PART II

Measuring the Nation's Consumption

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I

Ordinarily national income is taken to be the net aggregate output of all sources of enjoyment except commodities produced "outside the field of economic activity proper".[1] The latter "are left to be accounted for separately".[2]

National income is, in this sense, simply one of several categories of production. This particular category has received special attention and been studied apart from the other categories. This is not reprehensible in itself. National income is a very important category of production. When total output is in question, however, an estimate based on something less than the whole has limitations.

These limitations are somewhat greater if an estimate of total consumption is the desideratum, since a smaller percentage of total consumption than of total production is likely to be covered if nonmarket activity is excluded. Further, the consumption portion of national income, while it may constitute a reasonable class of production, is not thereby a sensible category of consumption. When analyzing consumption, the distinction between food grown in the urban garden and commercially grown vegetables is not very helpful except, perhaps, with respect to such matters as vitamin content.

These limitations would not raise difficulties if we had adequate separate accounts of production in the noneconomic area. Unfortunately, such separate accounts are seldom drawn up. Because extra-economic production is not for the market, and cannot easily be measured in terms of money, there are few statistics for it. This has discouraged both comprehensive estimation of this complement to our national income measure and regular reporting of changes in it. Between confining estimates to the market economy or making up additional estimates of non-market production, the choice has usually been the former.

Perhaps the horns of the dilemma have not been properly evaluated. Estimates for the nonmarket area must be very rough, it is true (and not merely for statistical reasons), but so must estimates of some national income components. In the absence of accounts for the nonmarket area, the limitations on the exist-

[1] Simon Kuznets, *National Income and Its Composition, 1919-1938* (National Bureau of Economic Research, 1941), I, 135-6.

[2] Alfred Marshall (*Principles of Economics*, 8th ed., Macmillan, London, 1938), p. 524.

ing estimates are annoying qualifications to the conclusions we may draw from them concerning the total consumption of all or particular kinds of goods and services. This is especially true of estimates covering long periods, when even small annual changes in the proportions of market to nonmarket output may cumulate to large amounts, and to some extent also of wartime series, when the rate of change in these proportions may be high for some types of commodity. A question is thus posed: Do estimates of consumption compiled from available statistics on national income depart appreciably from the facts? Further, how suitable are the valuations commonly used and the classifications followed in national income tables for measuring national consumption and illuminating its content?

These questions are raised to remind us of problems recognized in the past. Simon Kuznets has well summarized some,[3] and analyses of international, industrial, and other differences in income levels usually refer to them. But we have not yet reached the stage where it is generally considered worth while to place even rough systematic accounts of nonmarket output and alternative valuations and classifications alongside our present income estimates.

II

Consumption of commodities and services must be measured in terms of some value unit, such as the market price of the same or similar goods in some reference base period. A nonmarket value unit is also possible and, indeed, for any rounded view of consumption the usefulness of supplementary measures based on nonmarket units cannot be overstressed. In the case of food, for example, measures in terms of calories and similar units sometimes lead to a better understanding of the nation's consumption than do deflated dollar values, and certainly all these measures combined give more knowledge than one alone.[4]

[3] *National Income and Its Composition,* Ch. 1 and 9. See also the contributions of Gerhard Colm and Clark Warburton in Volume One of *Studies in Income and Wealth.*

[4] The differences among the measures are great; e.g., between 1929 and 1939 the usual index of deflated consumers' outlay on food, which reflects various shifts in the kind and stage of preparation of the food bought, rose about 25 percent per capita, according to estimates based on Department of Commerce data. In contrast, the Department of Agriculture measures of the per capita consumption of foods, based on physical volumes multiplied by corresponding fixed base-

When the unit is some nonmarket value, such as the calorie, the same value coefficient is applied as a matter of course to all goods of the same kind prepared and used in the same way, wherever they may be consumed or whatever price is paid for them. When the value unit is price, regional or other differences in prices are usually allowed to affect the aggregates, at least when these enter national income calculations. Regional comparisons of consumption levels at a moment in time, and comparisons of total consumption over time, are thus rendered ambiguous.[5]

To illustrate: Food grown and consumed by farmers is included in national income at farm prices, which are considerably lower than food prices elsewhere. Evaluation of farm-consumed raw food at nationwide prices would not raise the total value

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year retail prices, increased 1 or 2 percent; of calories, remained unchanged; of proteins, rose 1 percent; of carbohydrates, declined 5 percent; of ascorbic acid, rose 15 percent.

[5] The point may be expressed most clearly in simplified algebraic terms. Let q and p stand for the quantity and price of a given product in one economic area (industry, income level, etc.), and Q and P for the quantity and price in another area, with the usual subscripts indicating the time period; and let $P_0 = mp_0$, $P_1 = np_1$. Then the index of real consumption of the product for the two areas combined, period 1 in relation to period 0, will be

1a) $\frac{q_1 + nQ_1}{q_0 + mQ_0}$, if the value index $\frac{q_1p_1 + Q_1P_1}{q_0p_0 + Q_0P_0}$ is deflated by $\frac{p_1}{p_0}$; or

1b) $\frac{\frac{q_1}{n} + Q_1}{\frac{q_0}{m} + Q_0}$, if it is deflated by $\frac{P_1}{P_0}$ (both procedures are common).

The index of real consumption will be

2a) $\frac{q_1 + Q_1n}{q_0 + Q_0n}$, if the value index is divided by a somewhat better index of prices, e.g., $\frac{q_0p_1 + Q_0np_1}{q_0p_0 + Q_0mp_0}$; or

2b) $\frac{q_1 + Q_1m}{q_0 + Q_0m}$, if the complementary price index with given year quantities as coefficients is used as the deflator. The index we are after is more appropriately provided by

3) $\frac{q_1 + Q_1}{q_0 + Q_0}$, which may be obtained in the deflation procedure only if the price index is

$$\frac{q_1p_1 + Q_1P_1}{q_1 + Q_1} \Big/ \frac{q_0p_0 + Q_0P_0}{q_0 + Q_0}.$$

of food consumed in any one year, if the national average price were properly computed. But it would affect the trend of the index of raw food or total food consumption—how much would depend on the rate of change in the proportion of farm to total consumption and the ratio of farm prices to national prices in the weight-base period.[6]

III

For light on national consumption everyone turns first to national income, which includes several categories that are themselves elements of national consumption or closely related to such elements. The chief category is consumers' outlay, which as a matter of fact, is frequently used to measure national consumption. The character of the accounts needed to supplement and the adjustments required to utilize existing estimates of national income, if we are to obtain a fuller view of consumption, may therefore be seen most clearly if we start with consumers' outlay.

To begin with, consumers' outlay is, as mentioned, only one of the national income categories that constitute, in some form, an element of national consumption. We find consumption items not only in consumers' outlay but also, at present, in war outlay. These are goods and services provided the armed forces. Of course, when consumers' outlay is measured in relation to the civilian population rather than to the total population, the limited scope of the former is implicitly recognized. But when it is a question of total consumption, the goods and services provided the armed forces cannot be ignored and must be covered explicitly.[7]

[6] Even for the three decades beginning in 1909, the difference between the usual index of nonmanufactured food consumption and one computed as suggested amounts to some 5 percent. For trends covering the past century, during which the rural-urban shift in population was great, the difference would be much larger, and would probably be appreciable even for a measure of total consumption.

[7] The quantities are large, since the armed forces totaled over 9 million in 1943; and in the case of food, at least, the men in the services consume more per capita than does the average civilian or even the average male civilian. Even if each serviceman is allowed only the quantity of food consumed by the average male in 1941 (worth about $200 in 1939 prices), the total for the armed forces was some $1,900 million in 1943, close to 10 percent of the 1943 value of consumers' outlay on food (also in 1939 prices).

Various estimates indicate that a considerable quantity of tobacco products is being sent abroad for the use of our armed forces stationed outside the country.

In peacetime, national income is confined to the physical boundaries of a country; i.e., the population covered excludes citizens resident abroad and includes aliens living within the country. Aliens *temporarily* domiciled within the country and citizens *temporarily* domiciled abroad are few in peacetime. During a war, however, these groups may become a fairly large percentage of the total population. For many purposes there is point to including in an estimate of national consumption the goods and services consumed by our military forces abroad, e.g., through reverse lend-lease; and excluding from it the goods and services provided the foreign soldiers stationed here.

Consumption of goods and services produced in the nonmarket area, e.g., those yielded by some or all sectors of the family, the illegal, the public and semi-public, and the eleemosynary economies, is usually omitted from consumers' outlay, because the output is omitted from national income.[8] All these belong in national consumption. Without the benefit of supplementary accounts for these areas, it is difficult to appraise estimates of national income going back to 1799 or even 1879.

Since these shipments are tax free, they are not included in the usual estimates of consumers' outlay on tobacco. The 1943 figure for the latter, about $2.5 billion (in 1939 prices), must therefore be raised one or more hundred million dollars if it is to measure total consumption.

The quantity of clothing purchased by government agencies for military use, which appears solely in war outlay, has been a very substantial portion of all clothing manufactured. This large fraction is accounted for, in part, by the enormous inventories that have been built up. But even if we take the very modest sum of $100 per year per soldier or sailor, we reach close to a billion dollars, about 10 per cent of consumers' outlay on clothing in 1943 (both values in 1939 prices). The average annual expenditure per male adult in 1934-36, for families of wage earners and clerical workers in 42 cities, was $49, according to the Bureau of Labor Statistics.

All together, including not only food, tobacco, and clothing but also all other consumer goods and services provided the armed forces, there is a substantial addition to be made to consumers' outlay if it is to reflect consumption adequately. The estimate in Kuznets' National Product, War and Prewar (National Bureau *Occasional Paper* 17, Feb. 1944)—$500 per member of the armed forces in 1942 (about $400 in 1939 prices)—is not at all too large.

[8] Among the sectors of the family economy not covered in the usual indexes of consumers' outlay are nonfarm gardens which, in recent prewar years, have provided some $200 million worth of food per annum. During the war, however, the victory-garden drive has increased the yield to some 8 million tons, as estimated by the Extension Service of the War Food Administration, which may be valued at about $600 million. The increase of $400 million is an appreciable increment to the national food consumption, only slightly offset by the probable wartime decline in amateur fishing and hunting.

The most striking product of the illegal economy in recent American history

It may be objected that if personal services rendered oneself were to be included in national consumption, the rise that would otherwise appear in national consumption due to the growth of the 'service industries' would be offset and vanish. This is not strictly true since a professional shave, for example, is often worth more than one's own. But aside from this, the objection fails to note the difference between level of consumption and standard of living. The latter is a function not only of consumption but also of expenditure of time and effort.

Among the goods included in consumers' outlay are durable consumer commodities. If national consumption is to be estimated properly the outlay upon them must be taken out and the services rendered by them substituted. (This will involve a correction of both amount and timing.) Indeed, to a limited extent this is usually done even in estimating consumers' outlay and national income. Expenditures on residences owned by their occupants are treated as capital formation rather than consumers' outlay, and an imputed rent on them is included in the latter.[9] But the income from outlays on other durable consumer goods is in effect measured by total expenditure and so counted at the time the purchase is made. This treatment parallels that of the durable goods purchased by business concerns that are charged to current

Note 8 concluded:

is the illegal liquor consumed during the prohibition era. Clark Warburton's estimate for 1929 is $3,750 million, over 15 per cent of the value of all food and beverages consumed. Another large illegal item is anthracite coal mined in bootleg operations. According to the Bureau of Mines, the tonnage of this coal amounted in 1939 to some 8 per cent of the year's legal output.

Care must be taken, of course, to avoid double counting; therefore transfers of goods such as may occur in charitable transactions should be omitted except for the value added in the transaction.

I will merely mention the important discrepancy between the 'actual' value of governmental services rendered consumers and the value placed upon these services in current computations of national income. This perennial question is discussed in almost every volume of *Studies in Income and Wealth*.

[9] Curiously, the Department of Commerce includes in capital formation investment in owner-occupied houses but does not place the services rendered by them in consumers' outlay. I understand that this omission will be remedied in the next revision of the Department's series. It will probably add some $3 billion to the outlay figures for 1939, about $1.2 billion for depreciation (in 1939 prices), and $1.8 billion for net rental income.

There is, it is true, some reason for hesitating to include imputed incomes in consumers' outlay, which in its ordinary usage would cover only purchases. Perhaps imputed incomes, home-grown food consumed on the farm, etc., should constitute a new major category of national income if these items are to be kept in it at all.

operations. But such crude methods of accounting for business capital consumption are relatively unimportant. In estimating total consumption, especially when the current production of consumer durable goods is far from normal, the durability of consumer durable goods must be recognized.[10] In the case of clothing, failure to do so usually leads to no great error, because the average life of clothes is short and fluctuations in outlays have been moderate.[11] When the more durable goods are considered, the difference between outlay and consumption becomes impressive.[12] To measure consumption, some more or less arbitrary assumptions would have to be made concerning depreciation and rental rates; e.g., it would have to be decided whether rental rates should reflect differentials for the greater satisfaction derived from new goods and for their lower operating costs. But this would seem less unpalatable than to accept outlay as a measure of consumption, because of the kind of assumptions that would involve.

[10] It is so recognized by the Department of Commerce in discussing its figures on consumer expenditures; see Milton Gilbert and George Jaszi, National Income and National Product in 1942, *Survey of Current Business,* March 1943, p. 14. However, in the paper cited, depreciation charges alone are taken as a measure of consumption.

[11] The decline in consumers' outlay between 1929 and 1933 (measured in constant prices) was about 25 percent. The corresponding fall in services rendered by consumers' stocks of clothing was 15-20 percent (assuming a three-year average life).

[12] The decline in the output of such products as are covered in the usual consumer outlay category ('durable goods, other than housing', including automobiles, furniture, and similar goods), during the 1930's and since 1941, has been great compared with that in the stock of such goods held by consumers. When the imputed net rental value of this stock is also taken into account, the difference becomes even greater, as is suggested by the accompanying rough figures (in billions of 1939 dollars).

	1929	*1933*	*1937*	*1941*	*1943*
Consumers' outlay[a]	6.7	3.3	6.7	8.3	4.8
Depreciation[b]	5.8	6.0	5.8	6.2	5.6
Net rental value[c]	1.7	1.8	1.7	1.9	1.7
Depreciation plus net rental value	7.5	7.8	7.5	8.1	7.3

[a] Based on figures compiled by W. H. Shaw, Henry Shavell, Milton Gilbert, and George Jaszi, of the Department of Commerce.

[b] The depreciation estimate is that presented by Gilbert and Jaszi in their article cited in footnote 10, pushed back to 1929 and forward to 1943 in a simple calculation assuming a 10-year life for all goods covered in the category.

[c] The net rental value was taken equal to 30 per cent of the depreciation charge; i.e., a 3 percent net rent on gross assets or 6 per cent on net assets was assumed.

IV

One other difference between estimates of consumers' outlay and of consumption may be noted. From the viewpoint of most consumption problems, the subclasses of consumers' outlay are not neat categories. Outlay on foods, for example, covers many items. It measures not only food consumption but also many services purchased together with food. Yet, while the cost of preparing and serving restaurant meals appears in the outlay on food, the corresponding cost in the home is classified elsewhere.

This kind of classification sometimes leads to actual confusion, as in the recent criticisms of the Bureau of Labor Statistics cost of living index. At best it cannot be said to provide the most useful breakdown when consumption is of primary interest. A supplementary classification, in which the services are separated out by subtracting the value they add, would be useful.

If supplementary measures were attempted, many difficult decisions would have to be made, of course. The changing service element resulting from the shift of canning or dressmaking from home to factory would not be easy to determine. The restaurant performs also a food retailing function, which is difficult to separate from its other functions. But this difficulty would bother one less than the cloudiness of meaning created by the inclusion of night-club entertainment and other services in the food category.

I would not propose that this reclassification be done for every category of consumption. It is doubtful that it can be. But for such categories as food and clothing, something interesting might be worked out.[13]

V

I have argued that if a reasonably adequate notion of consumption levels is to be obtained, even rough 'separate accounts' for consumption areas not covered in present estimates of national income should be drawn up. I have noted that, naturally, a good many difficulties would be encountered and many assumptions

[13] The weighted index of per capita consumption of foods in the United States, prepared by Elna Anderson of the Bureau of Agricultural Economics (Consumption of Agricultural Products, March 1941), is one of the measures I have in mind.

would have to be made. To those already mentioned I should like to add another.

Services performed by housewives in adding value to the raw food, cloth, and other goods that go through further processing in the home, and in providing a large group of personal services, have been shifting almost continuously from the family to the market economy. In the case of clothing, for example, the transfer has been direct and complete; factories now cut the cloth and sew the garments together.[14] In other shifts, such as the lightening of the housewife's burden by domestic electrical appliances, the transfer has been indirect and partial. Electrical appliance manufacturers have displaced the commercial producers of the simpler home tools, but the housewife still uses the appliances. The housewife's labor has increased radically in productivity (compare lighting a gas stove with kindling a coal fire); and her hours have been shortened and her 'employment' has declined.

Consequently, it is difficult to put a dollar value on housewives' services. The usual procedure of assuming no change in such services per housewife is not very satisfactory, since it understates the shift out of the family economy. The 29 million women reported by the 1940 Census as engaged in housework constituted not only a smaller fraction of married women, as compared with earlier decades, but contributed less per person than did housewives in earlier years. The same can be said about domestic work done by children and husbands.[15]

These considerations bring us to my final comment. Specific quantitative measures are useful and their calculation should be improved. The assumptions on which they must be based may be questioned, but in some respects this is itself an advantage; for explicit assumptions are always better than the implicit ones frequently imbedded in market statistics. Beyond a certain point, however, the advantages to be expected from quantitative meas-

[14] According to estimates by William H. Shaw, 3 per cent of the flour produced was purchased by commercial bakeries in 1869; in 1919, 20 per cent. In the case of cotton goods, the corresponding percentages are 8 and 64. (Small neighborhood bakeries and seamstresses complicate the interpretation of Shaw's figures, for the present purpose, since they are not counted among commercial establishments.)

[15] It will be recalled that not so long ago house-raising was only infrequently a market product.

ures will be overcome by the doubts. The exact position of this point must be determined in each individual case. In considering trends in recreation, for example, I suspect that little value would be extracted from an attempt to estimate the quantity of 'home-made' recreation. It might be more useful simply to consider the quantity of 'commercially-produced' recreation against the background of qualitative information on all sources of recreation.

The more aspects of consumption we measure and the more qualitative information we have on each the better. This is the only way of resolving such a problem as that of distinguishing between consumer goods and goods used in the process of production, a problem which becomes more serious when, as in a great war or during the secular development of economic society, radical changes occur in occupations, family life, and place of residence or work. Current national income calculations should be supplemented by other measures, and qualitative information pursued.

VI

This discussion of the measurement of national consumption may be summarized as follows:

1) Consumers' outlay is not a completely satisfactory measure of consumption, because it fails to cover consumption items included in other national income categories, particularly war outlay.

2) Moreover, with some exceptions, consumers' outlay includes only goods and services produced in the market economy. Production in the domestic, eleemosynary, illegal, public, and semi-public economies are inadequately covered.

3) Consumers' outlay on commodities is not simultaneous with actual consumption; the difference in timing is considerable for durable goods.

4) The items included in consumers' outlay are combined in terms of the particular market prices paid for each. To measure consumption, however, all goods of a given kind could more sensibly be valued at the same price, if market prices are used; and for many purposes, non-market value units are more suitable.

5) The classifications followed in presenting information on consumers' outlay do not yield the most illuminating breakdown

of national consumption, and should be supplemented by other classifications designed to that end.

6) In general, but especially when quantitative measures are impracticable, qualitative information on aspects of consumption is desirable.

The position taken here is not that existing consumers' outlay or national income series should be revised to provide more satisfactory estimates of consumption. Rather, it is urged that when consumption is the question, supplementary estimates be calculated and presented, together with qualitative information, beside estimates of national income. These additional data are needed for international and intra-national comparisons of consumption levels as well as for the analysis of secular trends or wartime changes.

What I am really suggesting is, of course, a study of the nation's consumption. Until it is made, national income estimates, when used to indicate changes in consumption, should be carefully qualified.