argues that the relevant test should not be based on demographics, but on income sharing. This will differ from one household to another, so that the consuming unit (income-sharing unit) must be defined on a case by case basis. Empirical findings suggest that the fewer individuals included in the analytic unit, the higher will be the apparent inequality of income distribution.

A major difficulty which arises when any unit other than the individual is adopted is the transitory nature of the modern American family. The Panel study of Income Dynamics (Morgan and Smith, 1969b; Morgan et al., 1974) dramatically reveals this. Only 42 percent of the families who remained in the sample in 1972 were unchanged in composition from 1968 (Morgan, 1974 p. 4). Twelve percent of the families had experienced divorce, marriage or both, while 16 percent represented new families formed by children from the originally sampled families (ibid., p. 101).

Furthermore, Morgan et al. demonstrate that changes in family composition are one of the major factors associated with low-income and instability of income (ibid., p. 23). However, those families who do experience major breaks in the family unit are not highly represented among the persistently poor (ibid., p. 28). These findings not only emphasize that income has a permanent and transitory component, due as much to changes in family composition as to the use of short accounting periods, but also calls into question the ability to generalize from the welfare of families to the welfare of individuals within families.

The implications of using family data rather than individual data may be seen in Table 4-3, where the stages of life[1] of one individual are hypothetically set out. In the example given, John Doe, over his lifetime, belongs to four conceptually distinct families; moreover, he moves into and out of the family population on several occasions and twice leaves the household population entirely.

Summary of Income Measure Criticisms

As noted above, criticism of existing data on the distribution of income have been focused on the income concept, the accounting period and the analytic unit. Unfortunately, the problems associated with each dimension of the measure are closely related, and in unfavorable ways. Thus lengthening the accounting period would eliminate many of the problems with the income concept, such as the treatment of capital gains and the inclusion of pension payments and receipts. However, the only appropriate recipient unit for a lifetime income concept is the individual; the longer the accounting period the more changes occur in the pattern of sharing of income, and the cloudier becomes the recipient or consuming unit's definition. Similarly, broadening the income concept may lessen the need to move to a longer income accounting period, but *requires* that we recognize that income sharing (not always voluntary) occurs across as well as among consuming units. Thus, improving the conceptual basis for measuring income in one dimension may worsen the problem posed by deficiencies across other dimensions.

[1] See Glick (1947), and the discussion of the life cycle in Section 2.2.

Table 4-3

JOHN DOE'S LIFE CYCLE

Age Span	Major Activity	Source of Support	Census Classification	Remarks
0 - 7	Early Development	Father	In family A	
7 - 18	Education	Mother (father)	In family B	(J.D.'s parents are divorced when he is seven)
18 - 22	Attend college	Father/loans	Unrelated Individual in group quarters	(Father agrees to help support J.D. attending college)
22 - 25	Working	Own earnings	Single head of household	
2s - 33	Working	Own earnings	In family C	(Marries Jane Smith)
33 - 37	Working	Own earnings	Single head of household	(Divorced from Jane Smith)
37 - 65	Working	Own earnings	In family D	(Marries Rita Brown)
65 - 72	Retired	Pension and Social Security	In family D	
72 - 77	Retired	Pension and Social Security	Single head of household	(Rita Doe passed away)
77 - 83	Retired	Pension and Social Security	Unrelated Individual in group quarters	(Moved to rest home)

SUMMARY:

In household population	72 years
As head of household	56 years
As dependent of head	17 years
Not in household population	11 years
Not in family population	23 years

4.2 Theoretical Treatment of Income Distribution

Classically, the theory of income distribution refers to the functional division of income (wages, profits, rents and interest income). Scitovsky (1964) presents a review of this theory. As mentioned earlier, in the modern American economy, the functional division of income has lost much of its power to explain the personal distribution of income. Marxist economists of the current generation (such as Ernest Mandel) and certain British economists, notably Nicholas Kaldor and Joan Robinson, still place considerable reliance on functional income shares, when explaining the personal distribution. The modern neoclassical theory of the distribution of earnings has already been reviewed in Chapter 3. We turn now to some other theoretical work which is not of the human capital school.

Stiglitz (1969) examines the implications for the distribution of wealth and income of alternative assumptions about savings, reproduction, inheritance policies, and labor homogeneity, within the context of a neoclassical growth model. He finds that beginning with a distribution of groups, with individual wealth equal for the members of each group, but differing among groups, the asymptotic distribution of wealth and income is perfectly equal. This conclusion is unaltered by the substitution of one saving function for another, even if one assumes different reproduction rates for each group. The aggregate rate of investment does not depend on the distribution of wealth. Tax policies play an important role in the speed with which the asymptotic result is approached, but do not affect the conclusion.

Meade (1973) isolates some of the factors which would cause citizens to be unequally endowed and thus to receive unequal incomes in a competitive society. These are genes (intelligence), property, education and social contacts. To these he adds a random factor -- luck. In Meade's model, contrary to the results of Stiglitz, a number of positive interrelationships among these factors create self-reinforcing influences which widen the distribution of income and wealth.

Pryor (1973) uses a simulation model to explain the distribution of income and wealth. An advantage of this approach is the ability to include stochastic elements (luck) in the analysis. The model is allowed to generate solutions from one generation to the next, duplicating the theoretical model posited by Stiglitz and Meade. Pryor concludes that redistributive taxes do appear an efficient means of changing the degree of income inequality in a nation (p. 61).

4.3 Taxable Income Concepts

In the 'field of public finance, the discussion of alternative income concepts has a very practical orientation. This stems from the need for the taxing authority (the Internal Revenue Service in the United States) to define precisely what is and is not taxable income. Table 4-4 shows the current concept of U.S. taxable income defined by the Federal Tax Code. Scholars, too, frame their arguments in terms of changes in the existing tax code. Since the latter itself has undergone many revisions, not all analyses lend themselves to an integrated definition of the income concept. The focus of this section is on the subset of studies in the area of taxation which do describe in a complete and detailed way the concept of income.

Prominent in the literature on taxation is the normative view that the measure of income subject to taxation should not distort the allocation of labor and capital to alternative activities. Also, comprehensiveness serves the goal of equitable taxation; taxes should be equal for individuals in equal circumstances, even if income is received from different sources. Once past this point of general agreement, however, an important division occurs between proponents of an accrual accounting system and a realization system.

In the former, income is counted when accrued, i.e., when the right to receive it is created. In the latter, income is counted only when converted to cash. The latter system is discussed in a subsequent section. The discussion which follows deals with a concept which adopts accrual accounting.

Haig-Simons Accretion Concept

Discussion of the concept of income was a major preoccupation of German scholars during the last half of the nineteenth century.[1] Henry C. Simon (1938) reviews extensively their arguments, which hinged in many cases on abstract and strained constructions of what could and could not be termed income. By contrast, R.M. Haig's (1921) definition is simplicity itself: "the money value of the net accretion to one's economic power between two

[1] The dominance of German over English speaking economists in this area is easily explained. Germany instituted an income tax in 1871, while the English speaking nations did not follow until the twentieth century.

TABLE 4-4

I.B.S. TAXABLE INCOME
UNIT OF ANALYSIS: INDIVIDUAL OR FAMILY
ACCOUNTING PERIOD: ANNUAL

INCOME

A.	Labor Income
A.1	Civilian Wages
A.2	Civilian Salaries
A.3	Tips and Gratuities
A.5	Sick Pay (Above $100/week)
A.7	Active Military Pay--Nonhazardous Duty
A.9	Military Reserve Pay
B.	Business Income
B.1	Net Income from Business Proprietorship
B.2	Net Income from Business Partnership
B.3	Net Income from Farm Proprietorship
B.4	Net Income from Farm Partnership
B.5	Gambling Winnings or Losses
C.	Property Income
C.1	Interest (Except Tax Exempt Bonds)
C.2	Dividends ($100/$200 Per Year Excluded)
C.3	Net Income from Rental Property
C.4	Royalties
C.5	Realized Capital Gains or Losses
C.9	Receipts from Private Pension Plan[1]
C.10	Receipts from Public Pension Plan[1]
C.11	Income from a Trust
D.	Public Cash Transfer Payments
	None
E.	Public In-kind Transfers
	None
F.	Private Transfers in Cash and in Kind
F.1	Alimony and Child support Receipts
F.6	Training Provided by Employer
F.7	Prizes and Awards

EXPENDITURES

G.2	Child Care--Within the Home
G.3	Child Care-Outside the Home
G.4	Union Dues

[1]Above own contributions

I.R.S. TAXABLE INCOME

G.5	Dues to Professional Organizations
G.6	Clothing and Tools Required in Work
G.7	Educational Expenses
G.8	Medical Expenses
G.9	Medical Insurance Premium
G.16	State Income Taxes
G.17	Local Wage or Income Taxes
G.18	State Sales or Excise Taxes
G.19	State and Local Property Taxes
G.20	Moving Expenses
G . 2 1	Interest Paid
G.22	Char&table Contributions
6.23	Alimony and Child Support Payments
G.24	Casualty Losses

ASSETS AND LIABILITIES

None

points of time." (p. 26). Simons notes that this must be gross, not net, accretion, since if consumption is subtracted, it becomes simply identical to the change in wealth. Simon's definition has been given before, but bears repetition:

> Personal income may be defined as the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and the end of the period in question. (Simon, 1938, p. 50)

An abbreviated version of this statement frequently appears in the literature: personal income is consumption plus the change in net worth. Simons explained further that "the essential connotation of income . . . is gain -- gain to someone during a specified period and measured according to objective. market standards." (p. 51).

The Haig-Simons definition has served as a guide to tax scholars who advocate a comprehensive tax base, but in itself it does not precisely specify the income concept. Many difficult issues remain, in particular distinguishing items of consumption from expenditures necessary to the earning of income, and measuring the change in net worth appropriately. In actual practice, no taxing authority has sought to define income as the sum of consumption and net worth because of the difficulties of measurement. Instead, taxable income has been defined as the aggregate of various sources of income, less certain exemptions and deductible outlays.

A.Comprehensive Tax Base

The concept of taxable income, as defined by legislation, Internal Revenue Service regulations, and Tax Court decisions, is a pastiche which has evolved historically as a result of conflicting forces. In order to *examine the* income concept which underlies the maze of detail, it is simpler to examine that income concept which those seeking to reform the Federal Income Tax system suggest as an alternative -- a comprehensive tax base.

Debate on the merits of a comprehensive tax base for the United States was renewed following the issuance of the Report of the Royal Commission on Taxation (Canada, 19661, which proposed a set of major reforms for the Canadian income tax code. See Pechman, Okner, and Munnell (1969) for a discussion of the implications of implementing the Canadian proposals in the United States Income Tax Code.

A comprehensive tax base (CTB) is defined by Boris Bittker (1967) as that: income concept which embodies the minimum number of preferences, exemptions and deductions. The CTB concept reflects a normative position that the income tax base should be as broad and inclusive as possible. Specific exemptions, whatever their individual merits, are ruled out by the comprehensiveness objective. Using the comprehensive tax base, all taxpaying units would pay an amount equal to that which would be due if all sources of gain were treated as is ordinary income presently.

It has been argued by Stanley Surrey (1973), Breck and Pechman (1975), and others that subsidizing certain types of economic activity through the tax system is covert. Direct subsidies, if needed, could be provided through the normal appropriation and review process of Congress. In this view, the integrity of the tax system itself is an important societal goal. Removing preferences will increase public support for the principal of direct income taxation, increase voluntary compliance, and reduce the social burden of audit and litigation costs.

What would be the model comprehensive tax base? Bittker (1967, pp. 931-933) proposes at least three approaches. The first is to start with gross income, which would then be converted into taxable income by deducting the expenses, losses, and debts and depreciation incurred in the taxpayer's business or profit-motivated transactions -- but nothing else. A second model would be to adopt the Haig-Simons definition of income as consumption plus the change in net worth as the idea for a rigorous CTB. Only insuperable valuation difficulties, or administrative problems would justify deductions from this measure. Still another possible starting point for the CTB is the concept of personal income, as employed in the national income accounts. Since we have discussed the latter two concepts above, what follows will focus on the first concept.

Necessary Reforms to Establish a Comprehensive Tax Base: Preferences and special exceptions can be classed into two categories--those dealing with sources of income, and those impacting on uses of income. Some of the relevant items are excluded from the tax base by statutory or administrative fiat, while others are taken as deductions from gross income in computing taxable income.

A major category of currently excluded income is received in the form of public transfer programs. The Comprehensive Tax Base (CTB) would include income from Social Security, Railroad Retirement, and veterans programs, with an adjustment to permit the taxpayer to recover his contributions. It would also include transfers under income conditioned programs such as Public Assistance. A family whose only income came from these sources would pay no tax in any case, since personal exemptions and the minimum standard deduction typically exceeds the maximum benefit under these programs. However, families who combine earnings, property and transfer income often derive substantial benefit from the exempt status of the latter.

Income sources designed to supplemerit the taxpayer's wages when earning capacity has been impaired by illness or accident (workmen's compensation, military disability benefits, and sick pay), damages received for accidents, and payments under accident and health policies, are all currently excluded from gross income. Under a CTB, these sources of income would be taxable. Government benefits which are received in-kind have not been proposed for inclusion in a CTB.

Horizontal equity of the Comprehensive Tax Base would be furthered by the inclusion of these in-kind benefits, since they are systematically related to economic well-being. Difficulties of valuation constitute the major objection to inclusion of programs such as Medicare and Medicaid, Food Stamps, subsidized housing, and services provided by welfare agencies. Scholarships and fellowships, on the other hand because they are received directly as cash, would be included in the CTB. There is some merit to the criticism that this asymmetric treatment of cash versus in-kind benefits under the CTB does inevitably discriminate in favor of indirect benefits.

As is the case for public transfer payments, private charity and gifts when they can be readily valued, would be included in the CTB. However, Bittker suggests it would be desirable to place a floor on the size of transfer which would be subject to taxation, in order not to discourage donations and gifts.[1]

[1] Currently, gifts, are excluded from the income tax base; instead they are taxable under a separate gift and estate tax.

Death benefits received by the beneficiaries of life insurance policies are excluded from adjusted gross income, under the theory that such benefits are part of the taxable estate of the deceased, hence subject to estate taxation. Insurance receipts over and above cash values resemble a bequest. They are not currently included in adjusted *gross* income, and have not been proposed for inclusion by *reformers.* Interest *income* from life insurance policies is not taken into income as it accrues, and it is excluded -entirely if the policy is paid because of the death of the insured. This treatment of interest implies that the channeling of savings through a life insurance company allows a decrease in taxes. The inclusion of life insurance interest on an accrual basis has been suggested for the CTB.

Imputed Income: *The major source* of imputed income is the imputed rent on owner-occupied housing.[1] *This source* of income, net of the expenses of earning that income (interest payments on the mortgage depreciation, operating and maintenance expenditures, local property taxes), would be included in the CTB.

Allowable Deductions: Advocates of the CTB are generally willing to accept the validity of personal tax deductions for state income taxes, large charitable contributions, extraordinary medical expenses, and major casualty losses. State income taxes would be excluded to promote use of this tax instrument at the state level. The current treatment of medical expenditures is subject to criticism because the floor above which expenditures are deductible is three percent of income. Since the median outlay for medical and dental expenditures exceeds this percentage, the deduction does not screen out much of the usual medical expenditures. The reform suggested to make the treatment of medical expenditures consistent with the CTB and the ability to pay concept is to raise the minimum deductible. Bittker (1967, p. 985) points out that this method of reconciling a CTB with unusual expenditure requirements which reduce a taxpayer's discretionary *income* is consistent with an approach that accepts preferences and exclusions, so long as they are equally distributed among the taxpaying population.

[1] See Section 4-5, "Imputation of Income from Owner-Occupied Homes".

The CTB would accept the present practice of taxing capital gains at realization rather than accrual. Break and Pechman (1975) note that accrual taxation would not be difficult for assets such as corporate shares, as they are traded regularly on organized exchanges. However, problems of valuation, liquidity, and general price level changes are generally accepted as insurmountable difficulties in taxing other forms of capital gains on an accrual basis.

To prevent capital gains from escaping taxation completely when assets are transferred by gift, bequest, or donation, a "constructive realizations" approach has been proposed (Break and Pechman, 1975). The original owner or his estate would pay tax on the accrued gain, just as if he had sold the asset. Such a reform would increase the liquidity of capital assets, and it would also make an important contribution to horizontal (and intergenerational) equity in the tax system.

In summary, several major reforms are necessary to broaden the tax base in furtherance of the CTB ideal. Benefits from public transfer programs (Social Security, Railroad Retirement, Veterans' Programs, and Public Assistance) would be included, -as would be scholarships and fellowships. Significant gifts would be included, but bequests and life insurance receipts would not. The inequity in the tax treatment of homeowners and renters would be eliminated by imputing income to the homeowner's equity. Certain deductions would be retained under the new concept -- state and local taxes, charitable contributions, extraordinary medical expenses, casualty losses, and work related expenses (except commuting costs). Table 4-5 presents this concept.

For additional discussion of both the current taxable income concept and a comprehensive tax base organized on the Haig-Simons accretion principle, see Goode (1976), Musgrave (1959), or Houghton (1970).

Cash Flow or Consumption Tax Base'

In the face of the difficulties which arise in implementing a fair and efficient tax system on the accretion principle, some scholars have proposed instead that income be recognized only when it becomes available for consumption (the realization principle). This principle is applied to some degree in the current tax system. Capital gains are taxed only when realized, and labor income is taxed when paid rather than when accrued.

TABLE 4-5

COMPREHENSIVE TAX BASE
UNIT OF ANALYSIS: FAMILY OR INDIVIDUAL
ACCOUNTINGPERIOD: ANNUAL

INCOME

A.	**Labor** Income
A.1	Civilian Wages
A.2	Civilian Salaries
A.3	Tips and Gratuities
A.4	Honoraria and Awards
A.5	Sick Pay
A.6	WIN Payments
A . 7	Active Military Pay--Nonhazardous Duty
A.8	Active Military Pay--Hazardous Duty
A.9	Military Reserve Pay
B.	Business Income
B.1	Net Income from Business Proprietorship
B.2	Net Income from Business Partnership
B.3	Net Income from Farm Proprietorship
B.4	Net Income From Farm Partnership
B.6	**Gambling Winnings** or Losses
C.	Property Income
C.1	Interest
c.2	Dividends
c.3	Net Income from Rental Property
c.4	Royalties
C.5	Realized Capital Gains or Losses
c.7	Imputed Rent on Owner-Occupied **Home**
c.9	Receipts from Private Pension **Plan**[1]
C.10	Receipts from Public Pension Plan[1]
C.11	Income from a Trust
D.	Public Cash Transfer Payments
D.l	Social Security Retirement **Benef its**[1]
D.2	Social Security **Disability Benefits**[1]
D.3	Social Security **Survivor's** Benefits[1]
D.4	Railroad Retirement Benefits'
D.5	Unemployment Benefits
0.6	Workmen's Compensation Payments
D.7	Veteran's Disability Pension--Service Connected
0.8	Veteran's Disability **Pension--Nonservice** Connected
D.9	Pension for Survivors of Veterans
D.10	Veteran's Educational Benefits

[1] After contributions are recovered.

D.11 Aid to Families with Dependent Children
D.12 Supplemental Security Income
D.13 General Assistance
D.14 Other Public Assistance Program

E. Public In-kind Transfers

E.10 Scholarships and Fellowships

F. Private Transfers *in* Cash and in Kind

F.1 Alimony and Child Support Receipts
F.2 Gifts
F.4 Damages (Net of Associated Costs)
F.5 Scholarships and Fellowships
F.7 Prizes and Awards

EXPENDITURES

G.2 Child Care--Within the Home
G.3 Child Care--Outside the Home
G.4 Union Dues
G.5 Dues to Professional Organizations
G.6 Clothing and Tools Required in Work
G.7 Educational Expenses[1]
G.8 Medical Expenses[2]
G.16 State Income Taxes
G.17 Local Wage *or* Income Taxes
G.18 State Sales or Excise Taxes
G.19 State and Local Property Taxes
G.21 Interest Paid
G.22 Charitable Contributions
G.23 Alimony and Child Support Payments
G.24 Casualty Losses

ASSETS AND LIABILITIES

Not Applicable

[1]Under certain conditions, expenses could be amortized against income.

[2]Above normal levels.

Farmers are permitted to maintain their records (and thus accrue tax liability) on a cash basis, as are certain nonincorporated proprietors. Irving Fisher (1930/1961) was an early advocate of the realization principle. He in fact went so far in his exposition as to insist that consumption was income, an eccentricity which has not been adopted by his followers. Nicholas Kaldor (1955) has presented a scheme for replacing the current income tax with an expenditure tax. In his view, such a tax is simpler administratively, fairer in that tax burdens are apportioned according to the level of enjoyment of goods and services, and less susceptible to evasion or erosion by preferences.

A more recent treatment of the subject by William A. Andrews provides an extremely lucid discussion of what this concept embodies:

> It involves putting the income tax treatment of business and investment transactions more completely on a simple cash flow basis. Investment expenditures would be deductible when made; on the other hand, all receipts from business and investment activities, including loan proceeds, would be immediately and fully includable in taxable income. This would have the effect of treating accumulation consistently by excluding it from taxable income even when it is represented by investment of realized gains or of ordinary income.
>
> On its face this possibility may seem to be a step in the wrong direction, a step further away from fairness and equity as represented by the present accretion ideal. But a cash flow income tax would correspond very closely to another ideal, that of a tax whose burdens are apportioned to current personal consumption expenditures rather than total accretion. (Andrews, 1974, p. 1116)

Andrews goes on to discuss the realization concept in considerable detail. It would include ordinary income (wages and salaries, professional fees, dividends, interest and rents), proceeds from the sale of property, proceeds from business loans, and large cash gifts and transfers of property. Table 4-6 summarizes the concept.

From this total would be deducted all sums which are invested and all payments for interest and principal of business loans. Andrews notes that the realization concept is neutral with respect to existing personal deductions and exemptions. The same arguments which exist for continuing or eliminating them from the accretion income model apply to the realization concept.

TABLE 4-6

CASH FLOW OR CONSUMPTION TAX BASE
UNIT OF ANALYSIS: FAMILY OR INDIVIDUAL
ACCOUNTING PERIOD: ANNUAL

INCOME

A.	Labor Income
A.1	Civilian Wages
A.2	Civilian Salaries
A.3	Tips and Gratuities
A.4	Honoraria and Awards
A.5	Sick Pay
A.6	WIN Payments
A.7	Active Military Pay--Nonhazardous Duty
A.8	Active Military Pay--Hazardous Duty
A.9	Military Reserve Pay
B.	Business Income
B.1	Net Income from Business Proprietorship
B.2	Net Income from Business Partnership
B.3	Net Income from Farm Proprietorship
B.4	Net Income from Farm Partnership
B.5	Value of Food Produced and Consumed by Owner of Farm
B.6	Gambling Winnings or Losses
C.	Property Income
c.1	Interest
c.2	Dividends
C.3	Net Income from Rental Property
c.4	Royalties
C.5	Realized Capital Gains or Losses1
c.9	Receipts from Private Pension Plan
C.10	Receipts from Public Pension Plan
C.11	Income from a Trust
D.	Public Cash Transfer Payments
D.l	Social Security Retirement Benefits
D.2	Social Security Disability Benefits
0.3	Social Security Survivor's Benefits
D.4	Railroad Retirement Benefits
D.5	Unemployment Benefits
D.6	Workmen's Compensation Payments
D.7	Veteran's Disability Pension--Service Connected

[1]Total proceeds from sale of property, not simply the qain, included at time of sale.

D.8 Veteran's Disability Pension--Nonservice Connected
D.9 Pension for Survivors of Veterans
D.10 Veteran's Educational Benefits
D.ll Aid to Families with Dependent Children
D.12 Supplemental Security Income
D.13 General Assistance
D.14 Other Public Assistance

E. Public In-kind Transfers

None

F. Private Transfers in Cash and in Kind

F.l Alimony and Child Support Receipts
F.2 Gifts[1, 2]
F.3 Bequests[1,2]
F.4 Damages (Net of Associated Costs)
F.5 Scholarships and Fellowships
F.7 Prizes and Awards
F.8 Support Provided by Others
F.9 Proceeds from Life Insurance

EXPENDITURES[3]

G.2 Child Care--Within the Home
G.3 Child Care--Outside the Home
G.4 Union Dues
G.5 Dues to Professional Organizations
G.6 Clothing and Tools Required in Work
G.7 Educational Expenses
G.8 Medical Expenses
G.9 Medical Insurance Premium
G.16 State Income Taxes
G.18 State Sales or Excise Taxes
G.19 State and Local Property Taxes
G.20 *Moving* Expenses
G.21 Interest Paid[4]

---

[1]Total proceeds from sale of property, not simply the gains, included at time of sale.

[2]Large cash gifts and transfers of property are included in the recipient's taxable income, and deducted by the donor.

[3]Andrews takes no position on existing deductions for education, medical expenses, charitable contributions, state and local taxes, and work related expenses.

[4]Interest and principal is deductible for business loans, but not for a mortgage on owner occupied home or consumer credit loans.

G.22 Charitable Contributions
G.23 Alimony and Child Support Payments
G.24 Casualty Losses
G.25 Payments for Support of Others[1]

ADDITIONAL SPECIFIC DEDUCTIONS[2]

Employee Contribution to Pension Fund
Deposits in Savings Accounts
Purchases of Securities
Life Insurance Premiums
Purchase of Real Property
Investment in a Business

ASSETS AND LIABILITIES

None

[1] Large cash gifts and transfers of property are included in the recipient's taxable income, and deducted by the donor.

[2] Andrews' concept requires that investment outlays be deducted from income in computing tax liability.

Mortgage interest on one's home would not be deductible. Andrews notes that the burden of servicing one's mortgage closely approximates the consumption services provided by ownership. An initial down payment would be deducted when paid, but would be included under a periodic schedule in future years.

Andrews proposes that changes in cash holdings and bank accounts (demand deposits) be left out of the account completely. However, deposits in savings accounts would be deductible, and withdrawals included, in the same manner as an investment. Gifts of cash and property would be deductible; thus the tax burden is shifted from the donor to the recipient. Life insurance proceeds would be included, while life insurance payments would be deductible. Similarly, pension receipts would be included in income) and employee contributions to a pension fund (or purchase of'an annuity) would be deductible. Andrews concludes by noting that the major difficulty with this new concept of taxable income is the transition from the existing mixed accrual-realization system.

Income Concepts Used in the Analysis of Tax Burdens

The problem of analyzing the distribution of tax burden by income class presents certain special features which require modification of the income concept. These relate to the fact that many taxes are levied indirectly and to the desirability of using a before-tax income concept which still includes all sources of income, not simply earnings and property income. The necessity to determine the ultimate incidence of such taxes as the property tax, sales and excise taxes, and the corporate income tax stems from the view that taxes cannot be levied on institutions (such as corporations) without the ultimate burden of the tax resting on some individual person. The logic which leads to the assignment of incidence does not concern us here. In practice, researchers calculating tax burden have made assumptions regarding incidence which reflect the majority view on these questions, or have provided alternative calculations using different assumptions.

The special nature of the income concept presents other problems. The income concept must be gross of tax, since taxes are presumed to be paid from it. However, it must also include transfer payments (which are of course financed by taxes paid). The resulting measure cannot be summed across individuals to yield a measure of social or national income without

"double counting." While this is distressing to some, as Simon points out in another context it is a "misconception that personal income is merely a share in some undistributed, separately measurable whole." (Simon, 1938, p. 76). The notion that individual income must sum to aggregate national income stems from the apparent necessity to distribute the goods and services produced in an accounting period to individual recipient units. However, this view fails to reckon with the shared nature of benefits derived from public goods, or with the various uses to which income measures are put. Some measures of income, such as disposable personal income, should be aggregatable into a total concept, which corresponds to the value of some real bundle of goods and services; others (and the tax burden concept falls in this category) should not.

Statistical calculations of tax burden are presented and discussed by Prest (1955) for Great Britain and by Roger Herriott and Herman Miller (1971) for the United States. An earlier study by Musgrave (1951) for the United States set the pattern for much of the later work. In recent years, this subject has been explored at the Brookings Institution by Joseph Pechman and Ben Okner. In Pechman and Okner (1972), they discuss individual income tax erosion by income classes. More recently (Pechman and Okner, 1974) they have calculated total tax burden using a data base created by the merging of the Survey of Economic Opportunity and Internal Revenue Service tax return data. A variety of results follow from different combinations of assumptions regarding incidence. The discussion of the income concept which follows is based on Okner (1975).

Okner terms his income concept family income. It may be defined in a manner analogous to Simon as consumption plus the change in net worth plus total taxes paid directly or indirectly. In terms of national aggregates, it is equal to national income (the sum of factor incomes) plus transfer payments plus accrued capital gains on real estate and unincorporated farms. Note that national income includes already corporate net income before tax, which should approximate the accrual of capital gains on corporate stock. Thus this form of capital gain does not require separate inclusion. Table 4-7 displays Peckman/Okner's family income concept.

Okner discusses this concept in relation to others. It differs from money factor income (cash income paid to persons--wages and salaries, rents and

TABLE 4-7

FAMILY INCOME (PECHMAN/OKNER)
UNIT OF ANALYSIS: FAMILY
ACCOUNTING PERIOD: ANNUAL

INCOME

A. Large Income

A.1 Civilian Wages
A.2 Civilian Salaries
A.3 Tips and Gratuities
A.5 Sick Pay
A.6 WIN Payments
A.7 Active Military Pay--Nonhazardous Duty
A.8 Active Military Pay--Hazardous Duty
A.9 Military Reserve Pay
A.10 Insurance Provided by Employer
A.11 Employer Contributions to Pension Plan
A.12 Earnings Paid in Rind
A.13 Value of Bargain Purchases from Employer

B. Business Income

B.l Net Income from Business Proprietorship
B.2 Net Income from Business Partnership
B.3 Net Income from Farm Proprietorship
B.4 Net Income from Farm Partnership
B.5 Value of Food Produced and Consumed by Owner of Farm
B.6 Gambling Winnings or Losses

C. Property Income

C.I Interest
c.2 Dividends
C.3 Net Income from Rental Property
c.4 Royalties
C.5 Realized Capital Gains or Losses
C.6 Unrealized Capital Gains or Losses
c.7 Imputed Rent on Owner-Occupied Home
c.9 Receipts from Private Pension Plan
C.10 Receipts from Public Pension Plan
C.ll Income from a Trust
C.12 Retained Earnings by Corporations'
C.13 Corporate Income Tax Liability

D. Public Cash Transfer Payments

D.l Social Security Retirement Benefits
D.2 Social Security Disability Benefits
D.3 Social Security Survivor's Benefits
D.4 Railroad Retirement Benefits
0.5 Unemployment Benefits

D.6 Workmen's Compensation Payments
D.7 Veteran's Disability Pension-Service Connected
D.8 Veteran's Disability Pension--Nonservice Connected
D.9 Pension for Survivors of Veterans
D.10 Veteran's Educational Benefits
D.11 Aid to Families with Dependent Children
D.12 Supplemental Security Income
D.13 General Assistance
D.14 Other Public Assistance

E. Public In-kind Transfers

E.l Bonus Value of Food Stamps
E.2 School Lunch Subsidy
E.3 Medicare Payments
E.4 Medicaid Payments
E.5 Medical Care Provided by
E.6 Public Housing Subsidy
E.7 Assistance to Homeowners (Section 235 and 502)
E.8 Subsidy from Public Higher Education
E.10 Scholarships and Fellowships

F. Private Transfers in Cash and in Kind

None

EXPENDITURES

None

ASSETS AND LIABILITIES

None

royalties, interest, dividends, professional income, and realized capital gains) by including fringe benefits, the net value of imputed rent on owner-occupied homes, the retained earnings and income tax liability of corporations, accrued capital gains on noncorporate assets and interest earnings of life insurance policies. Finally, public transfer payments in cash and in-kind have been added.

The money income concept used by the Census Bureau is money factor income plus cash transfers and pension receipts. Total money income, as defined by Okner, is Census money income plus realized capital gains. Clearly, the Okner concept of family income is more comprehensive than money income. It differs from the BEA family income concept (see Section 4.1) basically in the inclusion of capital gains.

In contrast, to the major revision of the income concept, Okner accepts the annual accounting period and family/unrelated individual analytic unit used by the CPS data without adjustment. Also, like Simon, Okner, by including accrued capital gains, adopts an accretion concept of income for his analysis.

Other Issues in Defining Taxable Income Concepts

The appropriateness of deducting such work related expenses as child care, items required in work, union and professional dues, educational expenses, and transportation and moving expenses have been presented in Chapter 3 and are not repeated here. Most of these expenses are treated as deductions or tax credits in the existing U.S. tax system. Bittker (1973a) reviews their theoretical basis and operational treatment in the tax code, and supports their retention. He also argues forcibly against the conversion of deductions to tax credits.

Blwnberg (1971-72) notes that the existing definition of taxable income is biased against families with two earners. Boskin (1974) analyzes the economic effects of the tax code on male and female labor, noting that these effects stem both from special provisions in the tax law and because males and females may respond differently to the same incentives. Fundamental among these special provisions is the fact that labor in the home is not taxed. To some extent, this incentive to home production is offset by

the fact that those working in the home do not receive credit for this labor in the Social Security System. Bell (1973) has proposed that credits be given for housework. Also contributing toward the bias in favor of home activity is the fact that the applicable tax rate on a second earner's income is the high marginal rate established by the other family income (cf. *Rosen, 1976)*. *The tax credit* for child care provides some relief from this burden.

4.4 Redistribution of Income

Much attention has been focussed on the process by which governments redistribute income among spending units. While much of the literature is concerned with administrative and practical aspects of specific programs, a number of studies have dealt with the general issues of redistribution in a way which introduces variation in the way income is defined. In this discussion, the transfer of general purchasing power through a negative income tax program or a similar unrestricted transfer is considered first. Next, those studies which attempt to measure the extent of redistribution under current programs and the distribution of transfer receipts and tax burdens by income class are examined. Section 4.5 which follows, will address the literature concerned specifically with the measurement and valuation of in-kind benefits.

Income Concepts in the Negative Income Tax System

A negative income tax (NIT) is a cash transfer payment graduated according to the size of the recipient unit and total income received from other sources. Thus the definition of income will have major implications for total program cost and equity of treatment.

There are two distinct conceptual approaches to the problem of defining the negative income tax base. One group assumes that poverty is a burden imposed randomly on individuals. It follows from this view that the recipients of income maintenance should be treated according to the same criteria as all other citizens. If a comprehensive tax base (discussed in the proceeding section) is a valid model for the positive tax system, then the same concept should be adopted for the negative income tax. The same arguments with reference to the inclusion or exclusion of particular items from the positive income tax base would apply to the negative tax base.

The second conceptual approach to the negative income tax base rests on the assertion that the financing of a program cannot be considered independently of the benefits. Since eligibility rules can be viewed as financing devices, in that they directly affect the overall cost of the program, their formulation should reflect the fact that the benefits of an

income maintenance program accrue directly to individuals. Using this criteria, the recommended negative income tax base is a broadly inclusive aggregate which exceeds the CTB in its comprehensiveness.'

Tobin, Pechman, and Miezskowski (1967) note that

> There are three major sets of problems in designing a workable plan: (1) How to define the family unit and relate basic allowances to its size and composition: (2) How to define the base for the offsetting tax and to relate NIT to the regular income tax and to existing government income maintenance and assistance programs; (3) How to determine eligible claimants, make timely payments.... and collect offsetting taxes. (p. 4)

They suggest that "a family unit consists of an adult nucleus, plus any other persons claimed as members of the adult nucleus." (p. 10)

Discussing the concept of the tax base, they argue: . . .

> Since the basic purpose of the (NIT) is to alleviate economic need, the definition of income should not coincide with the definition used for positive income tax purposes... (it) should include many items that are specifically excluded in whole or in part from the positive income tax base . . . tax exempt interest, realized capital gains, and scholarships and fellowships in excess of tuition would be included in full; . . . The simplest procedure is not to allow any exemptions for dependents or deductions (standard or itemized) . . . (with the possible exception of) . . . medical expenses greater than some function of the unit's basic allowance,'. (p. llf)

The authors note that non-income-tested transfers, such as veterans benefits and unemployment compensation, should be included in the income concept used for the tax base. Public assistance payments based on need, however, should not be included.

A principal difference between the negative tax base derived from the benefit theory approach and the CTB lies in the inclusion of wealth or capital in the former. The individual is taxed, i.e., has his benefits reduced, as a function both of his stock of wealth and the flow of current income from that wealth. The proposed rate at which capital should be consumed has varied from 100 percent under certain welfare programs such as General Assistance and the Nixon Family Assistance Plan (i.e., no benefits are paid until nonexempt assets are exhausted) to 10 percent in the New Jersey Income Maintenance Experiment (Kershaw and Fair, 1976).

Pensions and annuities are treated as assets, as they are used for current consumption. Such treatment differs from the CTB, in which there would be an exclusion for the capital-recovery element of pension and annuities.

There are certain other differences between the two systems in their comprehensiveness. Unlike the positive tax system, the negative income tax base treats support payments as income. Inheritances and life insurance proceeds would be included, though they are generally excluded from the CTB. A CTB would include imputed income from home ownership; for traditional welfare programs, this imputation is made automatically in the form of reduced benefits if a recipient owns his own home. William Klein (1974, p. 470) recommends that imputed income fron owner-occupied housing not be included in the NIT base. He cites both administrative difficulties in valuation and high required out-of-pocket expenditures for owners as justification for this position. He also suggests that imputed income from publicly subsidized housing be excluded from the negative income tax base, on the grounds that a constrained choice of housing expenditures does not reduce other needs, and that a longer run policy of replacing in-kind subsidies with cash grants requires income transfers large enough to permit charging full market prices for housing.

Handler and Klein (1970) present a model statute which defines the income concept, recipient unit, and accounting system which could be used in a negative income tax program. Income includes factor incomes (wages and salaries, interest, dividends, rents, royalties, professional income and realized capital gains), annuities, pensions and retirement payments, proceeds from life insurance, gifts, inheritances, alimony and support payments, income from a trust, all forms of public assistance, scholarships and fellowships, and income in-kind to the extent that actual cash outlays are reduced by its receipt. In addition, income is defined to include 10 percent of the current value of wealth, less any property or wealth income already included above. That is, the total value included in income is the greater of (1) cash income from property or (2) 10 percent of the value of wealth. Table 4-8 presents their concepts.

TABLE 4-8

NEGATIVE INCOME TAX BASE
UNIT OF ANALYSIS: FAMILY
ACCOUNTING UNIT: ANNUAL

INCOME

A.	Labor Income
A.1	Civilian Wages
A.2	Civilian Salaries
A.3	Tips and Gratuities
A.4	Honoraria and Awards
A.5	Sick Pay
A.6	WIN Payments
A.7	Active Military Pay--Nonhazardous Duty
A.8	Active Military Pay--Hazardous Duty
A.9	Military Reserve Pay
B.	Business Income
8.1	Net Income from Business Proprietorship
B.2	Net Income from Business Partnership
B.3	Net Income from Farm Proprietorship
B.4	Net Income from Farm Partnership
B.6	Gambling Winnings *or* Losses
C.	Property Income
C.l	Interest
c.2	Dividends
C.3	Net Income from Rental Property
c.4	Royalties
C.5	Realized Capital Gains *or* Losses
c.7	Imputed Rent on Owner-Occupied Home
c.9	Receipts from Private Pension Plan
C.10	Receipts from Public Pension Plan
C.11	Income from a Trust
D.	Public Cash Transfer Payments
D.l	Social Security Retirement Benefits
0.2	Social Security Disability Benefits
D.3	Social Security *Survivor's* Benefits
D.4	Railroad Retirement Benefits
D.5	Unemployment Benefits
D.6	Workmen's Compensation Payments
D.7	Veteran's Disability Pension--Service Connected
D.8	Veteran's Disability Pension--Nonservice Connected
D.9	Pension for Survivors of Veterans
D.10	Veteran's Educational Benefits
D.11	Aid to Families with Dependent Children
D.12	Supplemental Security Income

[1] Implicitly included by lowering need standards.

D.13	General Assistance
D.14	Other Public Assistance
E.	Public In-kind Transfers
E.l	Bonus Value of Food Stamps
E.10	Scholarships and Fellowships
F.	Private Transfers in Cash and in Kind
F.l	Alimony and Child Support Receipts
F.2	**Gifts**[2]
F.3	Bequests
F.4	Damages (Net of Associated Costs)
F.5	Scholarships and Fellowships
F.7	Prizes and Awards
F . O	Support Provided by Others

EXPENDITURES

G.l	Commuting Cost
G.2	Child Care--Within the Home
G.3	Child Care-Outside the Home
G.4	Union Dues
G.5	Dues to Professional Organizations
G.6	Clothing and Tools Required in Work
G.7	Educational Expenses
G.8	Support Provided by *Others*
G.14	Federal Income Taxes
G.15	F.I.C.A. Taxes
G.16	State Income Taxes
G.17	Local Wage or Income Taxes
G.23	Alimony and Child Support Payments
G.24	Casualty **Losses**

ASSETS AND LIABILITIES[3]

H.l	Value of Home
H.2	Value of Home Furnishings
H.3	Value of Vehicle(s)
H.4	Value of Business Property
H.5	Value of Farm or Ranch
H.6	Value of *Other* Real Property
H.7	Value of Other Personal Property
H.8	Bonds
H.9	Securities
H.10	Checking Accounts
H.ll	Savings Accounts

[2] No consensus on this item.

[3] A fraction of assets is imputed to income each year. Assets which return income are excluded.

H.12	Cash Value of Life Insurance
H.13	Loans Owed by Individuals
H.14	Present Value of Pension Rights
H.15	Other Amounts Due
J.1	Mortgage Debt on Home
5.2	Installment Credit Debt
5.3	Outstanding Debt on Car Loan
5.4	Debt Secured by Business Property
J.5	Mortgage Debt on Farm or Ranch
5.6	Mortgage Debt on Other Real Property
5.7	Debt to Brokers or Dealers
5.8	Personal Loan Balance Outstanding
J.9	Amount Owed to Other Individuals
J.10	Other Amounts Payable

Handler and Klein note that the recipient unit must be carefully spelled. out by the statute, so that individuals living together and sharing expenses are not allowed to file separately and increase total benefits paid. The recipient unit corresponds to the concept advanced by Epstein (1969). Individuals living together are grouped together if they constitute a natural family unit (husband, wife and minor children or a single adult with minor children), otherwise they file as individuals, and must account for any support received from other family or household members, as well as support received from individuals outside the household.

The accounting period used in the model statute is monthly. In fact, however, income from assets and businesses would be reported yearly, with monthly estimates used in benefit calculations. A carry forward system[1] is used to insure equity of treatment, and to reconcile estimates with subsequent reporting of actual income.

Additional discussion of the negative income tax base can be found in Tobin (1968), in the Technical Studies for the Presidents Commission on Income Maintenance Programs (1970), and in the numerous reports which have been generated from the New Jersey Income Maintenance Experiment (Kershaw and Fair, 19761, and related social experiments (Abt Associates, Inc., 1976). Also see the review article by Diamond (1968), although in this active area it is somewhat dated.

Measuring the Extent of Redistribution

Government redistributes income in many ways -- as direct transfers of cash to individuals and families in need (see U.S. Department of Health, Education, and Welfare, 1974), as goods and services transferred either directly or through subsidies provided to intermediaries, as public goods, the-benefits of which are shared by the population, or as subsidies to private producers and consumers (the latter have been discussed previously in the taxation section). With the exception of the first category (direct cash transfers to individuals) substantive difficulties of

[1] A carry forward system keeps an inventory of income received and benefits paid, and adjusts future benefits to recover overpayments or restore underpayments. See Asimow and Klein (1970) and Jodie T. Allen (1973) for a discussion of the mechanics of such a system.

measurement, valuation, and attribution of benefit stand in the way of a rigorous accounting of distribution. Nevertheless, attempts have been made to account for the total value and distributional impact of public sector redistributive policies. In doing so, analysts must specify what they view as the income concept appropriately measured before and after taxation and redistribution.

Gillespie (1965) attempts "to determine the redistributional impact of the entire budget structure! (p. 123). In defining income before taxes and transfers, Gillespie extends the notion of income beyond the ordinary income concept. He defines broad income to be money factor income (wages, salaries, interest dividends, rents, royalties, professional income, and realized capital gains), to include accrued capital gains (retained earnings), and non-money income (home produce and the imputed value of owner-occupied homes). After tax or adjusted broad income is then defined to be broad income less total taxes (personal, corporate, and sales and excise taxes) plus government purchases of goods and services and transfer payments to persons. Available income distribution and tax data are combined with assumption regarding the distribution of corporate earnings and tax liabilities, and the consumption benefits of government purchases and in-kind transfers (valued at the cost of production) to yield a distribution of adjusted broad income.

Gillespie's concept adopts the family as the recipient unit and an annual accounting period. He notes that his study is limited because it takes no account of difference of age or family status in comparing families.

In Redistribution to the Rich and the Poor (Boulding and Pfaff, 1972) are a number of papers which attempt to value specific transfer categories. Okner (1972) uses Survey of Economic Opportunity data to measure the extent and impact of redistribution. His income concept is money factor income. Included in transfers are social insurance and veterans' payments, public assistance, and health, education, and housing programs. David and Leuthold (1972) examine the distributional impact of changing the income concept in an income maintenance plan. They examine two income concepts: adjusted gross income (similar to the taxable income concept) and total money income. They also determine the implications of switching from families to the adult unit (husband, wife and minor children) in defining the recipient unit.

Jean Behrens and Eugene Smolensky (1973) examine the implications for measures of redistribution of different pre-tax and transfer income concepts. They use the same after-tax and transfer concept as Gillespie (factor incomes - taxes + transfers and benefits from government purchases) but vary the assumptions used to generate the initial income distribution. They point out that Gillespie's concept assumes that in the absence of government, private factor incomes would be identical to those actually realized. As an alternative they consider Lindahl's concept, in which the government makes expenditures, but finances them by taxes levied on the marginal benefit principle, so there is no redistribution. Another variant would add transfers to factor incomes, assuming still that taxes are levied according to the marginal benefit of government purchases. Finally, Behrens and Smolensky consider their own alternative, which replaces the marginal benefit principle by an ability to pay taxation principle and assumes that the act of redistribution creates benefits to donors equal in value to the transfer received by recipients. Thus the act of giving creates (at least in the aggregate) benefits to donors which offset the loss of purchasing power created by the transfer of resources. The concept of donor benefits is novel in empirical work, although it has played a role in theoretical analyses which seek to explain why rational individuals would give away individually or through social decision process any portion of their private incomes, (See Hochman, Rodgers, and Tullock (1973) and Daly and Giertz (1972) for examples of the theoretical argument.)

Okner (1973) examines the 'demogrant' approach to income maintenance. A demogrant differs from the negative income tax payment only in appearance and administrative procedure, A payment would be made (varying with family size) to all families in the nation. Okner suggests that this demogrant program could be partially or totally financed by reforming the positive tax system, Under a system of comprehensive reform, Okner suggests elimination of itemized personal deductions, preferential treatment of certain types of income sources and expenditures, and the favorable treatment of homeowners. The income concept differs from the comprehensive tax base in eliminating personal exemptions, since the demogrant obviates the need for them.

Garfinkel and Haveman (1974) propose yet another measure of pre-transfer income: earnings capacity. They note the limitations of money income data which have previously been discussed, and suggest instead that earnings capacity be determined according to the human capital model discussed in Chapter 3. To earnings capacity must be added property income. They also note that costs of earning income should be deducted in principle -- however data limitations allow them to deduct only child care expenses when constructing their measure of earnings capacity. While basically a function of age and education, earnings capacity is also adjusted for location, illness and disability and involuntary unemployment. Like Hall, Garfinkel and Haveman define earnings capacity based on a forty hour week of work; they thus implicitly assume that home activity for nonworking persons is equal in amount and value to that person's earning capacity in the market, and that leisure is distributed equally over the population. Using the Transfer Income Model (TRIM), they demonstrate that of the several possible transfer systems examined, all but AFDC were less efficiently distributed to the poor when the earning capacity concept of poverty replaces the wney income measure.

Browning (1976) cites as the three major shortcomings of the money income concept the exclusion of in-kind transfers and benefits from government purchases, the provision of educational services, and leisure and home production by adults not in the labor force. His estimates indicate a decline over time in inequality. However, his choice of procedures has been criticized by several authors. See Taussig (1976) for a discussion. Other recent studies which differ in methodology and assumptions, but do not introduce. new considerations for the concept of income, include the study of redistribution in Canada by Dodge (1975), and estimates for the United States by Watts and Peck (19753.

For a critique of these studies by two radical economists, note the interesting article by Sowers and Wachtel (1975). The latter argue that the distribution of pre-tax end transfer income, as conventionally defined, is not the distribution of income which would occur in the absence of government. Rather, it reflects major elements of government policy, These include (1) *macroeconomic* allocative and budgeting decisions, (2) regulatory decisions which influence both the allocation of resources

and the rate of return to capital, influencing factor shares, and finally (3) the defini.on and enforcement of a given set of property rights (in particular, private ownership of capital and land), All of these give rise to an income distribution (in their view) very different from that which would prevail under alternative economic and social institutions. No estimates are provided, since the alternative distribution is purely conjectural.

In summary, studies of the impact of redistribution are characterized by disagreement both with regard to the appropriate concept of pre-tax and transfer income, and the appropriate adjustments to make to money income in order to measure the after-tax and transfer distribution. The only point of agreement is that money income is not an adequate measure. For a review of these and other issues concerned with public transfer programs, see Toward an effective income support system, (Barth et al., 1974).

4.5 Income In-Kind

The term "in-kind income" refers to goods and services which are received and consumed by the family for which there is no corresponding cash payment. The major sources of in-kind income for families are the following:

Services performed by family members in the home'

Imputed rent

Services from consumer durables

Earnings paid in kind

Imputed interest provided as financial services

Government in-kind benefits to individuals

Private in-kind transfers

Considerations in deciding which sources should be included and which excluded are discussed below. Inclusion of in-kind income poses special

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'Previously discussed in Section 3.4, While the measurement and valuation of aggregate services produced in the home is one conceptual issue, a second one, rarely addressed, is the distribution of these services among family members.

TABLE 4-9

SOURCES OF INCOME IN KIND

INCOME

A. Labor Income

A.10 Insurance Provided by Employer
A.12 Earnings Paid in Kind
A.13 Value of Bargain Purchases from Employer
A.14 Imputed Income from Home Activity
A.15 Imputed Income while Attending School
A.16 Value of Leisure Time

B. Business Income

B.5 Value of Food Produced and Consumed by Owner of Farm

C. Property Income

C.1 Interest (Received in the Form Of Bank Services)
C.7 Imputed Rent on Owner-Occupied Home
C.8 Imputed Service Value of Durable Goods

D. Public Cash Transfer Payments

None

E. Public In-kind Transfers

E.1 Bonus Value of Food Stamps
E.2 School Meal Subsidy
E.3 Medicare Benefits
E.4 Medicaid Benefits
E.5 Medical Care Provided by
E.6 Public Housing Subsidy
E.7 Assistance to Homeowners (Section 235 and 502)
E.8 Assistance to Renters (Section 8.101.236.515)
E.9 Subsidy from Public Higher Education
E.10 Scholarships and Fellowships

F. Private Transfers in Cash and in Kind

F.2 Gifts (In-kind)
F.3 Bequests of Property
F.5 Scholarships and Fellowships
F.6 Training Provided by Employer
F.7 Prizes and Awards (In-kind)
F.8 Support Provided by Others (In-kind)

EXPENDITURES

None

ASSETS AND LIABILITIES

None

problems not raised by monetary income. The first problem is a purely technical one: how should one account for in-kind income if one wishes to treat it as equivalent to cash income. The discussion which follows on imputing income from homes, consumer durables, earnings paid in kind, interest provided in the form of financial services, and government and private transfers tends to focus on the first problem. However, there is a second issue: the market value of, goods and services received in-kind may exceed the value which the recipient places on them (Aaron and von Furstenberg, 1971). For purposes of measuring individual or family economic well-being, it is the value to the recipient which is relevant, Unfortunately, there are several important unresolved issues relating to the appropriate method for valuing in-kind income. See Peskin (1976) for a discussion of these issues.

Imputation of Income from Owner-Occupied Homes

Because a home accounts for such a large portion of the total assets of most homeowning economic units, it is frequently singled out when considering imputations to account for in-kind income.

Aaron (1972) points out that a house is an asset which provides services to the own&. If the owner is renting the house to someone other than himself, his income from this asset clearly would be the gross rental payments less all costs incurred in providing the service, including mortgage interest, insurance, maintenance, and property taxes. If the owner chooses to live in the house himself, he should be regarded as receiving the same income, except that the value of the actual housing services has replaced the rental payments. The homeowner may be said to be "renting to himself". Thus, the appropriate income imputation would be gross rental value of the house less the associated costs of providing the housing, (i.e. the "net rental approach").

Another approach (the return on equity approach) is used by Roistacher (1974). She imputes a return to the homeowner's equity in the house (where equity is defined as current market value less the mortgage balance) at a rate equal to the estimated "opportunity cost" of the homeowner's investment in the house. Under certain reasonable assumptions, this approach would result in the same income imputation as the net rental calculation.

There are problems associated with either of the possible approaches to measurement outlined above. The net rental return approach requires that the gross rental value of housing be estimable and that relatively accurate data on housing expenses be available from homeowners; both types of data may be difficult to obtain with reasonable accuracy. The return on equity approach requires a relatively accurate estimate of market value and outstanding mortgage amount, both of which may be subject to considerable reporting error by the household. Nevertheless, the imputed return to homeowners constitutes a significant portion of many homeowners real income. The likely distortion in income measurement resulting from data errors is less than the probable distortion from simply ignoring this source of income.

Consumer Durables

In considering the desirability of imputing in-kind income, consumer durables[1] are no different from owner-occupied houses; that is, they are assets which provide in-kind services to the owner. Like the owner-occupied home, the contribution to income (and, thus, economic well-being) is the gross value of services provided by the durable goods less all costs associated with using them (e.g., interest, maintenance, depreciation, utilities., taxes).

A major difficulty is the quantity of data required to measure services from all durables, In principle, for each durable, there should be an estimate of both the gross service value and the costs associated with the use of the durable.

As an alternative to measuring in-kind income as gross service value less costs, one could simply estimate the owner's equity in the durables (i.e., market value less outstanding debt) and impute a return using a rate of interest equal to the opportunity cost to the owner. This would

[1] As a practical matter, only major consumer durables such as automobiles, furniture, and appliances, which constitute a significant outlay and may be expected to provide services for a number of years, receive serious consideration as candidates for income imputation: minor, long-lasting items such as clothes and portable radios are often excluded because of the negligible impact which income imputation would have on total income.

require only that the market value of the durables and the outstanding debt (if any) be estimated. However, because of imperfect markets for most used consumer durables (automobiles being a clear exception), this approach would probably underestimate the value of services. Also, because of the limited market in most used durables, strict valuation of most used durables using market prices for similar items would be impossible.

Employer Contributions to a Pension Plan

The employer's contribution to a pension plan increases the employee's net worth by the associated increase in the value of the accumulated rights to future pension payments. Under the Haig-Simons accretion concept of income, it must clearly be included. By the same token, payments from such a pension plan should not be included in income, since such payment would simply represent the conversion of a non-cash to a cash asset.,[1] Under a realization income concept such as that proposed by Andrews (1974: See Section 4.3), income would only be affected when pension payments are made.

Earnings Paid In-Kind

Earnings paid in forms other than cash include such items as foods, shelter, clothing or transportation provided free to workers by their employers and food and fuel produced and consumed on farms by workers, owners, and their families. It has long been recognized that earnings paid in kind should be included in income (Simons, 1938, see Section 4.3).

In addition to gross money earnings, there are a large number of possible benefits accruing to an individual as a consequence of being employed. Most jobs offer some type of fringe benefit package which may include life, health, disability, and/or dental insurance, paid vacation and other paid leave, a retirement plan, and other miscellaneous benefits (e.g.,

[1]Of course, in cases where no previous accounting has been made, as is true for military and veteran's programs, payments should be included in income when paid.

subsidized day care, free parking). Some employers provide in-kind compensation in the form of food, lodging, and/or clothing (see above for a discussion of these benefits). The employer's mandatory contribution to FICA could be regarded as a benefit to the employee, since it contributes to a plan for retirement, disability and/or survivor's income. An imputation for all of the above elements of earnings paid in-kind is routinely made in the National Income and Product Accounts (see Chapter 6). In distributing the aggregate value of this source of' earnings, Budd and Radner used money wages paid as a basis for imputing income from this source.[1] Finally, a very important benefit for some employees is the on-the-job training they receive which increases their skills and earning capacity.

Other employment-related activities, such as travel for business purposes, use of company cars, business luncheons, attendance at conventions, use of company recreational facilities, etc. are not included in the'imputation made by the National Income accountants. No data is available on the receipt of these services, currently. Valuation is especially complex because of the joint duty-pleasure nature of these activities. Some individuals may enjoy these activities; others may view them as a necessary part of their job. They are important chiefly because their distribution is concentrated among high income employees, and (where valued positively) constitute a tax-free form of income. Not all of the fringe benefits should be treated in the same manner. While the money value of paid vacations is included in wney income, the leisure enjoyed during them is not and should be.

Financial Services

Of the financial services provided by banks and other financial institutions, the major one in terms of dollar volume is 'that provided to users of checking accounts. Such users receive the convenience of checking account services at a nominal charge, for which they pay in the form of foregone interest. In principle, this does constitute a service received by families or households and, thus, should be included in income.

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[1] The imputation was performed for farm workers, domestic workers, and certain types of commercial and service employees. See Budd and Radner (1975, p. 474) for a detailed description of the methodology used.

Commonly, the value of these services is assumed to be proportional to the size of account balances. See Budd and Radner (1975) for a procedure; to impute income from this source.

In-Kind Benefits Provided by Government

Individuals receive a wide variety of in-hind benefits from government at all levels, ranging fromsubsidizedhousing andmedical care to public schools to national defense. In considering which benefits to include in a measure of economic well-being, the following three-way classification of goods provided by government is useful:

- public goods - goods such as national defense which must be consumed collectively. Consumption of a public good by one person does not detract from another's consumption of that good.
- private goods - goods such as subsidized housing which are consumed privately - that is, consumption by one person precludes. consumption by another person.
- psi-public goods - goods such as public education which provide both collective benefits (i.e., an educated citizenry) and private benefits (Le., education for individuals).

In order to include a particular benefit in a measure of economic well-being, it must be possible to estimate the value to the recipient of the benefit. Henry Aaron and Martin McGuire (1970) estimate the benefits from pure public goods on the basis of alternative assumed utility structures for the population.. Their income.concept consists of after-tax money income plus the value of the government goods and services which accrue to the household itself, and the value to the household of pure public goods. The latter category'includes not only collectively consumed goods, but the external benefit of goods consumed by others. (the altruistic or donor benefit also mentioned by Behrens and Smolensky (1973), as well as specific external (beneficial) effects of the more common variety). They conclude, "the results cast doubt on the findings of previous studies which suggest that the combined incidence of taxes and expenditures on income distribution is highly progressive" (p. 915). Rather, their results indicate that the results are extremely sensitive to the choice of a utility function. Alternative choices can result in widely varying calculations of net benefit or tax at every income level,

See also Aaron and von Furstenberg (1971) for an analysis of housing assistance programs.

The value to recipients of benefits from private goods and services accepted voluntarily from the government may be estimable. Included in such in-kind benefits are subsidized housing, Medicare, Medicaid, food stamps, service provided by welfare agencies (e.g., day care) Head Start, and the schoollunchprogram.[1]

Using an approach related to that of Aaron and McGuire (1970), Murray (1975) estimates a generalized constant elasticity of substitution utility function to evaluate the benefits to tenants of public housing. In his formulation, benefits to individual tenants may vary according to family size, family composition, location and income,

Browning (1975) in his already discussed analysis, values in-kind transfers at their cost to taxpayers less administrative expenses. In determining real income, he notes that leisure and the nonpecuniary characteristics of one's job should, in principle, also be included. But no new method of doing so is proposed.

Clarkson (1976) estimates the benefit to recipients of the Food Stamp program to be the Hicksian price equivalent variation (i.e., the unrestricted cash grant which would leave the individual indifferent between choosing the grant or the food stamps). Clarkson notes that to money income should be added not only the value of in-kind benefits to recipients, but also the values placed on them by nonparticipants (this is the same point raised by Smolensky and Aaron),

Schmundt, Smolensky and Stiefel (1973) argue that the benefit from in-kind transfers may possibly be larger than the cost of providing them, Their analysis presents a model for valuation which differs from others in stressing the lack of relation between cash equivalent valuations and program cost. Individual variation in taste may lead to a cash equivalent which varies from negative to values greater than program cost.

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[1] In a sense, a tax benefit to individuals such as the income tax subsidy to homeowners is an in-kind transfer, in that it is related to the value of housing services consumed. Since federal income taxes are deducted from gross income for purposes of deriving net income, the awunt of the in-kind transfer from this source is thereby included in after tax income measures, but not in measures of pre-tax income.

Benefits from quasi-public goods may be divided into those consumed collectively and those consumed privately. The latter might be included in income if it is possible to identify the benefits, precisely, to value those benefits, and if such benefits are substantial enough to warrant the effort. Review of studies in this area suggests that, from among quasi-public goods provided by Federal and state governments, only public support for higher education has been analyzed in enough detail to meet these criteria.1

Hansen and Weisbrod (1972) estimate the direct and indirect costs and charges for public higher education in California, as compared with the distribution of taxes which support education, and find that redistribution from the rich and the poor to middle income groups results. His income concept is conventional, but the identification of the net subsidy from higher education is a source of income in-kind which is not usually noted by other authors dealing with this question.

For quasi-public goods provided by localities (e.g., fire prevention, police protection), there is justification for presuming that the local taxes paid by residents reflects the value they attach to locally provided public goods, since they have the option of selecting from among a number of communities offering a wide variety of public goods and associated taxes (Tiebout, 1956). Wallace Oates (1969) finds empirical support for this hypothesis in his study of New Jersey municipalities. Thus, it may be appropriate to regard local taxes paid by families/households as consumption expenditures, in which case such taxes should not be deducted from gross income. In this way, the values of such benefits may be incorporated into the income measures.

Private In-Kind Transfers

Private in-kind transfers include in-kind, gifts and the goods and services provided by private charities. In principle, such transfers should be

[1]The benefits from publicly supported higher education accrue in large part to those relatively few people who receive such an education. In many cases, individuals who hold advanced degrees may command an economic (scarcity) rent which enables them to capture a large part of the total benefit from the public support of higher education. Thus, public support of higher education should be included in a measure of income, since the benefits do appear to accrue in large part to recipients of the public support.

included in income because they enhance the ability of the recipient to demand goods and services (Simon, 1938). In general, this particular source of income is probably negligible for most families.' However, for a few families and individuals, private charity may provide all or a substantial fraction of total income. For example, some people who are maintained in private institutions receive a substantial portion of their income in the form of in-kind transfers from the institution.

4.6 Summary

Money income is the concept used in collecting income data by the Bureau of Census. The use of these data to measure inequality of income is common. However, money income is a limited measure of actual command over resources. Many sources of income are excluded: the annual accounting period may modify actual inequality, and the use of the family recipient unit is not thought appropriate by many scholars.

Many researchers have modified the income concept to construct alternative distributions of income. Depending on the specific methods used, inequality may increase or decrease as a result of these modifications.

Analysts seeking to measure the impact on income distribution of taxes and public expenditures have typically broadened the income concept to include capital gains and public in-kind transfers to individuals. some of these studies have also estimated the distribution of benefits from public goods as well. Inclusion of services in income in kind is complicated by the issues of valuation of income by recipients and by the appropriate way to distribute the benefits of goods which are consumed collectively.

At the least, any new survey effort should record participation in public income transfer programs which provide benefits in kind. Respondents should be asked to supply the net outlays they make (if any) for these programs, i.e. payments for food stamps, rent paid to a public housing authority, etc. The location of the responding household (city and state) should be recorded. In this way, administrative records for the agencies can be consulted to determine the net cost of providing the benefit, The actual subsidy received will differ from the net cost according to the

individual preferences of the recipient, As noted above, various ways of estimating the subsidy have been proposed. These typically require information on demographic characteristics of respondents (age, race, family size) as well as their cash income.

Estimation of benefits from public goods by direct survey methods is not recommended. However, information on per capita spending for public services and on local tax rates could be added to the survey file from available sources such as the City and County Data Book. In this way, users of the data could make their own determination of the appropriate way to include benefits from public goods in income.

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