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Part III

Distribution of

Nonmoney Income

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INCOME CONSISTS OF ECONOMIC GOODS and money constituting claims to them received during a period. As a money economy more and more replaces one characterized by barter and production by and for the household group, income of consuming units more and more takes the form of money unless the decline in barter and household production is offset by the provision of goods without direct payment by the state or from some other source. In the American economy income received in the form of goods is large enough for investigators to be concerned with its size and its distribution among consuming units. Furthermore, changes over time as well as differences among groups within a country and differences among countries bear upon many issues.

Some types of income in kind have been included in estimates of national income and of income distribution. Although measured in dollars, such income is designated income in kind or nonmoney income to distinguish it from that received in the form of money. The effect of differences in patterns of distribution among types of nonmoney income upon the distribution of total income depends upon the types included and their size, which in turn depends upon the method used to estimate their quantity and to impute their value.

Estimators treat nonmoney income in many ways. Some ignore it; and in so doing, for farm families especially, understate net money income, since costs of some income in kind are lumped with farm expense. Others include one or more types of nonmoney income but measure them differently. No size distribution of income as yet prepared has taken into account all types of nonmoney income. Although the coverage of nonmoney income may possibly be broadened, a single meaningful estimate of the distribution of all nonmoney income will probably never be feasible.

This paper considers the various types of income in kind, sources of data relevant to its measurement with special reference to its distribution, as well as methods and purposes.¹ A definitive treatment of the size distribution of nonmoney income is not attempted. The purpose is to clarify some points and to focus attention on the problems likely to be encountered in its measurement.

A TYPES OF INCOME IN KIND, THEIR TREND AND RELATIVE SIZE

Income in kind is of many types:

- 1) Earnings in kind, such as a dwelling, food, and medical services
- 2) Home-produced or gathered food and other primary prod-

¹ The discussion of methodology, introduced merely to illustrate various points, is based largely on statements in published reports. Some additional information has been supplied by the publishers of the basic data and some minor detail has been omitted.

- ucts of a type commonly sold by the families producing them
- 3) Other goods provided by individuals within the consuming unit
 - a) Housewives
 - b) Other persons
- 4) Services of durable goods owned and used
 - a) Dwellings
 - b) Other consumer durable goods
- 5) Nonmoney gifts and contributions from friends and relatives including the loan of their durable goods
- 6) Goods received from other private sources for which no direct price is paid, such as health services of private clinics, parks, concerts, charity, and relief in kind
- 7) Relief in kind from public sources
- 8) Goods from public sources available without a means test, e.g., services of schools, parks, and public clinics

To these some would add the so-called free goods of nature, such as air, sunshine, breezes, mountain and ocean views, as far as they have not been appropriated by private or public enterprise and are available to consumers only through purchase or through some type of nonmoney income. This paper does not attempt to discuss such free goods even though the cost of housing and other consumer goods may be clearly affected; for example, the cost of fuel and housing in Maine versus Florida.

For consumer units in general the major types of nonmoney income are probably items 3, 4, and 8, above.² The bearing of goods in these three categories on the distribution of income has been much discussed. The Minnesota Resources Commission stresses the inclusion of nonmoney income from the services performed by the housewife and other members of the family:

“The need for the evaluation of income from these services be-

² This ranking is made without benefit of definitive data. The measurement of item 8 depends first of all upon which services rendered by government are to be looked upon as income and which are to be regarded otherwise; for instance, as a necessary cost of maintaining the society. See, e.g., Simon Kuznets, 'National Income: A New Version', *Review of Economics and Statistics*, XXX, 151-78, Aug. 1948.

comes even more important when the distribution of income by size is studied over a period of years. In such analyses the effects of the transfer of certain productive activities from home to factory, or *vice versa*, due to cyclical or secular changes in the mode of living and to the contraction and expansion of home activities in periods of prosperity and depression, are very likely to distort the form of the actual income distribution and to change the size of the total income.”³

With respect to governmental services it states (p. xxiii):
 “No true measure of the relative well-being of people at different income levels should overlook the fact that the incidence of the cost of certain governmental services may be quite different from the incidence of the benefits. This is particularly the case with certain services, such as public education, the use of streets and highways, recreational facilities, and protection, which are distributed to ultimate consumers either free or at a nominal charge.”

This type of nonmoney income has had an upward trend.

Nonmoney income from durable goods apart from owner-occupied dwellings is an undefined category. Its magnitude will vary greatly with the definition of durables. Are they to include almost all household furnishings, libraries, all clothing and jewelry likely to be worn more than one or two years? Even if defined less broadly—confined, for example, to major furnishings and equipment and automobiles—this type of nonmoney income is large and has been increasing. The rate of growth of consumer durables rose from 9.6 percent of the value of finished commodities in 1879 to 18.1 percent in 1937.⁴

Income in kind of type 5 is undoubtedly a large item if it is conceived of as all friendly assistance and exchange. As far as purchased gifts are concerned, it is relatively small, and the trend is probably insignificant. However, it is more equally distributed than money income, and probably varies cyclically with a tendency to increase in depressions.

Other types of nonmoney income are either confined to small groups or are small. For farm families item 2 is important; and

³ *Minnesota Incomes, 1938-39* (St. Paul, 1942), p. xxxiv.

⁴ For general discussion and estimates see W. H. Shaw, *Value of Commodity Output since 1869* (NBER, 1947), pp. 8-12.

for a few occupational groups, notably household employees, farm laborers, janitors, parsons, and college presidents item 1; for low income and a few occupational groups item 6; for low income families item 7 too is also important. Some of these types of nonmoney income have marked cyclical fluctuations.

B SOURCES⁵

Investigations of income and/or consumption yield data on the distribution of nonmoney income of families or families and single consumers. Descriptions of methods in a selected group of investigations as well as the methods of imputing value to the income in kind in the annual estimates of income of the Department of Commerce for the United States as a whole and of the Department of Agriculture for the farm population are summarized in Table 1.

Two surveys covering perquisites of farm wage earners, one a report from employers and the other from employees (Table 2), also provide data bearing on the size distribution of nonmoney income and illustrations of methodological and conceptual problems.⁶

The purpose of this review of sources is to get a comprehensive coverage of methods used in measuring the distribution of nonmoney income, not to cover all available data. The definitions of nonmoney income are those of the investigations mentioned.

First, for general orientation nonmoney income as reported in *Family Spending and Saving in Wartime* (SSW) for 1941 and the Minnesota Income Survey (MIS) for 1938-39 and its bear-

⁵ For a previous summary see *Income Size Distributions in the United States* (NBER, 1943).

⁶ It would be interesting to design two such surveys so that we might see how the value of income in kind differs when reported by the recipient and someone else. The surveys would, of course, have to cover the same period. Differences in the two surveys reviewed here are so numerous that no guess on the respondent's effect seems feasible. For further discussion of perquisites see J. C. Folsom, *Perquisites and Wages of Hired Farm Laborers*, and L. J. Ducoff, *Wages of Agricultural Labor in the United States*, *Technical Bulletins 213* and *895*, Department of Agriculture, 1931 and 1935 respectively.

Table 1: Sources and Type of Data on the Distribution of Nonmoney Income

TYPE OF PRODUCT AND PLACE OF RESIDENCE	INCOME AND EXPENDITURE SURVEYS			ANNUAL NATIONAL SERIES		
	<i>Consumer Purchases Study</i> ^b	<i>Family Spending & Saving in Wartime</i> ^e	<i>Rural Family Living, Tennessee</i> ^b	<i>Minnesota Income Survey</i> ⁱ	<i>National Income</i> ^l	<i>Farm Income</i> ⁿ
Home-produced or gathered <i>Food</i> Farms ^a	Selected group of husband-wife families, by regions, 1935-36	National sample of families & single consumers, 1941 & first quarter 1942	White families of 2 or more, living on farms in the open country in the state, & rural non-farm families in one county, 1944	State sample of families & single persons, 1938-39	Nat. pop.	Farm pop.
	Quantities of major items. Prices est. separately for each locality based on those customarily paid for products of similar quality bought from neighbors or at most likely place of purchase as reported by farm families. For other foods families reported value based on prices at most likely place of purchase.	Same except major foods valued at purchase prices est. from U.S. farm wholesale, & retail prices. ^f	Quantities of major foods; valued at farm sale price. For other foods, a summary total based on purchase price. ⁱ	Families reported quantities of all home-produced foods consumed, valued at market prices. Value not reported separately. ^k	Farm pop. as reported by Dept. of Agr.	Valued at local purchase prices. Quantities of foods used based on reports regularly rec. by Dept. of Agr. as well as data gathered by Census of Agr. Incl. are home-produced foods given nonfarm pop. & wage earners on farms.
Rural nonfarm	Quantities of major foods reported, valued at current local prices. For other foods families reported summary total based on purchase prices. Expense of raising food not deducted.	Same except prices used to value major products were est. av. retail prices in small communities	Same as for farm families	Net value of food; dif. between gross value & expense (the informant's best est.) of growing it. Outside large cities, gross value based on prices rec. by farmers, unless the agent obtained the value of the products, not the quantities, in which case, the informant was asked to value the products at the retail price he would ordinarily pay.	Excl.	Inapplicable
Urban	No quantities reported. Families reported an. gross value of 'food raised for family use' based on local retail prices. ^o	Same	Inapplicable	Gross value in Minneapolis & St. Paul obtained from respondents based on retail prices. Otherwise, values imputed were the same as in nonfarm communities. Net value was gross value minus respondent's est. of expense.	Excl.	Inapplicable

Incl. gifts of home-produced food to farm as well as non-farm people. Perquisites of home-produced food incl. but not those of other food.

Inapplicable

Pay in kind est. for domestic workers, nurses, hotel, & restaurant & other workers on basis of cost of food to employer^m

Gross value of rented space only, less depreciation, taxes, mortgage, interest, repairs, maintenance, & ins.^u

Gross rent of all farm houses. For base-year imputed rent of house est. by multiplying est. current market value by av. int. rate on outstanding farm mortgages. Taxes, ins., depreciation, & repairs allocated to house added to get imputed gross rent.

For other years the current value of the farm is taken into account a given % based largely on Census data, being assigned to the buildings as a whole. A % of the value of all farm buildings, based largely on 1930 Census, is assigned to the house.

Valued in same way as gross value of home-produced food

Same, except that av. an. repairs & depreciation were deducted

Net rental value for owner-occupied dwelling only^v (See farm income series)

Same except gift meals were based on value of food consumed by families.

Same

Same

Same except no. of gift meals was reported when they exceeded those rec. A schedule of prices was provided for use when families could not give value.^g

Same, except adj. made for rented space.

Same

Valued at 10% of present value for owners & tenants alike.^h Adj. made for rented space.

Valued by respondent as a summary total based on cost at most likely place of purchase.^d

For regular dwelling, value was dif. between gross rental value of house & int. on mortgage, taxes, special assessments, ins., & repairs. For vacation homes maintenance expense for entire year deducted from total rental value for period occupied.^q

9% of est. value of owner-occupied & 11% of renter-occupied dwellings except in Southeast & Calif. where these % were raised to 10 and 12 respectively.^r

Pay, gift, or relief meals & other food

Housing °

Nonfarm owner-occupied dwellings

Farm dwellings, owner- & tenant-occupied

Table 1 (concl.)

TYPE OF PRODUCT AND PLACE OF RESIDENCE	INCOME AND EXPENDITURE SURVEYS			ANNUAL NATIONAL SERIES		
	<i>Consumer Purchases Study</i> ^a	<i>Family Spending & Saving in Wartime</i> ^c	<i>Rural Family Living, Tennessee</i> ^b	<i>Minnesota Income Survey</i> ⁱ	<i>National Income</i> ^d	<i>Farm Income</i> ^a
Pay ^p , gift, or relief	Valued at rent paid for similar dwellings. If a family paid less cash rent than the stated mo. value, the dif. was considered to be free rent except when concessions had been rec.	Same	Same	Same	Lodging for employes, e.g., hotel servants & workers on boats, but not domestic servants, based on cost to employers.	All dwellings of persons living on farms. Method same as for owner-occupied houses.
<i>Other items</i>						
Home-produced or gathered	Fuel, ice, tobacco, wool, & 'other' listed on schedule with the value to be estimated by the respondent based on prices at most likely place of purchase	Same, except confined to fuel & ice y	Fuel only. Quantity reported by many families. Prices were those farmers were getting.	Firewood, tobacco, wool incl. only for farm families, valued at farm market prices	Home-produced fuel as reported by Dept. of Agr.	Home-produced fuel valued at farm sale price
Pay, gift, or relief	Fuel, light, & ice, incl. bills paid, and gifts of clothing based on price at most likely place of purchase; medical care, frequency only determined.	Same, except gifts of householdings incl. ^h	Same	Reported as a summary total presumably covering all items	No items of pay incl. beyond those listed above. One additional type of income in kind appears: imputed value of certain financial services for which charge is made, such as cashing checks on savings accounts	Excl. except for home-produced items
<i>A n. outlays or 'costs' related to 'non-money income' that were incl. with farm expense & deducted in determining money income of farm families</i>	Cost of all home-produced goods. For tenant farm families, the rent paid for the house was combined with farm rent. For owner-operator farm families, taxes, int. & financing charges as far as they applied to family houses. ^x	Same	Same	Same, plus depreciation on houses	Inapplicable	Same as Minnesota study

Notes to Table 1

A stub should not be interpreted as indicating that separate estimates for the various items are available from all or any of these sources. The groupings of items differed among the studies.

^aAll estimates for farm groups are gross.

^bAn extensive sample of nonrelief, native white, husband-wife families in major regions of the United States and many types of community. Data gathered on an income or family schedule and a consumption schedule were published by BLS and BHNHE. Details on the latter were used to obtain an adjusted or corrected income estimate. Methodology as summarized in this table is for the final adjusted income. Seven-day schedules provide data on nonmoney food beyond those on the annual schedules: many families either estimated quantities of various foods consumed and expenditures or recorded the weight of opening and closing inventories of food as well as incoming food.

^cReport on this food combined with that for food received as gift or pay.

^dThose to whom nonmoney income in the form of pay is relatively important, farm laborers and domestic workers, were largely excluded from CPS.

^eFor details see Department of Agriculture *Miscellaneous Publication 520*, and BLS *Bulletin 822*. On an annual schedule for 1941 and a schedule for the first quarter of 1942 were recorded estimates of money income and of home-produced food and other nonmoney income. On a food list were recorded the consumption of each food for the 7 days preceding the interview and whether foods had been purchased, home-produced, or received as a gift or in exchange. See Department of Agriculture *Miscellaneous Publication 550* (1944).

^fFor the annual and quarterly schedules the retail prices used were those reported by both the Bureau of Labor Statistics and the Department of Agriculture. The home-produced food consumed during the 7 days was valued at the prices paid by other families in the same income group. Other foods were valued at prices received by farmers as reported by the Bureau of Agricultural Economics. All prices were national averages.

^gIn SSW special attention was given to foods distributed through surplus programs and free school lunches. Relief food included any food received through direct distribution of surplus commodities. The meal prices can best be described as the cost of food for low- to moderate-cost meals taking into account a considerable amount of home-produced food.

^hFor details see Department of Agriculture *Miscellaneous Publication 666* (1948).

ⁱThe items for which separate quantities of home-produced foods were reported constituted close to 90 percent of all home-produced food. Other foods were mostly garden fruits and vegetables.

^jFor details see *Minnesota Incomes, 1938-39*.

^kBecause of practical difficulties no attempt was made to exclude products consumed by farm help. Their inclusion does not overstate the net farm income because this item was treated as a farm expense.

^lSee *Survey of Current Business*, July 1947, Supplement, covering 1929-46; and later July issues.

^mEntire population.

²See *Farm Income Situation*, June and July 1947, covering the average for 1933-39 and annual averages for 1940-46; and later issues.

³Data of interest are available in various housing reports by the Bureau of the Census as well as in other sources referred to in the text.

⁴Rent as pay is important largely to household servants, resident janitors, institutional employees, and farm wage earners.

⁵The gross rental value was the owner's estimate for similar dwellings in his neighborhood. No allowance was made for rooms rented in the owner-occupant's dwelling. However, as expenditure schedules were not taken from families with the equivalent of more than one roomer throughout the schedule year, any deduction, if made, would have been small.

⁶These percentages were presumed to cover interest, 5, taxes, 1, depreciation, 3, and a reasonable return on money invested in owner-occupied dwelling and for tenants the cost of repairs and insurance as well, 2 (Department of Agriculture *Miscellaneous Publication 457*, p. 187).

In estimating the present value of the house its replacement, as estimated by the family, was reduced to the present value by taking into account its age and the family's estimate of its remaining years of usefulness. So few farm families had vacation houses that this type of nonmoney income was omitted. No allowance was made for rooms rented in the owner-occupant's dwelling.

⁷"For tenants, this rental value of the dwelling may be regarded as part of the rent of the farm that is charged to family living. For owners it represents a return in investment in the dwelling and depreciation and a charge for taxes and interest." Department of Agriculture *Miscellaneous Publication 520*, p. 11.

⁸The percentage, based on estimates by various members of the Division of Agricultural Economics at the University of Minnesota, was roughly allocated as follows: return on investment in the dwelling 4 percent; taxes 1 percent; repairs 1.5 percent; depreciation 3 percent; insurance 0.5 percent. For farm families, no allowance was made for rooms in the family dwelling that were rented or occupied by farm wage earners.

⁹The method differs from that above in that no deduction in nonmoney income is made for rooms rented in owner-occupant's dwellings, and space rather than contract rent is the base.

¹⁰Gross imputed rent is given in the consumption table for farm and nonfarm groups separately. In the income table net rent from owner-occupied dwellings only is given.

¹¹It was assumed that the price at the most likely place of purchase would be the same as the price received by farmers selling wood. Ice is specifically mentioned only on the consumption schedule. On the nonfarm schedule, home-produced and gathered items other than food are not mentioned, but the money value of fuel and ice obtained without direct money payment is.

¹²Some inconsistency occurs among the various reports. Department of Agriculture *Miscellaneous Publication 465*, p. 363, states that insurance was included with family expenditures. *Miscellaneous Publication 356*, p. 269, states: "insurance on all farm property including the dwelling" is classed with farm expenditures.

¹³Ice is reported only by farm families.

¹⁴Nonmoney income in the form of "gifts of tobacco, books, magazines, toys, toilet water and the like" specifically excluded.

Table 2
 Methods of Valuing Nonmoney Wages in the Form of Perquisites
 to Farm Wage Earners, National Surveys, 1945

May ^a	RESPONDENT	Annual ^b
Employers	UNIVERSE	Farm wage earners
All farm operators		All persons who worked for wages on farms in 1945
	PERQUISITES	
Complete coverage using a very detailed list & ascertaining quantity of goods & services for many items & est. value of others. Laundry services, rent of garden, carfare, transportation, etc. incl.		Incl. housing or lodging & meals, & farm products (excl. meals)

INSTRUCTIONS

Food from the farm at cost to farmer or at current local price. Meals at prices charged by rural families in the area for equivalent meals or at the cost to the farm operator plus the wages of hired cook or plus a reasonable allowance for any unpaid family labor used.

Housing at 1% a month of the present value of building. If the worker lived in the operator's house the total imputed rent was put at 1% of the market value & perquisites as a proportion based on the no. of rooms he occupied in relation to total in house. Fuel from the farm valued at current local price. Expenses such as for gas, oil, electricity, & medical services based on cost to farmer.

Laundry est. at cost if worker employed commercial laundry or washwoman. Garden space, seeds, use of machinery, etc. valued at cost to operator.

^a BAE Report 18. Other studies show that May is close to the annual average in kind and quantity of perquisites provided farm laborers.

^b L. J. Ducoff and M. J. Hagood, *Employment and Wages of the Hired Farm Working Force in 1945* (BAE, 1946).

ing on distribution are examined. Second, coverage of items and other aspects of methodology related to the distribution of non-money income are considered. Each survey presumes to cover all persons in private dwellings in its respective area and much the same items.⁷

⁷ BLS Bulletin 822, and Department of Agriculture Miscellaneous Publication 520; *Minnesota Incomes, 1938-39*, I-IV.

Both the average dollar value of nonmoney income and its relation to net money or cash income are of interest. Net money income as used here relates to net cash income plus the value of the change in inventory of crops and livestock.

Table 3
Money and Nonmoney Income Reported in
Two Family Surveys, by Type of Community

	SSW, 1941 ^a			MIS, 1938-39 ^{b, c}	
	Urban	Rural nonfarm	Farm	Urban	Rural nonfarm
Money income					
Per unit ^e	\$2,409	\$1,311	\$1,134	\$1,515	\$922
Per person	792	390	281	532	340
Nonmoney income					
Per unit ^e	169	228	521	97	97
Per person	56	68	129	34	36
Nonmoney income per \$100 of money income	7	17	46	6	11
% of units report income in kind	91 ^d	98	100	57	78

^a BLS *Bulletin* 822, pp. 70, 71, and 94, and Department of Agriculture *Miscellaneous Publication* 520, pp. 23-4.

^b *Minnesota Incomes, 1938-39*, II, 159 and 341. Only money and nonmoney income combined into net total income are reported for farm families.

^c See Section B2 on type of income unit used in these studies.

^d Only families reporting income in kind apart from relief. Four percent of all families reported some relief in kind.

Table 4
Average Nonmoney Income of Families and Single Consumers
by Source, SSW, 1941

	Urban	Rural nonfarm	Rural farm
Home-produced or gathered	\$5	\$100	\$362
Food	5	96	332
Fuel		4	30
Housing apart from pay, gift, or relief	Owners only		124
Owner-occupied	94	65	101
Tenant-occupied ^a	Owners only		23
Pay	25	27	8
Gift ^b	43	33	27
Relief	2	3	
Total	169	228	521

^a Tenant farm housing includes sharecroppers.

^b For clothing and housefurnishings no subdivisions were reported by source. The source of other types of nonmoney income made it seem probable that most clothing and housefurnishings in kind should be classed as gifts.

Two facts stand out in Table 3:

- 1) Nonmoney income as reported in these surveys is much larger for farm than for urban families.
- 2) The two surveys differ appreciably with respect to (a) the percentage of consuming or economic units reporting non-money income and (b) for rural nonfarm families, the relation of nonmoney to cash or money income.

Much of the difference between the two surveys is methodological—a fact dealt with below. Some, however, is undoubtedly due to a difference in coverage, both spatial and temporal.

Chart 1

Lorenz Curves for the Income Distribution of Consuming Units
All, Farm, Rural Nonfarm, and Urban, 1941

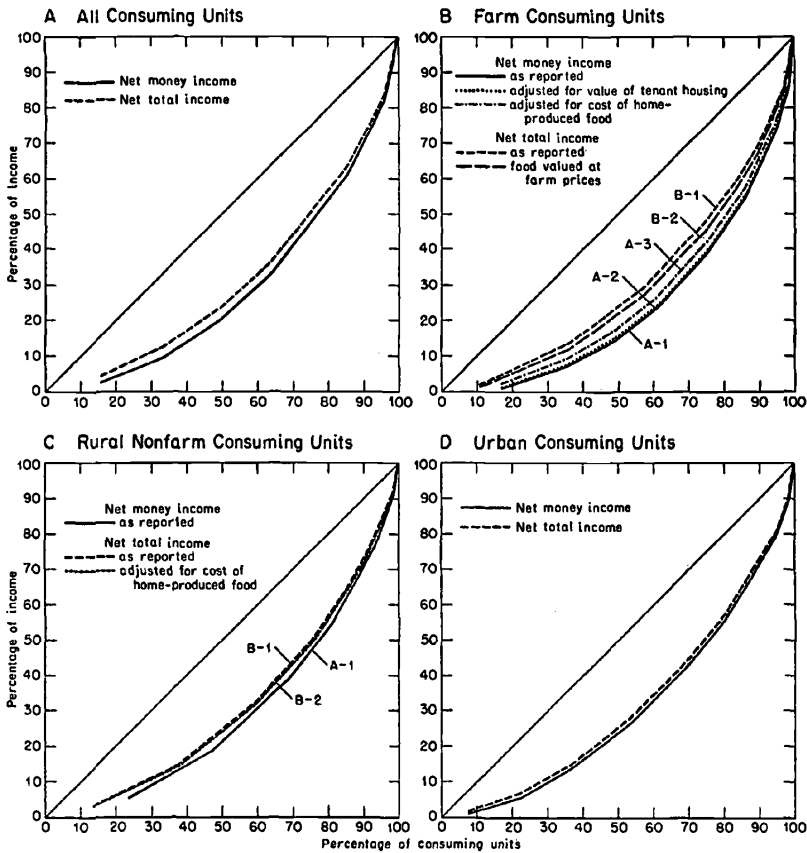
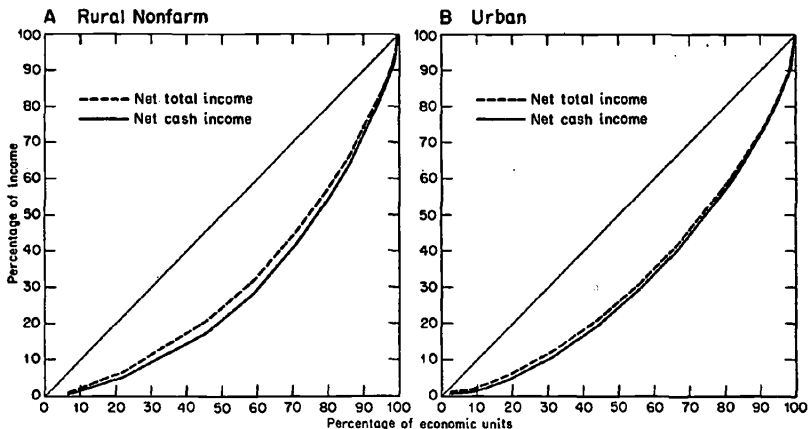


Chart 2

Lorenz Curves for Net Total and Net Cash Income, Economic Units Classified by Net Total Income, Rural Nonfarm and Urban, Minnesota, 1938-1939



In Table 4 is an estimate of nonmoney income from the various sources as reported in SSW.

1 Effect of Nonmoney Income on the Distribution of Income

Chart 1 shows Lorenz curves and Tables 5-8 give the data from SSW illustrating the effect of nonmoney income on the distribution of income for farm, rural nonfarm, urban, and all families and single consumers in the United States. In Chart 1, Panels B and C, the data for net money and net total income as originally reported are shown in curves A-1 and B-1; the adjustments underlying the other curves are discussed below.⁸ Chart 2 shows Lorenz curves for urban and rural nonfarm economic units from the MIS; the underlying data are shown in Table 9. The few data points make these curves somewhat angular and reduce the accuracy of comparisons between them. The readings, although crude, give some indication of the relative effect of nonmoney income on the distribution of income.

⁸ SSW is the only source that classifies consuming units by net money and by net total income for rural families and single consumers and also supplies data for nonmoney income covering all types of community. Net total income is defined as net money or net cash income plus nonmoney income. Data are not available for families classified by nonmoney income.

Percentage of Income Received by the Lower Half
of the Consuming or Economic Units

Type of Community	SSW		MIS	
	Total	Net Income Money	Total	Cash
Urban	25.0	24.0	25.5	24.0
Rural nonfarm	24.5	21.0	24.0	20.5
Rural farm	23.5	15.0	Not available	
All	24.0	20.5	Not available	

Based on data as initially reported.

In general nonmoney is more equally distributed than money income. Because farm families receive a considerable amount of income in kind, the effect of the nonmoney items in SSW is appreciable. For urban families the addition of nonmoney income had only a minor effect on the equality of the distribution.

Table 5
Consuming Units, Net Money and Net Total Income
Cumulated Percentage Distribution by Net Money Income, SSW, 1941

Net money income under	Consuming units	Net money income	Net total income
\$500	15.7	2.4	4.1
1,000	33.9	9.6	12.6
1,500	49.7	20.0	23.4
2,000	64.3	33.6	36.8
3,000	85.5	61.1	63.4
5,000	96.0	82.0	83.2
Total	100.0	100.0	100.0

BLS *Bulletin* 822, pp. 33 and 71. The data for all families are available only by net money income classes. The addition of nonmoney income makes income more equal than classifying families by net total income. If disposable income had been used, the equality would be still greater.

The pattern for the rural nonfarm group is similar to that for the urban group, and would probably be more so if farm laborers living on farms had been included with the farm rather than the rural nonfarm group. In SSW the farm group was confined to farm operators;⁹ farm laborers, retired couples, and others living on farms but not in farm operator families were classed as rural nonfarm.¹⁰

⁹ Probably a similar classification was used in MIS.

¹⁰ For a discussion of the income of farm wage earners reported in this study see Department of Agriculture *Technical Bulletin* 895, Table 53. As the farm labor families reported here include some not living on farms, it is impossible to compare the money and nonmoney income of farm and nonfarm families.

Table 6
Farm Consuming Units, Net Money and Net Total Income
Cumulated Percentage Distribution, SSW, 1941

NET INCOME UNDER	NET MONEY INCOME ^a					NET TOTAL INCOME ^b		
	CONSUMING UNITS ^a	As re- ported	Adjusted for			CONSUMING UNITS ^b	As re- ported	Home- produced food valued at farm sale price ^c
			Value of tenant housing ^d	Cost of home- produced food ^d				
0	2.0	†	†	†	0.8	†	†	
\$250	16.9	0.9	1.0	2.1				
500	35.7	7.1	7.3	9.1	10.6	1.8	1.4	
750	49.5	14.7	15.1	17.3	36.5	13.7	12.1	
1,000	61.0	23.6	24.1	26.5	57.7	29.5	27.3	
1,500	75.5	39.2	39.7	42.1	74.9	47.6	45.0	
2,000	86.1	55.1	55.6	57.7	83.7	59.4	57.2	
3,000	94.6	73.5	74.0	75.3	89.6	69.0	67.0	
5,000	98.3	85.7	86.0	86.8	97.2	86.0	84.8	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

Department of Agriculture *Miscellaneous Publication 520*, Tables 5 and 51. Unpublished data used for the negative and the \$5,000 or more income classes.

^a Data from classification by net money income.

^b Data from classification by net total income.

^c Occupancy value of tenant housing omitted.

^d Estimated outlays for home-produced food that had been included with farm expense omitted.

^e The value of food as reported in *Miscellaneous Publication 520*, Table 51, was reduced one-half to make it approximate local sale price of farm products. See Department of Agriculture *Miscellaneous Publication 550*.

† Negative.

Table 7
Rural Nonfarm Consuming Units, Net Money and Net Total Income
Cumulated Percentage Distribution, SSW, 1941

Net income under	Consuming units ^a	Net money income as reported ^a	Consuming units ^b	Net total income ^b	
				As reported	Incl. nonmoney food on net basis ^c
\$500	23.5	5.2	13.5	3.0	3.0
1,000	47.3	18.6	37.9	14.6	14.3
1,500	69.1	39.2	60.1	32.7	32.3
2,000	81.1	54.9	75.6	50.1	49.5
2,500			85.6	64.7	64.1
3,000	93.4	76.9	91.5	75.1	74.7
5,000	98.7	91.8	98.3	91.4	91.2
Total	100.0	100.0	100.0	100.0	100.0

Department of Agriculture *Miscellaneous Publication 520*, Tables 5 and 51. Unpublished data used for income class \$5,000 and over.

^a Classified by net money income.

^b Classified by net total income.

^c Expenses incurred in providing the nonmoney income in the form of food assumed to equal half of the gross imputed value.

Some proposed changes in methodology would narrow this difference between the farm and nonfarm groups.

2 *The Income Unit*

Any size distribution, whether of net money, nonmoney, or net total income, is influenced by the nature of the income unit. In the family studies reviewed in Table 1 the income or consuming unit is defined in general as persons living together that pool their income. A major issue is to distinguish between the household, the group that lives in one dwelling, and the income or economic unit, the group that shares a pooled income. Even when fairly precise criteria are common to two studies, differences may occur, especially if one investigates income only and the other both income and consumption, since the extent to which the income of household members is pooled becomes especially apparent when consumption as well as income is investigated.

In SSW the income was considered as pooled unless there was a definite boarder-lodger contract between the persons who shared the household. Such an arrangement was unusual for related persons who shared a household.

The MIS used a different test (p. xxxi):

"An economic unit . . . was defined as one or more persons dependent on a common or pooled income for the principal items of expenses and usually living in the same residence. . . . Pooling of income signifies that there is *no specific payment* by individuals for services rendered by and in the family group. . . . A child dependent upon the family income for 51 percent or more of his support was included in the economic unit. . . . Children who had definitely separated their finances from those of their parents and were living at home . . . were excluded from the family economic unit. When it was difficult to distinguish such children from those who pooled their income . . . they were considered members of the economic unit."

A specific payment as evidence of a nonpooled income might lead to the exclusion from the economic unit of two classes of persons: children and others who help to support their parents and children and others who are partly dependent upon their household for support. The MIS would lead one to conclude

that perhaps as many as 16 percent of the households had more than one economic unit.¹¹ Yet a very small percentage of the economic units reported net income from boarders and lodgers: 4.1 percent in urban and 2.3 percent in rural nonfarm in contrast to almost 12 percent of the families and single consumers in the urban and rural nonfarm communities in SSW. Perhaps in the MIS a large percentage of the families having boarders and lodgers did not receive any net income from this source. Absence of net income may be common when roomers are relatives. It would be of interest to know for the MIS the percentage of households sharing the dwelling with another economic unit that report a net loss from boarders and lodgers.

One can only speculate on what the respondents had in mind when they reported that sons or daughters or parents were paying 51 percent of their cost. Does cost cover current outlays for food and laundry only? Does it extend to depreciation on the family car?

When one begins to divide the related group that live together into separate economic units, a very complex schedule is needed for income in kind if the income credited to the different units is to represent even roughly their real income. Household units were more finely subdivided in the MIS than in SSW, and in SSW than in the Census for 1940 (Tables 10 and 11).¹²

In the MIS there were 1.2 earners per economic or consuming unit in urban communities; in SSW, 1.44. Some of this difference is undoubtedly due to the difference in the year or region of the survey, but when interpreted in conjunction with other data it is further evidence of the differences in the classification of households in the two surveys.¹³ The MIS classification tends to make money income less equal. It probably makes nonmoney also less equal since it tends to reduce the percentage of the low income

¹¹ *Op. cit.*, II, 256.

¹² The Census defines a family as a related group sharing a dwelling. Single person families thus tend to be fewer than single person income units when the criterion is the absence of a pooled income.

¹³ In rural nonfarm communities the MIS reported slightly less than one earner per economic unit. Similar data are not reported in SSW.

Table 10
Single Consuming Units and One-person Families as Percentages
of All Units, by Type of Community, SSW, MIS, and Census

Type of Community	Single Consuming Units		One-person Families, 1940 ^a	
	SSW 1941	MIS 1938-39	US	Minnesota
All	13	20	10	10
Urban	17	22	11	11
Rural	8	18	9	10
Rural nonfarm	12 ^b	{ not reported }	11	13
Rural farm	4 ^b		6	7

^a 1940 Census, *Families, General Characteristics*.

^b The farm sample was restricted to farm operators and their families. Others living on farm were included in the rural nonfarm group.

Table 11
Persons per Unit, SSW and MIS,
and per Occupied Dwelling, Census

TYPE OF COMMUNITY	AVERAGE NUMBER OF PERSONS PER Consuming or Economic Unit		AVERAGE NUMBER OF PERSONS PER Occupied Dwelling, 1940 ^a	
	SSW 1941 ^b	MIS 1938-39 ^c	US	Minnesota
All	3.3	3.1	3.78	3.83
Urban	3.0	2.9	3.61	3.63
Rural	3.7	3.4	4.02	3.98
Rural nonfarm	3.4	2.7	3.78	3.66
Rural farm	4.0	4.2	4.25	4.33

^a 1940 Census, *Housing, II*, Part 1, p. 60.

^b BLS *Bulletin 822*, p. 70.

^c *Minnesota Incomes, 1938-39*, I, 1, 2, and 95.

units living in owner-occupied dwellings and having gardens. If a full inventory were taken of nonmoney income such division of households would probably have a different effect upon the equality of nonmoney income.

3 Confusion of Nonmoney Income in the Accounting Process

In the sources reviewed, only one item other than those listed above was treated as nonmoney income: the occupancy value of nonowner farm dwellings in the studies of families and single consumers as well as in the annual income estimates by the Department of Agriculture. For farm laborers, occupancy of a

house on the operator's farm can be looked upon as earnings in kind, but for tenant farmers with either a cash or share lease the occupancy value of a dwelling can hardly be looked upon as nonmoney income. Tenant farm families pay rent for the dwelling along with rent for the farm. Because there is only one rent contract for farm and dwelling combined, no ready measure of rent paid for the dwelling is available. There is no reason, however, why an estimate deemed suitable as a measure of nonmoney income from housing should not be equally suitable as a measure of money expenditures by renter families. Furthermore, such an allocation of rent paid between farm and dwelling would not be unique in estimates of net money income.

Inclusion of the occupancy value of tenant-occupied farm dwellings in nonmoney income leads to its overstatement and to a corresponding understatement of net money income, but does not affect net total income. If the occupancy value of tenant dwellings is assumed to be financed from money income, i.e., treated as a family expenditure, not a farm expense, income in kind from housing for the entire sample of families would be reduced \$23 and net money income increased a like amount (Table 6 and Chart 1, B, lines A-2 and A-1).

4 Coverage

The coverage of nonmoney income in the various investigations tends to be confined to:

- 1) Food—primarily garden crops, products from farms, and gathered fruits and nuts; food from grocery stores and meals received as gift, pay, or relief. Gift meals received if they are appreciably in excess of gift meals given.
- 2) Housing for families occupying their own dwellings, or receiving housing in lieu of wages, or as gift or as relief
- 3) Fuel and ice
- 4) Clothing

Differences in coverage are minor. For example, SSW included housefurnishings as gifts and the Consumer Purchases Study (CPS) did not. However, the average value of such gifts

per family reported for 1941 was only \$5. The home-produced items included also vary; for example, CPS included tobacco and wool and SSW did not.

The two studies of perquisites of farm laborers differ appreciably in the items included (see Table 2). The possible effect of maximum coverage is obscured by differences in methods of imputing values to various items. The survey of farm operators attempted to include all wages in kind even down to the loan of farm machinery and tools to cultivate garden space allotted to farm wage earners. Nevertheless, about 89 percent of the value of total perquisites as reported was for housing, meals, and food and fuel, the items ordinarily covered in such studies as SSW, Tables 5 and 7.

The intensive investigation of perquisites may have a bearing on special questions relating to wages paid for farm labor, but the additional income in kind reported would have little effect on measures of the size distribution of net total income of the entire population or of all wage earners.

Of the types of nonmoney income listed above, items 3, 4b, and 8 have been omitted entirely and items 5 and 6 almost entirely.

5 *The Schedule*

Various investigations of money income and family expenditures have shown that both income and consumption reported by families depend in part on the detail of the questions asked—the more detailed the questions the more completely does the respondent remember the income or consumption. The SSW schedule had more detailed questions about income in kind than the MIS. In the consumption sections on food, clothing, and housing, for example, the SSW schedule had questions on income in kind as pay, gift, or relief; on the MIS schedule there were only broad questions for each source.

The published data permit limited comparison. Gifts constitute about a fourth of total nonmoney income for urban families reporting in SSW (Table 4). Yet the MIS reports an average value of \$3 from “regular contributions to support” and “gifts

in kind" received by economic units in places of 100,000 or more inhabitants. It seems highly improbable that the difference in coverage would account for the difference in amounts.

C METHODS OF IMPUTING VALUE TO INCOME IN KIND

1 *Conceptual Bases*

The major advantage of imputing a value to income in kind is to have a single figure for nonmoney income or for total income that can be used to measure differences from group to group and from time to time. To get a dollar value of income in kind of various types that can be used by itself or combined with money income to give a single figure having a basic rationale, the values imputed must be such that they are conceptually additive from the viewpoint of the recipient. Otherwise, one might as well add cans of orange juice, fur coats, automobiles, and dahlias to get a total number of products.

Two types of choice by income or consuming units provide a basis for selecting prices: (a) costs in terms of alternatives foregone in acquiring or retaining the income in kind as far as these are money costs; (b) difference in expenditures occasioned by the receipt of the income in kind. Both can be looked upon as prices or money costs that are part of a scheme of valuation encompassing the money income and expenditures of consuming units. Such prices may give only the gross value of income in kind. Net values must take costs incurred into account. Dollar income based on either must of course be supplemented by measures of price differences if a comparison of real incomes is desired.

If interest centers on net total income, it would be immaterial whether gross or net nonmoney income were determined, since any overstatement in the former would be offset by an understatement in net money income. Even when canceling occurs, it seems advisable to know what the effect of the method is.¹⁴

¹⁴ The various types of income can of course be under- and overstated without affecting the equality of the income distribution; for example, if the size distribution of the two types of income is identical.

Moreover, in some instances the methods have led to an overstatement of nonmoney income without a corresponding understatement of money income so that net total income is somewhat exaggerated. Because nonmoney income, even when carefully estimated, is not likely to be additive, it is desirable for several purposes to have separate measures of its types and of money income.

Consumption in kind must be distinguished from net income in kind from owner-occupied dwelling.¹⁵ They are identical only if no part of the consumption constitutes a reduction of capital; in other words, if no part takes the form of depreciation to be entered in the annual balance statement as negative savings or a decrease in assets.

Net nonmoney income from housing in a strict sense consists almost wholly of interest on the family investment in the dwelling with perhaps some additional amount to compensate for the risk the owner-occupant takes and some subtraction if a portion of the dwelling is rented and the rent received reduces the cost of the dwelling to the owner-occupant.

The valuation of selected types of income in kind is discussed below in terms of the criteria outlined.

2 *Home-produced Food*

The valuation of income in kind in the form of food must be considered from the standpoint of prices and the use of gross versus net values.

a *Prices used to value home-produced food*

Sources differ markedly in the prices at which they impute the value of home-produced food. Local farm market prices, retail prices, prices at the most likely place of purchase, prices to cover cost have all entered into the measurement. In only a few instances has the significance of the imputed price been indicated.

The MIS used retail prices for Minneapolis and St. Paul,

¹⁵ In its national aggregates the Department of Commerce reports \$1,517,000,000 "depreciation of owner-occupied farm and nonfarm dwellings" for 1946 that was not included in personal income; see *Survey of Current Business*, July 1947, Supplement, p. 47.

and a combination of retail and farm market prices for other nonfarm families when they reported quantities. If they could not report quantities, they were requested to value the food at the retail prices ordinarily paid, perhaps on the assumption that they would not be familiar with other prices.

In the other family consumption studies reviewed in Table 1 home-produced foods of nonfarm families were valued at 'retail' or 'purchase' prices, which may not be identical.

Farm prices, used for farm families in the MIS, were said to approximate what the farmer would have paid for the products had he purchased them, but relevant facts were not given.

In the CPS the local purchase prices farm families reported for home-produced foods were averaged for each locality or area. The investigators said they tended to be between retail prices and those paid to farmers for products sold.¹⁶ Differences among local purchase prices reported in different regions were larger than among retail prices in various cities in these regions.

The prices imputed to home-produced foods of farm families in SSW differed from those in the CPS in that probable purchase prices in the United States as a whole were estimated. From detailed food lists for the spring of 1942 data were gathered that made it possible to compare actual purchase prices with farm sale prices reported by the Bureau of Agricultural Economics.

The bearing of prices imputed to home-produced foods on the income size distribution is illustrated by SSW data. Home-produced food was valued at purchase prices, which in the spring of 1942 were about twice as high as sale prices reported to the Bureau of Agricultural Economics.¹⁷ When home-produced food is valued at purchase prices the 50 percent of the farm families and single consumers with the lowest incomes received about

¹⁶ Department of Agriculture *Miscellaneous Publication 383*, p. 243.

¹⁷ SSW got not only an annual estimate of home-produced foods consumed during 1941 but also a detailed report of the foods consumed during the 7 days preceding the interview. Quantities of home-produced foods consumed were reported as well as the quantities and cost of purchases. The price imputed to home-produced foods was that of foods purchased by families buying similar types. Uniform prices were used for each income group for the entire United States. See Department of Agriculture *Miscellaneous Publication 550*, pp. 40-3.

23.5 percent of net total income; when farm sale prices are used, about 21.5 percent (cf. Chart 1, B, lines B-2 and B-1, and Table 6).

b *Valuation of home-produced food*

Under the Wisconsin income tax law "Unless a farmer keeps reasonable records setting forth the 'estimated value' of the products consumed on the farm, he is required to report \$90 for each adult, and \$60 for each child under 18 who are members of the farm family."¹⁸ The quantity consumed by the particular family and prices of the current year are thus ignored. Family studies do not support the assumption that the amount of home-produced food consumed increases in direct proportion to the number of members. Such a valuation tends to overstate the home-produced food of large families in contrast to small, and may lead to excessive taxation when farm sale prices are low.

For farm families the major issue is whether home-produced foods should be valued by the income foregone or the cost of purchasing them, or on some other basis. When a group of farm families reporting in the CPS were classified by their consumption of home-produced food, controlled by region, family type, and expenditures for family living, expenditures for food were lower the more home-produced food was consumed up to a certain point.¹⁹ One interpretation is that since many types of purchased food complement home-produced foods there are limits on the extent to which home-produced food is a substitute for purchased food. However, it is not safe to assume that after a certain point additional home-produced food does not have any value because expenditures for food do not drop. For one thing, the range of expenditure categories of the family type used in this analysis was moderate. Moreover, families differ in their preferences. If the standard of food consumption is high, both expenditures for food and the consumption of home-produced food may be high; and families may raise more food in

¹⁸ *Analysis of Wisconsin Income* (NBER, 1948), pp. 51-2.

¹⁹ See H. K. Stiebeling and C. M. Coons, 'Present-Day Diets', *Yearbook of Agriculture, 1939*, p. 300. Other studies show similar relations.

order to economize but still maintain a high level. But if home production is not possible their food expenditures may be appreciably higher.²⁰ As data accumulate from successive studies of farm family consumption, we shall know more about the relation between food expenditures and home production.

When one compares the consumption patterns of farm and urban families, the relatively larger consumption by farm families of potatoes, milk, meat, and vegetables—each an important home-produced food—during the summer and autumn seems very unreasonable if the foods are valued at purchase prices. Anyone examining other consumption items of these families might be tempted to inquire why they do not sell some of the food and have more other things. However, the value ascribed to the foods exaggerates the potential income which might thus be used.

When home-produced foods are withdrawn from stock primarily for sale, local sale prices can be justified as a basis for evaluation. They measure income foregone. However, the selection of prices is far from simple. If the family consumes culls and seconds that would otherwise be left to rot, what is the price? On farms where milk is consumed and only butterfat sold, the farm sale price of market milk in some remote milk shed cannot be taken as the cost to the family. Valuing home-produced foods by a national average of farm sale prices undoubtedly overstates the money income foregone by many farm families.

When food is raised primarily for family use—as is true of an appreciable quantity of home-produced food consumed by farm families—one might assume that the family values the food above the local market price. Otherwise why do they not sell it? The cost of getting the product to the market is one reason. A local sale price may cover the cost of growing the food but not that of marketing it. Some families sell butter, eggs, chickens, and garden produce at peak seasons when the price is low, but dur-

²⁰ Some of the lack of relation between home-produced food and expenditures on food shown by family data may be due to the difficulty of excluding from the report on the family food supply the home-produced food fed dogs, chickens, and other farm animals.

ing off seasons when the price is high reserve all products for their own use. An average sale price will understate the cost of raising their food if seasonal prices are weighted by sales rather than by the quantity consumed.²¹

Every set of prices readily available is open to some criticism. For a major portion of their home-produced foods it seems probable that farm families tend to think in terms of sale rather than purchase prices, even though some families buy similar foods. If a great deal of refinement is desired, detailed information might be sought from families on the seasonal quantities consumed and local sale prices. For few national surveys will this detail seem worth while. There seems little likelihood of getting farm families to report directly the expenditures rendered unnecessary by raising food.

Table 12

Consumption of Vegetables and Fruits Purchased and from Home Gardens, One Week in September–October 1944, Urban Housekeeping Families With and Without Gardens, by Annual Income

Annual Income	Families with Gardens			Families without Gardens	
	Expenditures \$	Purchases lbs.	From garden, lbs.	Expenditures \$	Purchases lbs.
Below \$1,000	0.97	12.25	3.66	1.35	15.43
1,000–1,999	1.77	21.92	4.02	1.70	20.09
2,000–2,999	2.37	31.11	4.43	2.66	30.85
3,000–3,999	2.65	39.47	4.30	2.58	26.92
4,000 & over	3.02	35.63	4.08	3.19	35.48

'City Gardens in Wartime', *Monthly Labor Review*, Oct. 1945, Serial No. R. 1789.

Food grown by nonfarm families is in a different category since it is intended chiefly for home consumption. But does evaluation at retail prices not overstate the extent to which home production affects expenditures on food? One survey shows families with gardens spending as much on vegetables and fruits as those without gardens (Table 12). Families that eat relatively large quantities of fruits and vegetables are more likely to have gardens.

²¹ For a more extensive discussion of the rationale of valuing home-produced food of farm families. see M. G. Reid, *Food for People* (Wiley, 1942), Ch. IV.

*c From gross to net value of home-produced food*²²

In studies of farm families the gross rather than the net value of home-produced food is customarily calculated and its expense lumped with farm expense and deducted in determining net money income. Net total income is unaffected. However, if home-produced food were valued net and its expense allocated to the family instead of the farm, the net money income would be increased and the income in kind decreased. Using SSW data the distribution of net money income was estimated, excluding from farm expenses those incurred in raising food for family consumption (Table 6 and Chart 1, B, line A-3). The half of the families with the lowest incomes received about 15.5 percent of net money income when the cost of raising food was treated as a farm expense (line A-2), 18 percent when it was treated as a family expense.

For nonfarm families the use of the gross rather than the net value of home-produced food in some studies has had a slightly different effect because expenses of raising food have been ignored. Thus net total income as well as nonmoney income from home-produced food may have been overstated. Some costs of raising food were reported on SSW schedules but were not itemized. The probable effect of using the gross rather than the net value of home-produced foods on the equality of the distribution of the net total income of rural nonfarm families is indicated in Chart 1, C, by the relation between lines B-1 and B-2; the latter shows only slightly more inequality when home-produced foods are valued net instead of gross (Table 7).²³ Nonmoney income from food is cut in half—from \$96 to \$48.

The MIS is the only family investigation listed above that attempted to get the net rather than the gross value of home-produced food for nonfarm families. Its method is similar to that

²² In the MIS the value of the food grown by farm families was not reported separately.

²³ It was assumed, without benefit of systematic data, that the cost of raising food is half the value reported. Casual observation makes it seem probable that this is an understatement. The division between home-produced food and all non-money food was based on Department of Agriculture *Miscellaneous Publication 520*, Table 7, where families are classified by net money income.

of the wage earner study of 1918–19: families were requested to report net nonmoney income from home-produced food.²⁴

For some families no net value remains after costs have been taken into account. This may explain the difference between the MIS and SSW in the percentage of nonfarm consuming or economic units reporting some nonmoney income from home-produced food: 27 percent in SSW and 10 percent in MIS. The investigators for the latter study state (p. xxxix): “When food was obtained primarily as a recreational by-product, i.e., as a hobby, its value was not considered income unless it resulted in a net positive amount.”

A family may consider that the cost of the garden is offset by a reduction in expenditures for recreation, for example. One might thus justify counting the gross value of home-produced food as income in kind, its cost being looked upon as family expenditures for recreation, education, or other intangible benefits.

3 *Owner-occupied Dwellings*

Dwellings occupied by nonfarm and farm family owners must be considered separately. For each, prices or rates basic to the imputed values and gross versus net occupancy value are discussed.

a *Nonfarm*

The valuation problem

For nonfarm dwellings imputed prices or rates are largely confined to gross rental value, except for depreciation, an inherent factor in passing from gross to net occupancy value. In family studies expenditures for taxes, interest on mortgages, insurance, and repairs are those reported by the families.²⁵ For the national

²⁴ “Report the ‘net’ income from garden and chickens, etc., that is, the market value less money expended for feed, seed, etc.” *Cost of Living, 1918. Instructions* (BLS unpublished materials).

²⁵ The MIS families were asked to report actual annual expenditures for all items except repairs, for which they were asked to report usual annual expenditures. As far as family incomes vary from year to year and housing repair varies directly with income, the elasticity of actual expenditures for repairs in relation to annual income will be higher than for usual annual expenditures. In SSW expenditures for repairs are those for the same year as the income.

estimates the Department of Commerce uses data from other sources.

In general the gross rental value is imputed from rent paid for similar dwellings in the neighborhood. The MIS makes a special point of trying to get 'bare' or space rental value rather than contract rent which may include some furnishings and utilities. However "bare rent might include payment for use of a stove, gas range, ice box or refrigerator", and "water provided without charge" (p. lviii). The figure a family would name as the rent it would accept for its own dwelling might well be contract rent on nearby dwellings, which would probably be identical with 'bare' rent as defined in the MIS. Differences between bare or space and contract rent are more common in the case of apartments, although of course some single family dwellings are rented furnished.

Table 13

Owner-occupied Dwellings, Average Value, SSW, MIS, and Census

Type	Minnesota		United States	
	MIS 1938-39 ^a	Census 1940 ^b	Census 1940 ^c	SSW 1941 ^d
Urban	\$3,897	\$3,749		
Rural nonfarm	2,433	2,167	Not reported	
Farm	1,563	1,510	\$1,419	\$1,453

^a *Minnesota Incomes, 1938-39*, II, pp. 287-9.

^b *Housing*, II, Part 3, p. 696.

^c *Ibid.*, Part 1, p. 45.

^d Department of Agriculture *Miscellaneous Publication 520*, p. 43.

At times it is assumed that dwellings for sale or rent in the neighborhood give nonfarm families an objective yardstick for estimating the sale or gross occupancy value of their dwelling. Further investigation on this point may be needed. The average sale values of owner-occupied urban and rural nonfarm dwellings reported by MIS for 1938-39 exceeded those reported by the Bureau of the Census for 1940 (Table 13).²⁶ Since prices rose between 1938 and 1940 the higher values for 1938 call for some explanation.

²⁶ Estimated gross rental values of owner-occupied dwellings cannot be compared since MIS and SSW reports of rent paid exclude an allowance for rented rooms.

A difference in the questions asked may be responsible. The MIS, in asking for sale value, mentions explicitly the "house, lot and garage"; whereas the instructions to the Census enumerators for 1940 mentioned only land in addition to the house.

From gross to net occupancy value

The net occupancy value is determined by deducting from the gross all costs of repair, insurance, taxes, and interest as well as an allowance for physical depreciation. If some portion of the owner-occupied dwelling is rented, accurate measurement of nonmoney income from the owner-occupied dwelling would take this fact into account. Studies of nonfarm families vary chiefly in their treatment of depreciation. Both the MIS and SSW made some adjustment for rented rooms. The statement about method in the published reports does not indicate the degree of refinement in the allocation of gross occupancy value and of various costs.

Of the investigations reviewed in Table 1 the MIS is the only one providing data on income distribution that deducts from consumption in kind an allowance for depreciation on owner-occupied nonfarm dwellings. However, the Department of Commerce makes a similar deduction in its annual income series. In determining the 'net' occupancy value of owner-occupied dwellings neither the CPS nor SSW deducts for depreciation; both treat nonmoney income and consumption in the form of housing as identical.

The omission of any allowance for depreciation overstates nonmoney income from housing unless repairs are sufficient to maintain the value of the dwelling. They may of course be, but the number of dilapidated houses makes it apparent that they usually are not. If outlays on repairs cover depreciation, estimates that deduct for depreciation understate net nonmoney income from housing as well as net total income. Understatement will occur also if too much is allowed for depreciation.

To explore the effect of not allowing for depreciation on owner-occupied dwellings, imputed interest in 1941 was estimated on the equity of full-period urban home owners in the

Table 14

Urban Families and Single Consumers in Owner-occupied Dwellings, Net Occupancy Value as Initially Reported and Estimated Interest on Owners' Equity, Cumulated Percentage Distribution by Net Money Income, 1941

Net money income under	Families & single consumers	Net occupancy value	Interest
\$500	5.5	3.7	3.6
1,000	15.2	11.1	10.4
1,500	25.9	21.2	19.7
2,000	38.6	33.4	30.6
2,500	54.6	49.0	45.7
3,000	69.9	64.6	58.6
5,000	90.3	87.7	80.6
10,000	96.3	95.9	89.5
Total	100.0	100.0	100.0

See note 27.

dwellings they occupied. It was found to be 75 percent of, or \$63 below, the net occupancy value as initially reported, and somewhat less equally distributed than nonmoney income from housing as initially reported (Table 14).²⁷ The nonmoney income of urban families and single consumers from occupying their own houses as reported in Table 4 would be reduced 25 percent—from \$94 to \$70. This refinement has a slight effect on the income distribution, tending to make for somewhat greater inequality.

²⁷ Based on BLS *Bulletin* 822, Table 22, and the 1940 *Census of Housing*. The latter was used in estimating, for various income classes, the value of the dwelling, the interest rate paid by income classes, and the rate of interest to be allowed on the equity of owners in their dwellings.

The urban family data for 1941 included the gross rental value but not the estimated sale value of the dwelling. The 1940 Census reported both, the former as 10.66 percent of the latter. It was assumed that this ratio prevailed in 1941 and that it was the same for all income classes. Since the gross occupancy value for the owning families as reported for SSW excluded the value of rented rooms, dwelling values were somewhat understated. The bearing on the final estimate of interest on the owner's equity after appropriate deduction for rented rooms would probably be negligible.

The average interest rate paid by families in various income classes was estimated from Census data. The relation between interest paid and the average value of the dwelling as reported for 1940 was examined and the rate assumed for various income classes for 1941 related to the value of their dwellings. The estimated average debt on owner-occupied dwellings was derived from this interest rate and outlays for interest reported in SSW. The interest rate allowed owners on their equity, the same for all income classes, was the average rate reported on first mortgages on owner-occupied dwellings by all nonfarm families in the 1940 *Census of Housing*. This interest rate was assumed to cover risk.

Instead of basing net occupancy value on the interest on the owner's equity the MIS started with the gross occupancy value of neighboring houses and deducted expenditures for taxes, usual repairs, interest on mortgage and insurance, and depreciation. The schedule of depreciation rates adopted for one-family houses, which most owner-occupied dwellings are, was 3 percent for frame, wood shingle siding, composition roofing; 2 percent for stucco, brick, asbestos siding, stone, concrete; and 2.5 percent for any combination of the preceding.²⁸ "These rates were designed to be applied on the original value of the buildings," but were applied to the current value of the property as reported; this the investigators felt introduced an upward bias.

A depreciation rate of 2.8 percent applicable to all urban owner-occupied dwellings in the United States based on these depreciation rates was derived, using weights from the *1940 Census of Housing*.²⁹

In the SSW interest on the equity of owners in their dwellings accounted for about 75 percent of the net occupancy value as initially reported. If one assumes that the remaining 25 percent constitutes a margin for depreciation, the depreciation would be about 1.4 percent of the value of land and buildings and 1.6 percent of the estimated value of the dwellings apart from the land (buildings were assumed to constitute 90 percent of the entire value). This rate is about half of that used in the MIS.

The depreciation thus computed varies indirectly with income.³⁰ Such a depreciation rate would lead to more inequality of income in kind from housing than one that is the same for all income classes.

²⁸ Op. cit., p. xlvii. The investigators state that the depreciation rates are based on the Bureau of Internal Revenue Bulletin, 'Preliminary Report of Depreciation Studies', Jan. 1931.

²⁹ A distribution of dwellings by type of construction is not given separately for owner-occupied dwellings. The following distribution is assumed: frame 79 percent; brick 12 percent; stucco 7 percent; other 2 percent.

³⁰ In estimating the value of the dwelling the same ratio of gross occupancy to sale value was used for all income classes. A check on this assumption was made with data from the MIS, II, Table 43, which gives the "mean monthly rental value" and the "mean value of the house" by income classes. The rent-value ratio may be low at the low mean levels because of deductions from the gross occupancy value of the dwellings to take account of space rented to other economic units in the household.

Depreciation rates obviously need further investigation if income in kind from owner-occupied dwellings is to be estimated accurately. Those developed for use in the income tax statements of landlords may as a matter of policy be for the upper margin rather than for average depreciation (see note 28). Moreover, depreciation rates suitable for rented dwellings may be unsuitable for owner-occupied.

Other types of investigation are needed before trustworthy depreciation rates can be calculated. A rate of 2.8 percent for owner-occupied urban dwellings may understate nonmoney income as much as ignoring depreciation overstates it.

A comment on the treatment of vacation houses is in order. In surveys of nonfarm families vacation as well as regular family dwellings have been taken into account in determining income in kind from owner-occupied dwellings. They have been omitted for farm families because few have them. In the CPS, for example, rent was imputed for a vacation home only for the time it was occupied. Against the gross occupancy value on this basis were charged all expenditures incurred. The result was negative nonmoney income from many vacation homes.³¹ If the gross value of the nonmoney income from the vacation home had been based on the entire rent foregone, the basis of measuring the cost of family consumption would have been more rational and many of the negative values might have disappeared. The nonmoney income would have increased the inequality of the distribution since higher income families more commonly have vacation homes. However, such a change in procedure would have a negligible effect on the income distribution in general.

b *Farm*

The valuation problem

Decisions on the prices or rates at which income in kind from owner-occupied farm dwellings is imputed differ in important respects from those described above for nonfarm dwellings.³²

³¹ In a few instances when special assessments were incurred or major repairs made, nonmoney income from dwellings occupied all year was negative.

³² As already pointed out, the gross rental value of tenant dwellings is common in measures of nonmoney income, whereas if income in kind is strictly defined, it would be treated as a family expenditure paid out of money income.

Since rent is not explicitly paid for similar dwellings in the community, it has been customary to start with an estimated value of the dwelling.³³ Moreover, farm families are not always able to report the portion of taxes and interest on the farm mortgage applicable to the dwelling alone. To determine net occupancy value, it is necessary to estimate these items. The methods of estimating the value of the dwelling as well as various rates have bearing upon an annual estimate of income in kind.

The estimated value of farm dwellings will be influenced by several factors, for example: whether the dwelling alone is considered or whether the land and other buildings used for family living are also included; whether the value is based on initial or replacement cost with suitable allowance for depreciation or on the extent to which the house enhances the value of the farm.

Since the house usually goes with the farm, its sale value is not clear-cut. The wording of questions, the relation between questions about the dwelling and other items on the schedule, instructions to enumerators concerning how to elicit an estimate, etc. may influence the valuations. (1) In valuing farm dwellings all land is excluded, whereas for a nonfarm dwelling the land that is ordinarily sold with it is included. (2) As in the evaluation of other capital, estimates based on original cost and on current market value differ markedly. For example, the BAE, in its estimates for all farm dwellings in Minnesota, seeks to base the annual gross occupancy value of farm dwellings on current value, whereas, according to an unpublished statement by G. Pond, Division of Agricultural Economics, University of Minnesota, the group of account-keeping Minnesota farm families were instructed to value permanent improvements by dividing the original cost by the probable life, and to charge off this amount each year. Any additions to buildings or marked improvements during the year such as papering, painting, electric wiring, or roofing are entered in the opening inventory, then a year's depreciation is subtracted to get the value at the end of the year.

³³ In the *1940 Census of Housing* nonowner families on farms were asked to report the rental value of their dwellings. The current market value of each dwelling on farms occupied by owners was also reported. The Census assumes the estimated gross monthly rent to be 1 percent of the reported sale value of the dwelling.

During 1942-46 the Minnesota account-keeping families reported an 18 percent decline in the 'rental value' of their dwellings; ³⁴ BAE reported an increase in the average occupancy value of farm dwellings per farm of close to 30 percent for all farm families in Minnesota. The BAE index of prices of building materials rose 34 percent.³⁵ (3) A slight difference in the wording of questions or the presence or absence of questions concerning the farm in general may influence the value reported for the dwelling. In the Census of Agriculture, CPS, and SSW, questions on the value of the dwelling were accompanied by questions on the value of the farm. Such combinations tend to elicit a figure that takes into account the value added to the farm by the dwelling. Certain instructions to Census of Agriculture enumerators, especially those of 1930, make clear that this is the basis of valuation sought (*General Report*, IV, 956): "The value of all farm buildings should be less than that of land and buildings. The difference between them should represent a fair average value per acre. No attempt should be made to find out the original cost of the buildings nor the amount that it would cost to replace them as this amount will frequently be much more than the present value of the buildings, and in some cases even more than the total value of the farm including the buildings."

The difference between the value of owner-occupied dwellings as reported by the 1940 Census and by SSW for 1941 is in the direction to be expected (see Table 13).

In a BAE survey for 1945 farm operators were asked to state the present market value of each dwelling on their farms occupied by a farm laborer (Table 2). No questions were asked about the other buildings or the farm as a whole. The average value of such dwellings reported as of May 1945 was \$2,100 in the North and \$800 in the South. The rental value was assumed to be 1 percent a month, or \$21 and \$8 respectively.

Data are not available for an exact check on the bearing of the method of this survey on the value of dwellings reported. How-

³⁴ See annual reports of Southeastern Minnesota Farm Management Service and of Southwestern, Division of Agricultural Economics, University of Minnesota.

³⁵ *Agricultural Statistics*, 1947, p. 524.

ever, certain data are suggestive. For 1940 the imputed rents of tenant dwellings per month, as reported by the Bureau of the Census, were \$6.45 for the United States as a whole, \$9.90 in the North, \$4.31 in the South, and \$9.96 in the West.

Farm laborers as a whole were probably not better housed than tenants. The imputed rents for farm laborers in 1945 in the North and the South were 112 and 88 percent higher than those reported for tenant dwellings in 1940. BAE reports that the gross occupancy value of housing per farm for operator and laborers together increased about 30 percent to \$153 in 1945, or \$13 a month.³⁶

Of course labor may have been so in demand during the war that only farms with superior housing could attract resident workers. However, in the survey where the farmer was the respondent the question concerning the value of the dwelling occupied by the farm laborer was not accompanied by questions concerning farm real estate.

A further issue arises with respect to farm dwellings that is of only minor importance for nonfarm dwellings: separation of the occupancy value of the portion of the dwelling used for family living from that used for business purposes, such as office space or space for the preparation of market products. MIS investigators, discussing the desirability for analytical purposes of excluding from farm expense certain dwelling costs, comment on the difficulty of making the necessary separation (p. xliii):

"It might have been less arbitrary to exclude housing expenses from farm expenses than to include them; but if the latter alternative had been adopted, it would have been necessary to obtain from each farmer an estimate of the extent to which the dwelling is used for farm business."

This is a refinement no investigation has attempted and if undertaken may well be accompanied by an allocation to family consumption of some land and shelter for the automobile.

³⁶ See *Perquisites Furnished Hired Farm Workers, United States and Major Regions, 1945, Survey of Wages and Wage Rates in Agriculture, BAE Report 18 (1946)*, Table 6.

From gross to net occupancy value

Apart from a failure in some investigations to deduct depreciation, income in kind in the form of housing of nonfarm families tends to be net. For farm families it tends to be either gross or something between net and gross occupancy value depending on the extent to which outlays for repairs, taxes, interest, and other things are treated as farm expense, as well as whether and how depreciation is taken into account.³⁷ The BAE annual estimate represents one extreme. In it nonmoney income is based solely on the gross occupancy value, and all housing costs are treated as farm expenses.

When family expenditures are being investigated, it is usually customary to exclude some housing costs from farm expenses. The CPS and the SSW put all repairs and insurance on the dwelling, as far as the respondents were able to estimate them, in family expenditures but all real estate taxes and mortgage interest in farm expenses. Any allowance for depreciation, as in the nonfarm studies, was included in both income and consumption in kind.

Because data are not available on the equity of families by income classes in owner-occupied dwellings, we cannot estimate the effect on the distribution of income if income in kind from housing is confined to the interest on the equity of owners. However, the effect on the net total income of farm families, as reported in 1941, of treating depreciation on owner-occupied dwellings as nonmoney income can be roughly estimated. Consumption in kind was assumed to be 10 percent of the reported value of the dwelling; and the average value of owner-occupied farm dwellings \$1,453. A 1.18 percent allowance for taxes, the rate reported in *Agricultural Statistics, 1941*, and a 5 percent rate on the entire value of the dwelling to cover interest on both the mortgage and the owner's equity, would amount to \$90. The extra \$55 would appear to be the depreciation allowance and a measure of the upward bias in the net total income of

³⁷ In the MIS nonmoney income from farm housing as such was reported only as part of net total income.

owners.³⁸ This \$55 adds \$37 to the nonmoney income of all families or 11 percent of total nonmoney income or 2 percent of net total income as reported.

In addition to the net occupancy value of a dwelling the only data needed to estimate income in kind are the owner's equity and a suitable interest rate. To get a measure of consumption in kind, a depreciation rate too is necessary. An average allowance for depreciation of \$55 on dwellings valued at \$1,453, as in SSW, is a rate of 3.8 percent. The BAE in building up to an estimate of the annual gross occupancy value of farm dwellings uses 3.6 percent; the MIS assumed a rate of 3 percent.

As with nonfarm housing satisfactory measures of consumption in kind for housing await better measures of depreciation, as does also gross nonmoney income. If only net nonmoney income is estimated, the interest on the owner's equity is derived. The major difficulty lies in valuing the dwelling satisfactorily.

4 *Wages in Kind*

The most suitable basis for valuing wages in kind appears to be the effect on expenditures due to the receipt of nonmoney income, and methods might well be tested in the light of such a criterion.

Food received as pay has usually been valued by its worth to the recipient in terms of its purchase price elsewhere or its cost to the donor. The former is common in investigations where the recipient reports; the latter was used in the survey of perquisites where employers were the respondents. No example has been noted of an inquiry attempting to determine the effect the receipt of food as pay has on expenditures for food. In some nonfarm situations this method might be feasible. In any case it seems highly unrealistic to value the meals provided some domestic workers in terms of similar meals in the community. When the criterion is the effect of income in kind on expenditures, a room occupied by a household employee may be deemed value-

³⁸ If it were assumed that homestead tax exemptions, when they occur, exempt the owner-occupied dwelling first of all, the tax rate on real estate should not be applied to the full value of the dwelling.

less if her family lives in the same city and has space for her. Her 'living in' may be solely a convenience for the employer. Even when such an alternative does not exist, valuing a room on the basis of rent paid for such rooms in the neighborhood may not be reasonable.

For valuing the nonmoney income of a farm wage earner there may not be any rational basis, because he does not have any real alternative. In only a few instances will purchase prices on neighboring farms of such things as meals and laundry service have any meaning; and purchase prices of farm produce, like those for farm families, will yield money measures of the various categories of consumption that are unrealistic. A person takes a job because of the money wages and the income in kind that goes with them, as well as other factors. In the bargaining the employer may be influenced by one set of prices and the worker by another. If the cost to the employer is the basis of the bargain it might well be applied to the housing in terms of its alternative use as well as to the farm produce in terms of its sale price.

The criterion might be the lower money wage that would be acceptable in lieu of wages in kind. Here standardization is needed on many factors. In the national survey of perquisites for workers hired by the month it is possible to make a comparison for the West. The monthly cash wages for the group receiving room and board were \$122; for the group not receiving a house, room, or meals, that is, none of the major perquisites, \$148, a difference of \$26. The first group was, however, credited with \$46 more income in kind than the second group. Important variations between these two groups may account for this difference. The comparison is made merely to illustrate a possible method in some situations of getting a fairly objective measure of income in kind.³⁹ At first glance, the two surveys suggest that in the worker's judgment perquisites, at least in the form of board and room, were overvalued by the employers.

³⁹ *Op. cit.*, p. 48. The relative monthly wages paid farm laborers with and without board in the West published in *BAE Report 18* are quite similar to those in *Agricultural Statistics, 1946*, p. 538.

5 *Relief in Kind*

Food in kind to relief families, which consists largely of grocery orders, tends to be valued at prices charged in stores. Such relief is frequently given because in the opinion of the administrators families would use cash less wisely. Families are reported to sell food to get cash for movies, cigarettes, permanent waves, etc. Since the food is probably sold at less than retail prices, one is forced to conclude that at least some families do not value it as highly as grocers do.

6 *Gifts in Kind*

Gifts might be valued at the cost of the purchases they render superfluous. In most surveys they seem to have been valued at local retail prices. Some overvaluation may occur in that a person might have spent the money the gift cost differently and may feel that the gift is not worth the local price.

Furthermore, since most gifts are a type of exchange, it is hardly correct to add their value to the money income that finances the exchange. The nonmoney income received by rural nonfarm families in the form of clothing and home furnishings, probably consisting largely of gifts, has much the same pattern in relation to money income as expenditures for gifts (Table 15). At the higher income levels there may be no net income in kind from gifts. To separate gifts that are and are not a type of exchange would, however, be very difficult.

Table 15

Nonmoney Income from Furnishings, Equipment, and Clothing and Gifts to Persons not in the Economic Family, Rural Nonfarm Families, 1941

Net money income class	Nonmoney income	Gifts
0- \$499	\$16	\$3
500- 999	20	9
1,000-1,499	24	15
1,500-1,999	23	20
2,000-4,999	37	58
Total	10	20

D IMPROVING THE METHOD OF EVALUATING INCOME IN KIND

This review of methods of evaluating income in kind emphasizes the difficulties involved even for the types of income in kind that come closest to being a part of our exchange economy. Some of the variation in methods has probably been due to differences in objectives; for example, purchase rather than sale prices seem to have been used by some investigators in the hope that comparison of consumption levels would be facilitated without the additional step of taking into account differences in costs among groups. Others are due to differences in feasibility; for example, whether funds are available to cover the cost of refining the data or for determining the net value of products from family gardens. Still other differences are due to the basic nature of the investigation.

The method of valuating income in kind may be improved by using more suitable prices and determining net value instead of or in addition to gross value. Moreover, it is desirable to present facts about money and nonmoney income separately. This separation would be unimportant if nonmoney income could be so estimated as to be combinable with money income. Separate totals for money income and for each type of income in kind are desirable, especially if they are to be used for analyzing consumption. They seem desirable even if only gross values are determined for much of the nonmoney income of farm families, such as food and housing.

There is little likelihood of getting prices for any type of income in kind that will not be open to some criticism. Sale prices to evaluate home-produced foods of farm families, purchase prices to evaluate those of nonfarm families, and interest to owners on their equity in the dwellings they occupy based on current sale prices and going rates of interest seem to be fairly satisfactory in terms of the criteria set up. An effort might be made to have recipients of wages in kind estimate the effect on their expenditures. The estimates would be crude, but probably not any cruder than those obtained when respondents are re-

quested to estimate value at local purchase prices. For farm employees any type of estimate is likely to be highly artificial. Moreover, in urban communities the meals and even rooms provided some employees may not be typical of what they or their friends would buy; hence they may not know the purchase price.

For farm families the net value of nonmoney income would have the advantage of measuring net money income more accurately since costs of home-produced food and of owner-occupied dwellings as well as the occupancy value of dwellings of tenant operators are likely to be treated as family, not farm, expenses. Such a treatment would lower nonmoney income and raise net money income in such studies as SSW. Moreover, it would lower both nonmoney and net total income in that depreciation on the owner-occupied dwelling would be classed as a drain on assets, not as an addition to income.

1 Income in Kind usually Excluded from Income Distributions

The measurement of the distribution of nonmoney income is still at an elementary stage. In this section we consider the possibility and feasibility of widening the coverage of items and the significance of items omitted.

Basic requirements are the allocation of income in kind to recipients, determination of the type and quantity of the goods received, and selection of a suitable value to be ascribed to them. The recipients of a large part of the income in kind not now included in income distributions can be identified. The major difficulties lie in determining the quantity of the goods and services and what prices to use for evaluation.

2 Income in Kind Provided by Government without a Means Test

Data on income in kind from government agencies constitute a major gap in income distributions. This is not strange since students of income do not agree which services should be treated as income in kind, although some seem to imply that government costs in general measure total services. There have been

many speculations concerning the distribution of this income. For example, the investigators of the MIS state (p. xxiii):

“Although the total costs of these (governmental) services to society as a whole are accounted for . . . , their true incidence to specific groups could not be determined and is therefore not allocated in this study.”

They are of the opinion, however, that

“If such an allocation were possible, it would probably have the net effect of increasing the true income of the lower income groups and decreasing that of the upper income groups, but to what extent it is difficult to say.”

Tibor Barna made a similar assumption and ventured for Great Britain to classify government expenditures in 1937 by income classes and to estimate the effect on the equality of income (*Redistribution of Incomes through Public Finance, in 1937*, Oxford, Clarendon Press, 1945). He put government expenditure providing income in kind into two major categories: “(a) Divisible benefits where the beneficiaries of the government expenditure can be clearly and unambiguously defined, and (b) indivisible benefits where the allocation among the different members of the community can only proceed on the basis of an arbitrarily chosen assumption.” For the seven types of public expenditure Barna held to be divisible he assumed varying percentages of expenditures for items going to the 86 percent of the persons with ‘actual’ income under £250 and getting 58 percent of total actual personal income: education, 84; public health excluding control of disease, care of insane (including expenditures for garbage collection, hospitals, maternity services, baths, parks, and public conveniences; certain expenses were recovered from charges on the basis of ability to pay), 84; public assistance, indoor relief, 100; cost of social transfers, 99; road traffic, 39; protection of property, 19; public charities, 87; all, 75.⁴⁰

Among the types of income in kind Barna considered indivisible are defense, roads for communal use, care of the insane,

⁴⁰ Op. cit., pp. 18, 66, and 203.

and control of infectious and contagious diseases. He explored their effect on the distribution of income, making several arbitrary assumptions.

It seems feasible to allocate some income in kind, e.g., relief, from the government to separate consuming units. Nevertheless, Barna's analysis, despite his neat categories, leaves many uncertainties concerning not only the 'indivisible' items but also many of those he classes as divisible. Not all the latter items can be "unambiguously defined". Barna in fact recognizes this in the tests he sets up, since he deems a service divisible if the person not getting it suffers more than others, but says little about the difficulty of applying this criterion.

Many may feel that they cannot go along with Barna in classing education as wholly divisible; that it, with research, training of workers, and national defense is part of the over-all equipment of a society and cannot be allocated. Many societies have something akin to universal public education; and each society has institutions to perpetuate its culture in the broadest sense.

Concerning his method of allocating the value of educational services to income classes Barna writes (p. 198):

"In certain aspects schools run by public authorities and private schools are exactly alike. But it can be argued that a different service has been created by making education compulsory, since it is no longer possible to apply the criterion of exclusion.

In such cases recourse might be taken to a different approach. It can be said that the marginal cost of the education of one child is almost equal to the average cost. It will therefore be assumed that all children receiving the same education benefit equally."

Nonmoney income from educational services is thus directly measured by costs incurred through legislative procedure rather than by the decisions of individual consuming units, and the same amount is assigned to the child who could afford private school as to the child who attends school only because the law compels him. The effects of the acquisition of income in kind on income foregone and on expenditures do not have any place in Barna's method.

Such allocations of government expenditure as Barna's are useful for many purposes, but not for measuring income in kind so that it can be added to money income into a meaningful total. Much might be gained from a systematic investigation of the type, quantity, and effect of government services available to various segments of the population, both current and historical. For communities, for example, benefits from various services in relation to their cost might be studied: education and other types of free service such as public libraries, parks, and concerts, even the type of roads, streets, and police protection available to different groups.

Because the measurement of the distribution of such income in kind necessitates very arbitrary judgments for many purposes, little or nothing can be gained by including them in a single all embracing measure of income.

3 Medical Services

In only one of the investigations reviewed in Tables 1 and 2, the survey of farm operators to determine total wages of farm laborers, was an attempt made to measure nonmoney income in the form of medical services—it consisted in bills paid by employers for medical services rendered wage earners on their farms.

Other investigations have gathered information from families on whether any 'free' medical services were received during the year, though no attempt was made to assign a value to them. Major problems arise in pricing. What, for example, is a suitable price for a visit to a free clinic where one waits 2 hours or more or perhaps must return another day to be treated? Furthermore, the so-called standard rates of physicians for various services may not represent actual charges, so that it is not simple to estimate a fair price for a visit to a physician's office for which the fee is waived or reduced.

More medical service is rendered gratis to persons with small incomes than to persons with high incomes (see, e.g., the SSW data in Table 16). For high income families relatives are the chief donors of medical services.

Table 16

Percentage of Families and Single Consumers Reporting Free Medical Care, 1941

Net money income class	Rural farm	Rural nonfarm	Urban
0- \$499	6.9	13.9	17.3
500- 999	8.8	12.4	22.9
1,000-1,499	3.6	14.0	11.1
1,500-1,999	4.9	6.8	11.6
2,000-2,999	6.2	5.8	9.3
3,000 & over	4.9	6.2	8.8
Total	6.4	11.2	12.5
Number of families	762	981	1,300

Health Insurance, Interim Report from the Subcommittee on Health and Education, 79th Cong., 2d Sess., 1946. Adapted from data collected by the Departments of Agriculture and of Labor. Includes any family reporting that any member had received free physician, hospital, clinic, dental, nursing, or eye care, drugs or medical appliances during 1941.

Medical services have long been provided free. Physicians, midwives, or neighbors in case of need, used to perform the services now dispensed at free clinics, especially for prenatal and child care. Free medical services may have been a relatively stable element in the distribution of income. On the other hand, the free services to veterans of World War II may spread them somewhat more equally throughout the income classes.

4 'Other' Durable Goods

A major issue in extending the coverage of income in kind to the services of durable goods owned and used other than dwellings lies in deciding what goods to include. If all goods that lasted longer than the reporting period were included, income in kind from this source would be quite large.

Few persons who urge broader coverage of durable goods would go to this extreme. But the decision where to draw the line will affect the income distribution. Is clothing in general to be included as well as jewelry; are rugs, draperies, housefurnishings, libraries, and stamp collections as well as automobiles and electric refrigerators? It seems probable that the more complete the coverage the more unequal will be the distribution of this type of nonmoney income. Concerning it the authors of *Income Size Distributions in the United States* write (Part I, p. 87):

“. . . the total value of other such items—autos, furniture, clothing—is huge, a figure that cannot be ignored in refined analysis and that may be significant for even more general study. . . . Omission obviously leads to understatement of total real income. But does it affect significantly the distribution by size, age, region, occupation, etc?”

To collect data from families in order to gauge the nonmoney income from these durable goods would be a major task and few experiments have yet been made. Many of the issues connected with evaluation were, however, considered by Lenore Epstein in her paper on consumer durable goods in *Studies in Income and Wealth, Volume Twelve* (1950). If interest is restricted solely to current nonmoney income and does not extend to consumption in kind, facts about the current equity of the owner would be needed. To get some items it might be necessary to go back to original cost and to estimate depreciation. Rates of depreciation differ greatly from one type of good to another. Some consumer goods are practically imperishable from the standpoint of the consuming unit; for example, certain types of furnishings. For types where style is a factor, depreciation has to be interpreted in psychological rather than physical terms.

Income in the form of services from durable goods keeps demanding attention because of differences among families in the amount owned and rented and temporal changes in their distribution as well as their quantity. The increasing extent to which some equipment is furnished along with utilities in rented dwellings has to be taken into account in comparisons of consumption by income groups and between periods. A larger proportion of the population own automobiles today than owned carriages three decades ago. For other durables such as clothing, jewelry, general housefurnishings, and hobby materials the correlation with income has probably not changed enough in recent decades to be a significant factor in the distribution of income, no matter how broad the coverage.

5 Services Rendered by and for Members of Consuming Units
Home-produced goods withdrawn from stock designed primarily

for sale constitute only a small portion of the total production carried on by and for consuming units. To identify the productive activities that create nonmoney income for members of the consuming unit it is necessary to distinguish them from consumption. In a highly developed market economy such as the United States, similar services made available by paid workers are a criterion.

Kuznets in describing the productive activities of a pre-industrial economy "carried on within the family or rural community, outside the market" states: "These range from such obvious items as fabrication of raw materials or personal care to such elusive items as service by a closely knit family system to insure individual members against disaster or to provide religious and related benefits to the spirit. . . . It is doubtful that current estimates (for a pre-industrial economy) can fully comprise the value of these nonmarket activities. Yet in an industrial economy almost all of them are the concern of business firms and market bound units and fully enter national incomes estimates."⁴¹

If one were to include in measures of income all the types of nonmoney income that resemble closely items in national income the list would be very long. It would extend through meal preparation, laundry service, house cleaning, child care, shopping, and secretarial service, and, as Kuznets points out, to group responsibility that gives a sense of security through having family members as it were 'standing by'.

The problem of putting a money value on such productive services has been the subject of many comments. With respect to their place in the national income, Kuznets writes:

"It may be doubted that the productive activities of housewives and other members of the family, rendered within the family circle, can be characterized as economic processes whose net product should be evaluated and included in national income. The conditions under which they are carried on and the factors that affect the amount of income from them are so vastly different than those that bear upon activities whose products usually appear on the market place that it seems best to exclude them."⁴²

⁴¹ 'National Income and Industrial Structure', International Statistical Institute, Washington, D.C., Sept. 1947.

⁴² *National Income and Its Composition, 1919-1938* (NBER, 1941), p. 431.

Despite these difficulties and because of the upward bias in a measure of income that excludes this type of nonmoney income, Kuznets and others have estimated the value of the services of nongainfully employed adult women. Productive activities of other persons within the consuming unit have been ignored, the assumption often being that they have been relatively constant. Kuznets gave a dollar equivalent of housewives' services for 1929 of \$23 billion or more than a fourth of national income. I valued them at \$15 and \$34 billion in 1940 and 1945, or about a fifth of national income.⁴³

The general trend of household production has been downward, although not as far as many have assumed from examining only the replacement of home activities by purchases.⁴⁴ At the same time some former tasks have been elaborated and new ones added. The relative average working day of unpaid household and of gainful workers has probably not been shortened much, although the distribution of working time may have changed somewhat.

The omission of income of this sort has considerable bearing on comparisons of income distributions among family types and communities, and from period to period. The decline in the relative importance of income from services within consuming units has probably been much the same in all types of American community, even the farm. It appears, however, to have affected family types differently. Child care has remained in the family. When children are small, the relative importance of income in kind within the family group to money income may even have increased in the last three or four decades.

Differences in the ratio of adult women nongainfully employed and not in school to gainful workers within consuming units have been cited as a crude measure of the relative importance of household production to money income. Data are few,

⁴³ 'Economic Contribution of Homemakers', *Annals of the American Academy*, Vol. 251, May 1947, p. 65.

⁴⁴ Eric Lindahl and others estimated for Sweden that the ratio of national income including, to national income excluding, unpaid domestic work was 1.22 in 1861 and 1.20 in 1930; see C. S. Shoup, *Principles of National Income Analysis* (Houghton Mifflin, 1947), p. 85.

however, except for the 1940 Census on the gainful employment of married women which shows two facts of major interest:⁴⁵

1) The higher the earnings of husbands the smaller the percentage of wives gainfully employed. Many families with larger incomes employ full-time servants and unpaid family members have more leisure. Such family tasks as are retained are of the highly skilled type, e.g., final decisions on furnishings.

2) The younger the children and the larger the household the smaller the percentage of wives gainfully employed. Thus the income from family services of 2-person families is probably less than that of 5-person families. Studies of household activities show that hours spent in household tasks vary directly with the number in the family. Scales might be worked out for the relative load in terms of a full-time domestic worker in families of different sizes.

Productive activities vary also with the thrift, enterprise, efficiency, and standard of living of families. These may add enough to other income to make the difference between a wretched existence and comfortable living, but their correlation with money income is not known. Variations occur also because families at the higher income levels can afford to buy working tools with which to enhance their productivity.

Differences in services by and for family members might be investigated more thoroughly than by merely studying the ratio of gainful to other workers. Families might be asked to report in detail the type and quantity of productive activities carried on by and for their members, e.g., types of food processed, meals served, rooms cleaned, clothes washed and mended, lawns mowed, repairs to house, furniture, and automobile, hair shampooing and cutting. For some types of activity such as child care quantity measures might be in terms of hours spent.

To evaluate such activities would be difficult, since they do not have an exact counterpart in market products. For only a few services of family members is the approximation close.

⁴⁵ *Population, The Labor Force (Sample Statistics) Employment and Family Characteristics of Women*, Table 23, p. 132. See also Hazel Kyrk, 'Who Works and Why', and M. G. Reid, loc. cit., *Annals of the American Academy*, May 1947, pp. 44-52 and 61-9.

E IMPROVING THE MEASUREMENT OF NONMONEY INCOME

Nonmoney income, even types that have often been surveyed, is more difficult to measure than money income. Investigators pondering what types of income to cover, how refined a measurement of income in kind to attempt, and how to present the data should consider the purposes to be served and the returns in the light of costs.

1 *Purposes of Measuring the Distribution of Nonmoney Income*

Two major purposes have led to the inclusion of nonmoney income in income distributions: to determine (a) the percentage of consuming units in given populations that have income sufficient for specified levels of welfare, and (b) the influence of nonmoney items on purchases in order better to predict future demand.

The inclusion of nonmoney income items increases the validity of income as a measure of relative welfare. However, if comparable welfare is to be measured it would be best to investigate consumption as such rather than income. The best measure of consumption for this purpose would be 'one-use goods' and the utilization of 'durable' goods in order to maintain the current level of living. Kenneth E. Boulding writes ('Professor Tarshis and the State of Economics', *American Economic Review*, Vol. 38, March 1948, p. 100):

"The failure to distinguish between consumption and consumers' (or household) expenditure has led to a corresponding failure to realize that consumption—in the proper sense of gross subtraction from the capital stock—is a function not merely of gross additions to the stock (income) but is also a function of the size of the capital stock itself. It is a capital that is consumed: hence, the more capital of given durabilities, the more consumption. . . . Indeed, it can be argued with some force that a large part of consumption is not related to income at all, but is a function of the nature and extent of the capital stock."

Measurement of consumption in kind would of course involve

problems similar to those already discussed in connection with income in kind, but it would be the most suitable basis of gauging differences in welfare.

Dollar measures of consumption indicate relative welfare when other things, including prices, are equal. The great difference in relative costs of living where home-produced products are a major factor for one group of consumers and not for others introduces complications in comparisons of real income or consumption because of differences in consumption patterns that may be largely the result of the elasticity of substitution.

Measures of income in kind in whatever form that will give reasonable estimates have a place in estimating future demand. It may be advisable, however, to treat the various types of non-money income as independent variables despite the aesthetic satisfaction some investigators get from adding all types of income so as to have a single neat package. Even though the basic method calls for rates or prices yielding estimates that can be added to money income or expenditures, the money and non-money elements from various sources will probably never constitute an undifferentiated block of resources; and it is hardly realistic to use a net total income that is high merely because the family consumes large quantities of home-produced food in analyzing changes in expenditures for food.

2 *Concluding Observations*

1) Income in kind, to the extent that it has been measured, has a bearing on the equality of income distribution. For urban families it is minor, consisting largely of the use value of owner-occupied dwellings which are more common at higher income levels. For farm families in general, it is a major item, decreasing markedly in importance the higher the income.

2) An examination of various attempts to measure income in kind suggests that the types of item covered by SSW and MIS probably come close to the limit of what is feasible in general surveys of income distribution. For other items, such as service of some household equipment, detailed investigation would probably yield a reasonable valuation. For still others the diffi-

culties of measurement in dollars are enormous, e.g., services rendered by and for family members and goods provided through government funds without a means test.

3) Even when income in kind cannot be measured in dollars some facts about its type and quantity may be helpful in exploring its volume for various groups and its bearing on expenditures, saving, and welfare.

4) Methods of imputing value to income in kind vary appreciably among studies—a fact to be taken into account in comparisons.

5) Conceptually the following methods seem desirable:

- a) To measure net rather than gross income in kind.
- b) To offset any depreciation of owner-occupied dwellings included in consumption in kind by a decrease in assets rather than by an addition to income.
- c) To treat rental value of the tenant farm dwelling as a family rather than a farm expense.
- d) To evaluate nonmoney income in terms of either income foregone or its replacement effect on expenditures. Farm sale prices for products withdrawn from stock for sale meet one of these tests. Purchase prices for home-produced food may not meet either. Home-produced foods such as garden produce not sold but consumed by the family raising them might be valued on the basis of the family's estimate of expenditures rendered superfluous.

6) All the items conceptually desirable seem feasible for non-farm families. For farm families 5b, c, and d also seem feasible. The feasibility of measuring the net value of home-produced food may be questioned. The allocations of farm expense might become quite arbitrary unless considerably more data were collected. The major issues of analysis would still remain.

7) Until the valuation process is refined further, certain types of nonmoney income cannot be classed with money income as undifferentiated purchasing power which during a given period is to be rationally distributed among consumer goods. It would be well, pending further investigation, to treat each type separately in investigating factors determining consumption.

Comment

EDWARD F. DENISON, *National Income Division, Department of Commerce*

I shall confine my comments largely to Miss Reid's discussion of income in kind.

We already have a set of national income accounts. Current data from these accounts, classified by various categories, are widely and fruitfully used for numerous types of economic analysis. Data classified by the size of the income of the recipient consumer unit would seem to contribute more to our understanding of economic questions if they could be closely integrated with the over-all national accounts than if they could not. For example, the recent sharp increase in personal saving has been a dominant feature of the economic situation as revealed by aggregate data. Data that would show how much various income groups contributed to this trend would be invaluable. However, personal saving would have to be defined in a manner reasonably similar to that employed in the aggregates.

As a first approximation, we may say that we would like ideally a division of the Commerce Department personal account so that, for consumer groups at each income level, we could show total personal income and its disposition among personal taxes, personal consumption expenditures, and personal savings.

A moment's reflection will indicate that, for this purpose, the Department of Commerce aggregates require some modification. Its personal sector covers not only individuals but also nonprofit organizations and private trust funds, which do not lend themselves to combination with individuals in a size distribution. Moreover, the data are consolidated. These difficulties can be readily met by dividing the personal sector into two subsectors, one consisting of individuals, the other of nonprofit organizations, etc., and allocating only the former by size groups; and by recognizing cash gifts between individuals as income to the recipient and outlay to the giver. Total income and outlay of the combined subaccounts will then exceed Commerce Department

aggregates because of deconsolidation, but the savings figure will not. These modifications will scarcely affect the use of the data in interpreting the behavior of the aggregates.

Let us now examine the types of imputed item included in the Commerce Department income and expenditure aggregates and see whether they are suitable for size distribution work. All the imputed income items included have one common characteristic: they are factor incomes. No transfer payments in kind are recognized. Factor incomes in kind consist of these items listed by Miss Reid: (1) earnings in kind, such as food or clothing in lieu of wages; (2) home-produced or gathered food and other primary products of a type commonly sold by the families consuming them; (4a) the services of owner-occupied dwellings. They include also an item not listed by Miss Reid, imputed interest.

Miss Reid distinguishes two methods of valuing income in kind: (a) cost in terms of alternatives foregone in acquiring or retaining the income in kind as far as these are money costs; and (b) expenditures rendered unnecessary. Largely because personal income is a byproduct of national income, which is conceived of as a production measure, personal income, in a rough way at least, values imputed items by method (a).

With the exception of imputed interest, there seems to be no question that, in principle, the types of imputed income covered in personal income are readily adaptable also to size distribution studies. In several cases, as Miss Reid suggests, it is easier as a practical matter to impute than not to impute.

With respect to imputed interest, which Miss Reid does not discuss, the matter is somewhat different. The treatment accorded imputed interest in aggregate personal income and expenditure may not be directly applicable to individual spending units. A good deal of careful thinking, however, should be given the problem. Omission of imputed interest in size distribution work might not be serious were it merely a matter of omitting the same amounts from total income and expenditure. In that case, the savings figure, which occupies a central position in analytical use of the data, would not be affected. But, unfortu-

nately, the treatment of imputed interest, particularly with respect to life insurance companies, has important implications for savings.

The types of income listed by Miss Reid and excluded from personal income are best omitted from any general purpose size distribution since they would further separate it from the national income accounts. Most of them would disappear in any event if her method of valuation (a) is followed, since no cost in terms of alternatives foregone is incurred by the individual consuming unit in acquiring them. This generalization applies to Miss Reid's items (5) nonmoney gifts from friends; (6) services and relief obtained from nonprofit organizations; (7) public relief; and (8) other goods and services received from government, as well as the free gifts of nature—all the items not included in personal income listed by Miss Reid except perhaps (3) miscellaneous household production, and (4b) services of consumer durable goods other than housing.

Although welfare considerations are dominant in Miss Reid's discussion, I have ignored them in indicating what I deem the most useful treatment of income in kind because I think they offer little guidance in reaching decisions, not because I find them uninteresting. For, if we are to examine economic welfare at all, three types of factor must be taken into account: individual tastes, wants, and needs; real costs incurred in trying to satisfy them; and the income with which they can be satisfied. A serious attempt at measurement has been made only for income. The unfortunate consequence has been that, although we all know better, we often attempt vainly to set up income concepts such that a comparison of the incomes of two groups will indicate their relative economic well-being even when it cannot be assumed that the tastes of, and real input by, the groups are identical. National income literature is replete with proposals to add income in kind, or to deduct cash income, of one sort or another in order to improve welfare comparisons when the real difficulty lies, not with the income measure, but with the failure, and probably the practical impossibility, of bringing differences in wants and/or input into the comparison.

I think that imputation has already been made in aggregate personal income when two conditions are fulfilled: first, inclusion of imputed income materially improves the welfare comparisons most likely to be made; second, in the absence of imputation, welfare comparisons are unsatisfactory because of a defect in the measurement of income rather than because of differences in wants or real input. Consequently, I think it unlikely that the usefulness of size distribution data for welfare comparisons would be improved materially by more imputations.

These comments do not necessarily apply to the value of goods and services purchased by government and nonprofit organizations. Conceivably, the benefits derived by various income groups from some of these purchases could be allocated among consumer units. This is not done within the framework of national economic accounts as currently constructed because these accounts aim at measuring total output and its division by purchasing and selling sectors rather than at allocating output to the various social groups to which the ultimate benefit accrues.

REPLY BY MISS REID

Mr. Denison's comments for the most part concern imputed interest which he feels I have overlooked. The extent of the omission can be made apparent by noting the ingredients of the imputed interest component of personal income as defined by the Department of Commerce. It consists of two parts: (1) "... the value of the services rendered to depositors by financial intermediaries without the assessment of specific charges, and (2) property income received by financial intermediaries but accruing to the account of persons. The former arises in the case of commercial banks, mutual banks, building and loan associations, credit unions, investment banks, and similar institutions and is measured by the cost to these institutions of rendering free services to depositors. The latter arises in the case of life insurance companies, mutual banks, savings and loan associations, and

credit unions, and is classified as imputed interest to signify that such income is not received currently by persons in the form of monetary interest payments.”¹

The second part of imputed interest was intentionally omitted since all potential as well as actual money income was excluded. If funds received by an intermediary, to be paid out later, are classed as nonmoney income, so also should be the value of the change in inventory and undistributed profits.

The first part of imputed interest consists of free services and as such could well be subsumed under category (6), “goods received from other private sources for which no direct price is paid. . . .”

Free services, it is true, do take on a somewhat different light according to whether they are provided by one who sells to consumers such as a department store or by one who buys services from consumers, as when banks pay consumers for the use of their savings. A department store that provides many free services presumably covers their cost in the prices it charges for goods. Mr. Denison is satisfied to omit these from the distribution of nonmoney income probably because their total costs have been covered even though the same persons may not pay for and get benefits from the services.

When the cost of free services to ‘depositors’ is incurred by a specific act, such as cashing checks, there is some basis for estimating the distribution of services and, like other types of nonmoney income, such an estimate would be useful.² I hope Mr. Denison will prepare one.

If, however, these ‘free’ services are to meet the tests imposed for other income in kind, it is necessary to go beyond the incurring of a cost. Cost can be allocated to the various users on the basis of the relative number of checks cashed. But we cannot assume that a similar pattern of check cashing would prevail if depositors had to pay a charge equal to the imputed cost per

¹ *Survey of Current Business*, July 1947, Supplement, p. 46.

² The ‘cost’ rather than the ‘value’ of services rendered depositors would seem more accurate.

check. Persons tend to use a free service up to the point of its marginal cost to them.

Despite what Mr. Denison seems to have read into my remarks, I do not believe it is easier to impute than not to impute. Indeed, imputation produces the major headaches of rural if not of all family studies, as my examples seem to demonstrate.