CONSUMER SERVICES PROVIDED BY BUSINESS THROUGH ADVERTISING-SUPPORTED MEDIA IN THE UNITED STATES

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The purpose of this paper is to examine and attempt to solve a longstanding "puzzle" in national economic accounting. Radio and television broadcasting are services clearly designed for and used by consumers but not purchased by them and, consequently, not counted in personal consumption expenditures (PCE); the costs of broadcasting (and a part of the costs of newspaper and magazine publication) are not counted in final product but are counted as intermediate expenses in the manufacture and distribution of advertised products. An important result of this treatment is that an increase in broadcasting services will not increase real product, but will be reflected as price increases in advertised goods. Are consumer services provided by advertisers properly handled in the conventional accounts? How should they be valued? If their value is to be added to PCE, where does the offsetting income originate?

The paper argues that the puzzle is resolved by recognizing the nonmarket exchange between the consumer and the broadcaster; the consumer provides the reception and display of audiovisual advertisements in his home in return for broadcast entertainment. The exchange rate—e.g. 50½ minutes of entertainment for 9½ minutes of commercial messages in "prime time"—is established in the United States by the National Association of Broadcasters. Similar exchanges occur between consumers and radio broadcasters, newspaper and magazine publishers. This concept is used as the basis for a new treatment shown in abbreviated sample accounts. Estimates for the U.S. in 1976 are included.

INTRODUCTION

The problem

Television watching is the most popular form of recreation in the U.S. The A. C. Nielsen Company reports that during the 1977–78 television season, the average U.S. household viewed 43 hours and 41 minutes per week; the average viewing per person was 26 hours and 18 minutes.[1] Television may be a "wasteland," but it apparently occupies more time than any other activity other than sleeping and working.[2]

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[1]Laurence Frerk, Promotions Director, A. C. Nielsen Company, personal communication, April 12, 1979. A "household viewing television" is defined to be a household in which one or more TV receivers is operating. A "person viewing television" is defined to be anyone in the same room with an operating television receiver. Thus these statistics say nothing about the level of concentration of viewers nor do they rule out viewers actually engaged in other activities while the set is on.

[2]TV watching is the largest item of time use, following sleeping and working, as measured by the 1975–76 time-use studies of the Institute for Social Research of the University of Michigan, although a more strict definition of "viewing" is used. The Institute recognizes that a person may engage in more than one activity at one time, but the time-use diaries require that a primary activity be identified. Thus if the respondent is washing the dishes and watching a child while the TV is on in the kitchen, he/she must decide whether the primary activity is to be "Meal Cleanup," "Child Care," or "TV." Within that framework, the estimated weighted (for uneven day of the week distibution) mean minutes-per-nonvacation day were: 478 for "night sleep," 181 for "normal work," and 100 for "television." The next most popular time use was "meals at home" at 45 minutes. This comparison is somewhat misleading because some major activities are accounted for in a number of subcategories; for example, "housework" and "child care" together have 17 activity categories that sum to 173 minutes. The Institute for Social Research, Chapter 2 of a forthcoming monograph on use of time based on the 1975–76 study (F. Thomas Juster, personal communication).

Television is big business by any measure. In 1976, Americans spent $8.3 billion for new TV receivers, purchased repair services for $1.1 billion and bought $1.4 billion of electricity to operate their sets.[3] All of these purchases are enumerated in the Gross National Product (GNP), though not separately. The first two items are included within "recreation" under "Personal Consumption Expenditures (PCE) by Type of Expenditure" each July.[4] But the costs of commercial[5] television (and radio) broadcasting, i.e. the production of programs and technical transmission of signals, are not enumerated, but are counted as "intermediate purchases of business" and are included in the estimate of GNP only insofar as the cost of advertising via television is reflected in the prices of advertised goods and services, e.g. soap. It is estimated that business spent $6.7 billion for television advertising in 1976.[6]

Television broadcasting is a service that is unmistakably designed for and used by consumers, although consumers do not pay for these services directly. The same is true of radio broadcasting. While newspapers and periodicals are sold to consumers, their prices are less than their costs, the difference being made up through advertising revenues. None of these consumer services paid for by business are explicitly counted in GNP, but are counted only indirectly as intermediate business expenses.

Background

This anomaly has long been recognized by national income accountants. For example, *The National Income—1954 Edition* includes this comment:

> The services of the radio broadcasting and television industries are an outstanding example of an item which is not listed in the national product because it is financed by business via charges that are made to current cost. Yet radio broadcasting and television are important forms of recreation, similar to legitimate theaters and motion pictures for which explicit entries, representing admission fees, are made in consumer expenditures.
>
> No imputation is made for radio broadcasting and television in measuring national product . . . This omission can be formally defended, but . . . it would seem preferable not to stress this point unduly and to recognize the

[3]These estimates are explained in detail in the footnote for Table 2.

[4]See for example, *Survey of Current Business*, July 1978, Table 26, p. 37. Neither category is shown separately, but are included under "radio and television receivers . . ." and "Radio and television repair," respectively.

[5]Commercial television is defined as television broadcasting supported by advertising revenues rather than by Government or private contributions. Public television is not included in this discussion because, being nonprofit institutions, public television stations and networks are included in the household sector of the conventional accounts and therefore their purchases are "final." According to the most recent study completed by the A. C. Nielsen Company comparing commercial versus "public" television conducted in November 1977, U.S. television households watched about 39 hours per week of commercial network television, about 7 hours per week of independent (i.e. commercial non-network station) television, and about one hour of public television. Thus, in terms of household viewing habits, commercial television accounts for 98 percent of total U.S. viewing. These estimates are for November, an unusually heavy "viewing" month, whereas the estimates of total household viewing given earlier in the text are for the season as a whole. Frerk, *op. cit.*

[6]Robert J. Coen of McCann-Erickson, Inc., as quoted by *The World Almanac* (New York, 1978), p. 431.

essentially arbitrary and tradition-based nature of the decisions that must be made in this area.[7]

Ruggles and Ruggles (1970) included a $13.7 billion estimate of "Mass media support" in their estimate of "Enterprise Consumption."[8] George Jaszi and F. Thomas Juster (1971) seem to agree that radio, television, newspapers, and periodicals do provide consumption services not properly accounted for in GNP and their discussion suggests that the value to the consumer of these services would be added to conventional PCE.[9] Arthur Okun (1971) refers to the valuation of TV broadcasting services to consumers at zero as the "single most puzzling consequence" of the rule for handling intermediate business expenses.[10] Okun agrees that these services are a part of consumption, but argues that since services are not paid for in the market, they cannot be valued and therefore should not be added to conventional GNP. In reply, George Jaszi (1971) notes that advertising expenditures provide an estimate of the imputation that "should be added to consumer expenditures (and incomes)." John Kendrick (1971) included an estimate of advertising expenditures in his paper, "Expanding Imputed Values in the National Income and Product Accounts,"[11] and Robert Eisner added similar estimates to his "total incomes."[12] Thus consumer services financed by business intermediate expenditures have been recognized for a long time but the conceptual issues have not been resolved.

Okun summarizes the problems succinctly:

> "Whatever the conventions of accounting and the rules of the Internal Revenue Service allow firms to treat as the current cost of doing business shows up as intermediate product in the national accounts. Generally, this concept of intermediate product is reasonably satisfactory. To me, its most puzzling single consequence is the resulting valuation at zero of television and radio services to the consumer. Insofar as programming over the airwaves is supported by advertising, advertising is viewed as a cost of doing business, no final product valuation is attributed to the services. If advertising costs raise the prices of such products as cosmetics and breakfast food (in the base year for constant-dollar valuation), radio and TV fare may be counted to some extent, although in the wrong place. But so long as radio and TV programs are free goods to the consumer, it is as meaningless to put a price tag on what comes over the airwaves as it is to put a price tag on air itself. This is a perfect example of the general principle that, if market behavior doesn't tell you how much something is worth, you have no way to tell."[13]

[7]U.S. Department of Commerce, *National Income—1954 Edition*, Part II, pp. 46–47.

[8]Nancy Ruggles and Richard Ruggles, *The Design of Economic Accounts* (New York, 1970), p. 110. Their estimate appears to be based on total business spending for advertising.

[9]F. Thomas Juster, A Framework for the Measurement of Economic and Social Performance, *The Measurement of Economic and Social Performance*, Milton Moss, ed. (New York, 1973), p. 50, and George Jaszi, Comment, Moss, p. 89.

[10]Arthur M. Okun, Social Welfare Has No Price Tag, *Survey of Current Business*, Anniversary Issue, The Economic Accounts of the U.S.: Retrospect and Prospect, Vol. 51, No. 7, Part II, p. 131.

[11]John W. Kendrick, Expanding Imputed Values in the National Income and Product Accounts, *Review of Income and Wealth*, Series 25, No. 4, pp. 349–364.

[12]Robert Eisner, Total Income in the United States, 1959 and 1969, *Review of Income and Wealth*, Series 24, No. 1, March 1978, p. 49.

[13]Arthur M. Okun, p. 131.

Purpose and Plan of This Paper

The purpose of this paper is to review the issues, to propose a conceptual and statistical framework for resolving them, and to develop preliminary estimates of the magnitudes of consumer services financed by intermediate business expenditures for advertising in radio and television broadcasting, newspapers and periodicals.

The paper first treats the case of television in considerable detail in order to bring out the issues and to develop the conceptual framework and the estimating methodology. The radio, newspaper and periodical cases are then treated briefly within this framework.

CONSUMER SERVICES PROVIDED BY BUSINESS THROUGH ADVERTISING-SUPPORTED TELEVISION IN THE UNITED STATES

Background

The important "actors" in the production and transmission of television programming are: The Production Company, the Network, the Station, the Advertising Agency, the Advertiser and the Viewer.

The Production Company hires the actors, directors, cameramen, etc., and produces the film for "entertainment" programs that are sold or rented to Networks or directly to Stations. The Network is forbidden to produce entertainment[14] programs and so must obtain them through the Production Companies. Some programs are conceived and carried through to finished film by the Production Companies and then sold to Networks and Stations as a completed package. More commonly, however, the Network develops the basic idea (or buys it from a "writer") and then supervises the actual production of the program by the Production Company.

The Network produces news, sports and public affairs programs, but its major function is to design and develop a package of entertainment, news, sports, and public affairs programs that will attract large audiences with characteristics desired by Advertisers.[15] It is in fact these large audiences that are sold to Advertisers through their Advertising Agencies in 30-second units. The entertainment, news, sports, and public affairs programs are interspersed with commercial messages (the spacing and duration of which are precisely determined by the rules of the National Association of Broadcasters (NAB))[16] and the stream of electronic signals, called the "network feed," is sent on relay circuits to the affiliated Stations.

The affiliated Stations broadcast the "network feed" interspersing it with additional 30-second commercial messages at "station breaks." Affiliated Stations also buy, rent or produce their own programs including local news, sports, and public affairs programs. The number and quality of such locally produced pro-

[14] Martin Mayer, *About Television* (New York, 1972).

[15] Throughout this paper, television broadcast material will be referred to as "entertainment" for simplicity of exposition. Of course, television also provides material that can be described as informational, educational, or cultural.

[16] The National Association of Broadcasters, *The Television Code*, 20th Edition.

grams are reviewed by the Federal Communications Commission when the Station's license is considered for renewal. Independent Stations, i.e. Stations unaffiliated with a Network, must produce their own programs or buy or rent from Production Companies, from Networks (Network entertainment programs are rerun by the independents) or from motion picture studios many of whom are also Production Companies. Independents also operate under NAB rules, but the rules for independents are less stringent; i.e. they are permitted more commercial messages per hour on the average than are the affiliated Stations.

The Advertising Agencies prepare and execute advertising campaigns that may use media other than television. With respect to television, however, the function of the Advertising Agency is to produce the commercial messages that will sell its client's product and to obtain audiences for those commercials through the Networks and Stations. The "buying" of audiences, i.e. obtaining a particular set of 30-second "slots," is a very complex and important process. Such purchases are evaluated in terms of dollars per thousand target viewers. For example, if one is selling a shampoo designed for, or known to appeal to, middle-aged, working-class women, then it is the cost of reaching such women that is relevant. Thus the composition of the audience as well as its size is important.

The Advertiser pays the bills and, presumably, reaps the benefits in terms of higher sales.[17]

The Viewer, the target at whom all this effort is aimed, may be thought to be passive, but he is an active participant in the sense that he chooses which station's offering he will watch[18] and in the sense that he pays a substantial amount to own and operate his television set.

Present Treatment in the Conventional National Accounts

Table 1 is an unorthodox (but descriptive) set of "T" accounts for a hypothetical Soap-TV entertainment economy. It illustrates the conventional treatment of the various television-related transactions and the calculation of national income and product. Payroll, profit, and depreciation are combined

[17]In the 1950s and 1960s, many Advertisers and their Advertising Agencies produced their own television programs and bought time from the Networks and Stations in 30-minute rather than 30-second units. One of the advantages of this system was, presumably, that the viewer would show his gratitude; for example, if he liked "The Firestone Hour" he could buy Firestone tires. This practice has virtually ended for network programming; the term "sponsor" is no longer descriptive of network advertisers. Only 1.3 percent ($36 million of a total of $2,670 million) of network time sales came from advertisers who supplied their own programs in 1976. The earlier system ended in part because the cost of producing television programs is substantial and the risk that a particular program (or series) will not deliver the desired audience is large. If an advertiser-produced program fails, the advertising campaign (or a large part of it) suffers grievous damage. The alternative—buying 30-second commercial slots in many programs or station-breaks with many stations and networks—permits the Advertiser to limit his risk to a known quantity (roughly the average risk of failure) and to tailor his time purchases so as to reach the target audience he wants. Another reason for the demise of the Advertiser-produced program is that networks want to maintain "channel loyalty." That is, they want viewers to stay with their programming throughout the viewing period and therefore do not want to turn over control of a block of time to a sponsor who may lose the audience to another network for the remainder of the evening.

[18]Of course, he may choose not to watch at all, but there is some evidence that the decision to watch and the decision as to which offering to watch are for most people, separate. (In 1978, 96 percent of television households could receive four or more stations, 66 percent could receive ten or more stations. A. C. Nielsen Company, 1979 *Nielsen Report on Television*, p. 2.)

under "value added," since these details add nothing to the example. The figures for the Advertising and TV Broadcasting industries and for the Consumer are estimates of the corresponding transactions for the U.S. in 1976.

TABLE 1
GNP ACCOUNTS FOR A HYPOTHETICAL SOAP-TV ECONOMY
CONVENTIONAL APPROACH
(Based on U.S. data for 1976)

		Millions of Dollars	
		Income	Product
1	Soap Manufacturer		
	Sales to consumers (to 4)		6,721
	Purchase of Advertising (fr 2)		(6,721)
	Value added	0*	0*
2	Advertising Agency (TV)		
	Sales of advertising (to 1)		6,721
	Purchase of TV display time/space (fr 3)		(5,115)
	Purchase of other services (fr 3)		(174)
	Other intermediate purchases (fr 5)		(298)
	Value added	1,134*	1,134*
3	TV Broadcasting (stations and networks)		
	Sales of display time/space (to 2)		5,115
	Sales of other services (to 2)		174
	Other intermediate purchases (fr 5)		(2,725)
	Value added	2,564*	2,564*
4	Consumer		
	Purchase of soap (fr 1)		6,721
	Purchase of TV receivers (fr 5)		8,297
	Purchase of electricity to operate TV's (fr 5)		1,401
	Purchase of repair services (TV) (fr 5)		1,136
	Total consumer purchases		17,555
5	Miscellaneous Industry		
	Sales to 2*		298
	Sales to 3*		2,725
	Sales to 4 (TV receivers, electricity & repair)		10,834
	Value added	13,857*	13,857*
	National Income and Product	17,555	17,555

*These transactions include the sale by "Production Companies" (see text) of filmed commercial messages to 2 and of filmed entertainment programs to 3.

The Soap Manufacturer, representing all advertisers in this example, sells soap to the consumer and buys advertising from the Advertising Agency. There are no other intermediate inputs and no value added. "Purchases of advertising" is an estimate of total television advertising for the U.S. in 1976.[19] For this example, soap sales are set equal to advertising.

[19]Robert J. Coen, *op. cit.*

The Advertising Agency sells advertising to the Soap Manufacturer, buys display time/space from TV Broadcasting, and buys intermediate goods and services from TV Broadcasting and Miscellaneous. The services purchased from TV Broadcasting includes the rental of studios, camera crews, etc., used in the preparation of commercial messages. Other intermediate services include the preparation of commercial messages by Production Companies that are included in the Miscellaneous Industry.

The TV Broadcasting Industry sells display space/time and "other services" to the Advertising Agency. It produces and broadcasts TV signals (entertainment and commercials). Its intermediate purchases include the purchase (or rental) of entertainment programs from the Production Companies included within Miscellaneous.[20]

The Miscellaneous Industry includes the Production Companies, the electric utility, the television receiver manufacturers and all the other industries that produce and sell the intermediate inputs to the Advertising Agency and the TV Broadcasting Industry.

The Consumer buys soap—in this example the amount bought is exactly equal to expenditures for TV advertising—new television receivers, electricity to operate them, and repair services to keep them operating.

The GNP total of $17.6 billion is a preliminary estimate of the value added by the advertising-supported television "sector" in its broadest sense: i.e. the television broadcasting, television advertising, television receiver manufacturing, television repair and "television electricity generation" industries.[21] This figure represents about 1.6 percent of PCE in 1976.

The amount explicitly enumerated in the conventional accounts is, of course, smaller. The purchase of TV receivers by persons ($8.3 billion), and the purchase of repair and maintenance for them ($1.1 billion) are explicitly counted and included under "Recreation." The electricity to operate them ($1.4 billion) is explicitly counted, but under the general heading of "Household Operation." Thus, the conventional accounts would indicate $10.8 billion for television entertainment; but the costs of television broadcasting are included only insofar as television advertising ($6.7 billion) is reflected in the prices of advertised goods and services and that indirect enumeration can be considered to be conceptually satisfying. This lower figure is about 1.0 percent of PCE in 1976.

Although the concepts and procedures for estimating the value of consumer television services provided by business through advertising are not explicitly discussed, Ruggles and Ruggles, Kendrick, and Eisner imply in their brief discussions and in their estimates that the full amount of television advertising should be added to the expanded estimate of consumption. Thus, $17.6 billion

[20]There is some double counting here, because Production Companies rent facilities (studios, camera crews, etc.) from networks and stations. That is, some part of line 13 should be charged to Miscellaneous rather than Advertising Agencies and therefore netted out of value added. This double counting is believed to be small, however, and no basis for allocating the monies has been discovered. The effect in our later calculations will be to overestimate the cost of producing commercials and underestimate the cost of producing entertainment.

[21]This estimate does not include television receivers, maintenance and "television electricity" purchased by business or Government, however.

would—based on their concept—be the estimate of "television consumed" in 1976 and $6.7 billion would be the value of business provided television services.

Critique of the Conventional Treatment

In order to highlight the problems of the conventional treatment, imagine an economy in which the only product is soap and the only input is labor. In the base year, wages are $1.00 and soap is 10¢ per bar. In a later year, the soap manufacturer introduces an innovation—advertising. Public entertainment (drama, news, and sports) is presented in the town square by employees of the manufacturer. The show is periodically interrupted and the populace is exhorted to buy more soap. The manufacturer raises the price of soap to 11¢ per bar and the increased revenues exactly cover the wages of the actors and athletes (formerly unemployed).[22] The production of soap remains unchanged.

Following the rules, (volunteer) national accountants determine that current dollar national income and product is up 10 percent, hours worked are up by the same amount and the composition of PCE is unchanged. The national accountants also calculate the constant-dollar product, valuing the soap at the base year price of 10¢ per bar; the implicit price deflator is 110 and real product per hour has fallen. The economic news is bad, but a survey indicates that a large majority of the people believe they are better-off than before.

The entertainment in the town square, like commercial television broadcasting, is a "public good;" its producer cannot restrict its consumption and therefore cannot charge for it in the market. Were it provided by the Government or by public contributions, as in the case of "public" television, the service would be valued at its cost, but the service is provided by the soap manufacturer and its cost is classified as an intermediate business expense. This example may be extreme, but it illustrates the distortions that may occur. The distortions in the U.S. National Income and Product Account (NIPA) are not so clear-cut or so large, but there are distortions.

On a typical day in the United States, commercial television will broadcast one or more full length motion pictures that have been previously shown in theaters to audiences that purchased tickets for the privilege. There also will be feature length films, situation comedies, "soap operas," police stories, quiz shows, and perhaps revivals of classic plays that, although never shown to a paying audience, were nonetheless produced, staged, directed, acted, and filmed in a way

[22]In order to keep the example simple, the full cost of the advertising is passed through to the consumer, but there is no necessity or strong presumption that the consumer bears these costs. In the model favored by the advertising industry, the advertiser operates on an average cost curve with negative slope so that increased sales reduce unit costs. But that curve need not be negatively sloped for some or all the costs to be absorbed by the advertiser. The model usually cited by those who argue for full pass-through is the model of pure competition, but one of the premises of that model is an undifferentiated product—clearly not an attribute of an advertiser's product. Advertisers are monopolistic competitors and there is no single, generally accepted model that will determine who bears advertising costs. Although Chamberlin concludes that the buyer bears these costs (E. H. Chamberlin, *The Theory of Monopolistic Competition*, Cambridge, 1960, p. 118ff), other models, e.g. the market share and growth maximizing models, would suggest that some or all of advertising costs might be paid for out of profits. (J. M. Henderson and R. E. Quant, *Microeconomic Theory*, Chapter 6, (New York, 1958).)

that is largely indistinguishable from the way that similar films are prepared for theater presentation.

Admissions to motion picture theaters (unadjusted for price change) fell from $1.6 billion in 1946 to $1.4 billion in 1952, fell further to their low point of $0.9 billion in 1963, and did not recover to the 1946 level until 1971. Throughout the decade before World War II, Americans spent about one percent of total Personal Consumption Expenditures (PCE) on admissions to motion picture theaters; this percentage rose during the war and reached its high point (1.2 percent) in 1946. Ticket sales fell steadily thereafter (about 0.7 percent of PCE in 1950), reached their low point in 1963 (0.25 percent of PCE), and that proportion has risen only slightly since (0.27 percent in 1976).[23]

In contrast, expenditures for television advertising—a rough measure of the cost of producing and broadcasting television entertainment, but not of receiving it—rose from $0.2 billion (or 12 percent of motion picture theater admissions) in 1950 to $1.3 billion in 1957 (slightly more than such admissions in that year); in 1976, television advertising expenditures were $6.7 billion ($2\frac{1}{4}$ times ticket sales). In 1946, only about 8 thousand U.S. households had television receivers, but the 1950 Census showed that about 5 million households (or 12 percent of the total) had receivers; the 1960 and 1970 Censuses indicated growth to 87 and 96 percent of households, respectively.[24]

It would appear then, that television entertainment and the entertainment available at motion picture theaters are close substitutes, and that attendance at such theaters fell as the availability of television entertainment rose. It would also appear that the conventional National Income and Product Accounts (NIPA) have indicated a decline in motion picture ticket sales and, perhaps, an increase in other (advertised) goods and services (in current dollars) as a result. In fact, the change has been in large part in the technical and institutional means of delivering filmed entertainment to audiences. Americans (and other peoples throughout the world) have opened millions of "theaters" inside their own homes where they take on part of the duties and the cost formerly borne by theater operators. The cost of owning and operating television receivers in the U.S. in 1976 was about $9.7 billion (Table 2) or about 1.1 percent of PCE; remarkably close to the percent represented by motion picture theater ticket sales at their high point in 1946.

The Conceptual Basis for an Alternative Accounting

There are two related questions that must be answered before an estimate of the value of advertising-supported television entertainment can be added to measures of consumption: First, is the service already properly accounted for in the NIPA? Second, if not, what is the source of the off-setting income?

All of the authors writing on this subject (and known to the present writer) have acknowledged that television broadcasting is a service designed for and used by consumers with all the characteristics of a final "product" except that there is

[23] *The National Income and Product Accounts of the United States, 1929–74*, pp. 91 and 337, 1976 and the *Survey of Current Business*, p. 37, July 1978, Bureau of Economic Analysis, U.S. Department of Commerce.

[24] *Historical Statistics of the U.S., Colonial Times to 1970*, pp. R123–139, Washington, D.C. 1975.

no explicit payment or market transaction between producer and consumer. All but Okun accept the idea that the value of television broadcasting (and other consumer services provided through advertising) might be estimated and added to some measure of consumption, although perhaps not the official NIPA. Ruggles and Ruggles, Kendrick, and Eisner have included estimates in their expanded measures of national product.[25]

There appears to be no national accountant who denies that television broadcasting is a consumer service, but there are some who, although accepting that idea, argue that it is already properly accounted for in the prices of the advertised goods and services and therefore it should not be "counted a second time." That is, the cost of television broadcasting paid for by advertising is passed through in the prices of the advertised goods and services and therefore is already accounted for in GNP.[26] This is an argument that the consumer really buys television broadcasting when he buys soap, for example; the soap contains a portion of "television jelly" along with its cleansing properties. Another version of the argument is that the consumer expresses his gratitude for the television entertainment he enjoys by buying the sponsors' product; i.e. the consumer consciously buys a little television with his soap.[27]

TABLE 2

COST OF OWNING AND OPERATING TELEVISION RECEIVERS IN THE U.S., 1976*

(Millions of Dollars)

Depreciation on the net stock of television receivers	$5,650
Interest on the net stock	1,538
Cost of electricity to operate receivers	1,401
Repair	1,136
	$9,725

*The net stock of TV receivers in 1976 was estimated to be $29.3 billion and the depreciation on the stock to be $5.65 billion by John Musgrave of BEA (private communication). Interest on the net stock was calculated at 5.25 percent, the maximum allowed for passbook savings in savings and loan associations in 1976. (Other rates of interest could have been used, e.g. rates paid for consumer loans.) The cost of electricity to operate them was derived from weighted estimates of hourly electricity costs of various types of receivers by the Potomac Electric Power Company, and estimates of types of sets in use and the hours of household use by the A. C. Nielsen Company. Repair costs were estimated based on consumer expenditures for television and radio repair (*Survey of Current Business*, July 1978, p. 37).

This is a variation of the reasoning advanced by Professor Bowley in 1940: The proceeds of indirect taxes should not be counted in consumer purchases because this sum will be counted again in Government purchases of goods and services when summing up the national product. That is, the full price (including

[25] *Op. cit.*

[26] Cf. Okun, *op. cit.*

[27] This argument has been grievously, if not fatally, wounded by the virtual disappearance of sponsored programs from television. It is interesting to note, however, that public television has an abundance of sponsored programs; i.e. companies are identified as having made the program possible through a grant. The status of these programs would not be affected by the proposed change because public television consists of nonprofit institutions that are included in the household sector and are therefore already counted explicitly in the GNP.

indirect tax) of consumer goods and services contains a payment for part of the Government services received; i.e. there is a portion of "Government services jelly" in the ordinary goods and services subject to tax.[28]

J. R. Hicks covers this point in his seminal discussion of social income.[29] He argues that consumer goods must be valued at their full price (including indirect taxes). "The particular prices chosen must always be those which will correspond most closely to relative marginal utilities: This usually means that we must take those prices which actually confront the customer."[30] This view is the one taken in the official estimates. The consumer chooses to buy, or not to buy, based on the expected utility of the good or service for sale and its price—not on the costs, taxes, or profits underlying its price. Just as the Government services, paid for via indirect taxes on the soap, are counted as "final" so the broadcasting services, paid for indirectly from the sale of soap, may be counted as final and for the same reason; they both meet the broader definition of what constitutes consumption.

The cost of commercial television broadcasting services are classified as intermediate business expenses because they are not resold to consumers in the market economy. It is clear, however, that these services are exchanged via a nonmarket transaction. Every television viewer accepts an implied contract when he turns on his set: The television broadcaster provides entertainment and, in return, the viewer permits audiovisual advertisements to be displayed in his home. The viewer pays part of the cost; i.e. he furnishes the display device and pays for the electricity and maintenance while it exhorts him to buy. Children understand the exchange; exposure to "commercials" is part of the cost of television entertainment.

This implied contract is codified and institutionalized by *The Television Code* of the National Association of Broadcasters.[31] The *Code* specifies allowable advertising in painstaking detail. The number of interruptions and the maximum amount of broadcasting time that may be devoted to "nonprogram material" is stated for each category of broadcasting: "prime time," "childrens' programming" and "all other." Network affiliates pay more—that is, they must exchange more minutes of entertainment for a minute of advertising time—than do "independents."[32] *The Code* is an oligopoly price schedule established by the Association; the viewers may "buy" or not depending on their preferences.[33]

This implied contract is similar to the more explicit contract between financial institutions and their household depositors. The bank agrees to provide the depositor with certain services (security, check-writing privileges, etc.), and in

[28]See J. R. Hicks, "The Valuation of the Social Income," *Economica*, May 1940, pp. 105–124.
[29]*Ibid.*
[30]*Ibid.*, p. 113.
[31]*Op. cit.*
[32]Network affiliated stations are allowed 9½ minutes of "nonprogram material" per hour in prime time; 9½ minutes per hour of children's programs on Saturday and Sunday, 12 minutes per hour on weekdays; 16 minutes per hour are permitted during all other times. Independent stations are held to the same schedule except that they are allowed 14 minutes per hour during prime time.
[33]This nonmarket price schedule is fixed by agreement among the suppliers and would, of course, be illegal if it covered market transactions. As this page is being written the newspapers report that the U.S. Department of Justice has filed an antitrust suit against the NAB for limiting "the amounts and format of advertising sold on television." A. O. Sulzberger, Jr., "U.S. Challenges TV Code's Limit on Commercials," New York Times, June 15, 1979, p. A1.

return the bank makes loans and collects interest on the depositor's money. Imputed service charges and an equal amount of imputed interest (on household deposits but not on business deposits) are added to the product and income sides of the NIPA, respectively. In the same spirit, households consume television entertainment and derive the income to pay for it by operating an audiovisual advertising display device in their homes.

The television receiver owner-operator is engaged in a household display enterprise. He pays all of the costs of receiving the broadcast signals, is paid by the broadcasters to receive and display advertisements, and pays the broadcasters for entertainment. The costs of the broadcasting of television entertainment are classified as intermediate only because we fail to note that the last two transactions are real even though they are implicit and self-balancing.

These transactions are more easily sorted out if we think of the television-receiver-owner-operator as having two roles: one as a consumer of television entertainment services and a second as the operator of a household display enterprise. This separation of functions parallels the concept of the owner-occupant of residential housing in the NIPA: The owner-occupant has a role as consumer-tenant and also a role as business-landlord. The owner-occupant is treated as if he paid rent as tenant to himself as landlord. As a landlord he is on a cost rather than an expenditure basis, e.g. he has depreciation charges rather than purchase expenditures on capital items.

We have already considered the consumers' television transactions on a cost basis in Table 2, but Table 2 is incomplete. It considers the costs of owning and operating the television receiver, but does not consider the nonmarket transaction in which television entertainment is exchanged for the display of advertisements. The accounts covered in Table 2 must be expanded to include these transactions.

It will also be easier to sort out these transactions if we explicitly consider the dual role of the television broadcasters. They have one role as the producers and distributors of television entertainment, and a second role as wholesalers of commercial advertising display space/time. In the first role the television broadcasters "sell" entertainment to households; in the second role they "buy" display space/time from households and resell it to advertising agencies and their clients.

It should be noted at this point that the estimates made by Ruggles and Ruggles, Kendrick, and Eisner are not based on this concept of a nonmarket sale of entertainment and purchase of advertising display space/time.[34] Although the derivation of these estimates is not explicit, it appears that each of these writers has used the total cost of advertising. That is, they have included in their estimates of the value of television broadcasting the cost of producing and broadcasting commercials; viewers "consume" and are entertained by commercials as well as by programs explicitly designed for that purpose.

The concept being proposed here requires that we separate the costs of producing, transmitting and receiving entertainment from the costs of producing,

[34] *Op. cit.* Ruggles and Ruggles (p. 47) make a somewhat confusing reference to the concept: "It is true that in the United States an individual in one sense pays for his television by listening to commercials, *but this still does not alter the fact* that the programs themselves in a very real sense constitute final output." (Emphasis added.) This statement would be consistent with the concepts advanced in this paper if the italic portion were changed to read: *and this supports the concept.*

transmitting and receiving commercials. If this is a nonmarket exchange of services, then the viewer cannot be considered to consume both the benefit and the cost side of the exchange.

In the next section, an expanded set of accounts incorporating these ideas will be developed and estimates derived for the U.S. in 1976.

An Alternative Set of Accounts

Table 3 is an expanded set of "T" accounts for the same hypothetical Soap—TV entertainment economy that was represented in Table 1. As in Table 1, the figures for the Advertising and the TV Broadcasting industries and the Consumer are estimates of the corresponding transactions for the U.S. in 1976.

There are two basic conceptual differences in the treatment of the transactions in the television "sector." The first, just discussed in the previous section, is that there is a nonmarket, self-balancing exchange between the viewer and the television broadcasters with prices fixed by the NAB; e.g. $50\frac{1}{2}$ minutes[35] of entertainment in exchange for $9\frac{1}{2}$ minutes of commercial messages displayed in the viewers' home during prime time.

The second "new" concept is that the purchase of television receivers is a capital expenditure that produces a stream of consumer services over the life of the set. This concept is not limited to television receivers nor is it essential to the estimation of the value of television broadcasting to consumers. It seems logical to take this step, however, because it follows directly from the treatment of the "Household Display Enterprise" as a business and because it is in tune with another longstanding proposal for extending the national accounts—the capitalization of consumer durables and the estimation of the annual return on the stock of durables for inclusion in a broader measure of consumption.[36] The sum of the depreciation and imputed interest on the television receivers can be viewed as a lower bound on their service value, i.e. consumers must expect to receive at least that value or otherwise they would have spent their money for alternative purposes.

To facilitate the application of these new concepts, the TV Broadcasting industry is separated into two industries in Table 3. TV Broadcasting (Advertising) corresponds to the industry's role as wholesaler of advertising space/time and as transmitter of commercial messages. TV Broadcasting (Entertainment) corresponds to the industry's role as producer and transmitter of television entertainment.

Similarly, the consumer account of Table 1 is separated into two accounts in Table 3: one representing the consumer of television entertainment and the other the operator of a household display enterprise.

[35]Actually 50 minutes of "program" and one-half minute of "promo," i.e. promotion of the station, the network or of programs to be shown in the future.

[36]See for example, Kendrick, *op. cit.* It should be noted that the official treatment of owner-occupied housing does not include imputed interest. It is based on imputed rent less intermediate purchases including mortgage interest. While there is a rental market for television receivers, it is believed to be too "thin" to form a base for calculation. Interest is imputed in the calculations shown in Table 2 as a proxy for the return on investment in television receivers. Alternate methods are available, for example, one might use the rate of interest on consumer loans.

TABLE 3

GNP ACCOUNTS FOR A HYPOTHETICAL SOAP-TV ECONOMY
ALTERNATIVE APPROACH

(Based on U.S. Data for 1976)

	Millions of Dollars	
	Income	Product
1 Soap Manufacturer		
Sales to Consumers (to 4a)		6,721
Purchase of advertising (fr 2)		(6,721)
Value added	0	0
2 Advertising Agency (TV)		
Sales of advertising (to 1)		6,721
Purchase of TV time (fr 3a)		(5,115)
Purchase of "other broadcast services" (fr 3a)		(174)
Other intermediate purchases (fr 5)		(298)
Value added	1,134	1,134
3a Television Broadcasting (Advertising)		
Sales of TV time/space (to 2)		5,115
Sales of "other broadcast services" (to 2)		174
Purchase of display time/space (fr 4b)		(4,368)
Other intermediate purchases (fr 5)		(391)
Value added	530	530
3b Television Broadcasting (Entertainment)		
Sales of entertainment (to 4a)		11,749
Purchase of display time/space (fr 4b)		(7,381)
Other intermediate purchases (fr 5)		(2,334)
Value added	2,034	2,034
4a Consumer		
Purchase of soap (fr 1)		6,721
Purchase of entertainment (fr 36)		11,749
Total consumer purchases		18,470
4b Household Display Enterprise		
Sales of display time/space (to 3a)		4,368
Sales of display time/space (to 3b)		7,381
Purchase of electricity (fr 5)		(1,401)
Purchase of repairs (fr 5)		(1,136)
Depreciation	5,650	
Interest (imputed)	1,538	
Profits (imputed)	2,024	
Value added	9,212	9,212
5 Miscellaneous Industry		
Sales to: 2		298
3a		391
3b		2,334
4b Repairs		1,136
Electricity		1,401
"Investment" in TV receivers		8,297
Value added	13,857	13,857
National Income and Product	26,767	26,767

The account of the Soap Manufacturer is unchanged; it sells soap to consumers and buys advertising from the Advertising Agency. It has no other intermediate purchases and it has no value added. The Advertising Agency now buys display space/time from TV Broadcasting (Advertising) but is otherwise unchanged from Table 1.

There are significant changes in TV Broadcasting. The TV Broadcasting (Advertising) industry buys display space/time from the Household Display Enterprise and resells it to the Advertising Agency along with transmitting and "other broadcast" services. The display space/time is valued at the cost (including profit) of producing and transmitting television entertainment.[37]

The TV Broadcasting (Entertainment) industry sells TV entertainment to consumers ($11.7 billion), reflecting purchases of display space/time from the Household Display Enterprise ($7.4 billion[38]) and the cost of producing and transmitting entertainment ($4.4 billion).

The Household Display Enterprise sells display space/time to TV Broadcasting (Advertising) and to TV Broadcasting (Entertainment), purchases electricity to operate the receivers and repair and maintenance from Miscellaneous. Value

[37]Estimates of the line items in the accounts for TV Broadcasting (Advertising) and (Entertainment) were derived from the U.S. Federal Communications Commission (FCC) report, "TV Broadcast Financial Data—1976," August 29, 1977. In general, financial reports from the commercial networks and stations were consolidated and certain imputations for missing data were made, e.g. the cost of producing programs for the small amount of "advertiser supplied programs" were estimated based on network and station costs for similar activities. The various categories of expense were allocated to "advertising" and "program" (entertainment). All "selling expenses" were attributed to advertising; "technical" expenses were distributed to the two categories based on an estimate of broadcast time for entertainment and commercial messages; "General and Administrative" expenses and profit were distributed based on the totals of other costs in each category. Alternatively, the total cost of television advertising ($6,721 million) could be split based on the proportions of entertainment and commercial broadcast time. Such a procedure would yield $5,108 million as the cost of entertainment, compared to $4,368 million using the allocation method. This alternative was rejected on the grounds that the costs of the two types of material cannot be compared on a per broadcast minute basis; entertainment programs may be rerun several times over a period of years—commercials are "rerun" repeatedly, sometimes within the same hour. The typical commercial, having been produced, is broadcast many, many times. The fact that the alternative estimate is higher suggests—not surprisingly—that the industry spends a great deal more money on commercials per minute of program material than on entertainment.

[38]This is an estimate of the cost to own and operate the television receivers of the U.S. in 1976 while entertainment was being received; that is, the total annual cost less the cost of owning and operating the sets while commercial messages were received. It is estimated that the cost of receiving and displaying commercial messages in the U.S. in 1976 was $2.3 billion. The estimate was made in the following way. First, the mix of prime time, childrens' and other programs for independents and affiliates was estimated based on a scheduled week of television available in Washington, D.C., picked at random. Second, the allowable minutes of advertising for each type of program was calculated based on *The Television Code* (*op. cit*) and the minutes devoted to commercial messages per hour of broadcast was estimated for network affiliates and independents. Third, based on A. C. Nielsen Company's estimates of household viewing of network affiliates, independents and public broadcasting (see Frerk, *op. cit.*) the average number of minutes of commercial messages per household per week was estimated as 669 or 24 percent of total household viewing time. This estimate is high because it assumes that households watch television at random times through the day. If one assumes that the household set is always on during prime and childrens' programs when the minutes of commercial messages per broadcast hour is lower, the corresponding figures are 600 minutes of commercial messages per week or 21 percent of total household viewing. Thus, Americans pay from $2.0 to $2.3 billion per year to receive and display commercial messages. The higher figure is used in Table 3 and subsequent calculations.

added is broken out into depreciation, interest and profit[39] because these are new and significant estimates. An addendum indicates that the Household Enterprise buys new TV receivers for investment from Miscellaneous. The accounts of the Miscellaneous industry are unchanged.

Consumer Services Provided by Advertising-Supported Television Broadcasting

Table 3 provides an alternative estimate of GNP for the same hypothetical Soap-TV economy estimated in the conventional way in Table 1. The difference between the two estimates is $9.2 billion or exactly the value added by the Household Display Enterprise (see Table 4). The difference is composed of two

TABLE 4
RECONCILIATION OF CONVENTIONAL AND ALTERNATIVE ESTIMATES
(Based on U.S. Data for 1976)

	Millions of Dollars	
	Income	Product
GNP—Conventional (Table 1)	17,555	17,555
Plus Household Display Enterprise Value Added		
Depreciation	5,650	
Imputed interest	1,538	
Profit	2,024	
	9,212	
Less Consumer Purchases		
New receivers		(8,297)
Electricity		(1,401)
Repairs		(1,136)
		(10,834)
Plus Consumer Purchases		
TV entertainment		11,749
Plus Sales of New Receivers to Investment		8,297
GNP—Alternative (Table 3)	26,767	26,767

parts: the net value of television broadcast entertainment to the consumer ($2.0 billion) and the gross current return on the ownership of consumer durables ($7.2 billion). The latter amount, the consumers' gross current return on their investment in television receivers, need not be related to the question of whether advertising-supported television broadcasting should be counted as a explicit part of consumption.

The estimate of the net value to consumers of television broadcasting ($2.0 billion) is less than it would be had the concepts and estimating techniques of

[39]The profit ($2,024 million) may be calculated as a residual as in Table 3, or as the value of TV entertainment broadcasting ($4,368 million) less the cost of receiving and displaying commercial messages ($2,344 million).

Ruggles and Ruggles, Kendrick or Eisner been used. These authors assume that the value of such services is equal to the business expenditures for television advertising. The Table 1 estimate is easily converted to this basis by adding the $6.7 billion to consumer expenditures for television broadcast services. The Table 3 estimate is based on the concept that consumers pay for television entertainment broadcasting by receiving and displaying advertising messages in their homes; that being the case, the costs of producing, transmitting, receiving, and displaying commercial messages must be deducted from the total costs of television advertising.

Since all the figures in Tables 1, 2, and 3 that relate to the television sector are based on the corresponding U.S. transactions in 1976, the estimates approximate the changes that would be made to the official accounts of 1976 if this concept were to be adopted. That is, $2.0 billion would be added to consumption and income as an estimate of the net value of consumer services provided by advertising-supported television broadcasting; this represents approximately $28.57 per television household per annum and 1.3¢ per hour of household viewing.[40]

These estimates may seem small, considering the large sums spent for television advertising and by consumers for television reception, but they are based on the cost of producing and transmitting television entertainment signals and do not pretend to estimate the value that a market would put on such services if they were sold directly; i.e. if television broadcast signals were not a "public good."[41] The estimates follow directly from the basic assumption of this paper: The television broadcaster provides entertainment (signals) and in return the viewer permits audiovisual advertisements to be shown in his home. Thus the "price" that television broadcasting (advertising) pays for the commercial display space/time is the cost of producing and transmitting the entertainment ($4,368 million) and this is the gross benefit of television broadcasting to viewers. The viewer must, however, pay for the reception and display of both entertainment and commercials ($9,725 million). Of that total, he pays proportionately for the reception and display of entertainment ($7,381 million) and for commercials ($2,344 million). This latter cost must be deducted from the gross benefits to obtain the net benefit of television broadcasting ($2,024 million). It should also be noted that the time viewers spend watching commercials is not considered in this estimate.[42]

[40]There were approximately 71.2 million "television households" in the U.S. in 1976 each viewing television an average 43.28 hours per week: $2,034 million/71.2 million/(43.28 × 52) = 0.013. (The number of television households and the hours viewed are from: A. C. Nielsen, "1979 Nielsen Report of Television.")

[41]For comparison: The Marquee Television Network of Rockville, Md. ("cable television without the cable") offers "no commercials and first-run films" for an installation charge of $259.45 and a monthly charge of $14.95.

[42]Based on total broadcast time (not on hours viewed), commercials make up about $14\frac{1}{2}$ minutes per hour. This suggests that the average viewer is exposed to about 6 hours and 20 minutes of television advertising per week, based on the Nielsen estimates of hours of viewing per person. (*Op. cit.*) This estimate is undoubtedly high, since television viewing is concentrated in the prime time hours when commercial minutes per hour are less.

Consumer Services Provided by Business Through Advertising-Supported Radio in the United States

Differences Between Radio and Television Broadcasting

The conceptual basis for the valuation of consumer services provided by advertising-supported radio broadcasting are identical to that for television. There are, however, differences in certain operating practies and in the available data that are worthy of note. Most of these differences affect the estimating methodology, but have no significant affect on the basic concept.

The *Radio Code of Good Practices* corresponds to the *Television Code* and establishes an upper limit of 18 minutes of commercial messages per broadcast hour.[43] This appears to be an upper limit, however, that is reached only during those hours on those stations most in demand. The estimates given below assume that the "exchange rate" is 42 minutes of entertainment for 18 minutes of commercial messages, but the actual exchange rate is much more favorable for the consumer. Thus the estimate of value to the consumer is conservative.

A second difference is that the "production" of radio commercials is significantly less costly and less structured that that of television. Virtually all television commercials are prepared on tape by advertising agencies so that the broadcasting station (or network) transmits the message at the appropriate time. In contrast, many radio commercials are simply read by the regular radio announcer. Thus, for many commercials, the production costs are those involved in preparing text for the announcer.

A third difference is that radio broadcasting retains a relatively large number of sponsored programs; i.e., programs clearly identified with one advertiser. Thus, there may be a stronger argument in favor of the view that listeners consciously buy the "Texaco Opera Theater" when they buy gasoline, for example. This would seem to be unconvincing, however.

Consumer Services Provided by Advertising-Supported Radio Broadcasting

An abbreviated set of accounts, covering the activities of consumers in their roles as radio listeners and as "Household Display Enterprises" is shown in Table 5. These estimates were calculated using the same procedure as in the television estimate with two special assumptions: first, that the station/network incurs no additional cost when an announcer reads a commercial; he would have to be paid whether he reads commercials or simply waits while a recording is played. Second, overhead items such as "General and Administrative Costs" are distributed 70 percent to entertainment and 30 percent to advertising as the broadcast time would be if the station used the maximum allowable time for commercials.

As in the television estimate the relevant figures are contained in the account for the Household Display Enterprise. The difference between the conventional accounting (not shown) and the alternate is $2.8 billion: the net value of radio broadcasting to the consumer ($0.5 billion) and the gross current return on the

[43]Both are publications of the National Association of Broadcasters, 1771 N Street, N.W., Washington, D.C. 20036.

TABLE 5
SELECTED GNP ACCOUNTS FOR A HYPOTHETICAL SOAP-RADIO ECONOMY ALTERNATIVE APPROACH
(Based on U.S. Data for 1976)

	Millions of Dollars	
	Income	Product
Consumer		
Purchase of "soap"		2,330
Purchase of radio entertainment		3,197
Household Display of Enterprise		
Sales of time to radio (advertising)		1,291
Sales of time to radio (entertainment)		1,906
Purchase of electricity		(63)
Purchase of repairs		(356)
Depreciation	1,810	
Interest (imputed)	494	
Profits (imputed)	474	
Value added	2,778	2,778
Addendum:		
Purchase of radios for investment (1976) $1.5 billion		
Stock of radios (1976) $9.4 billion		

ownership of consumer durables ($2.3 billion). Again, the latter amount need not be related to the question of whether advertising-supported radio broadcasting should be counted as an explicit part of consumption.

CONSUMER SERVICES PROVIDED BY BUSINESS THROUGH ADVERTISING-SUPPORTED NEWSPAPERS AND PERIODICALS IN THE UNITED STATES

Differences Between Broadcast and Print Media

There are several fundamental differences between the broadcast and print media. The first and most important is that newspapers and magazines are not public goods; the widespread use of photocopying machines notwithstanding, publishers can and do restrict the availability of their products to those who are willing to pay and the purchase of a newspaper by one consumer can reduce the availability of newspapers to others.

Another difference is that the consumer of newspapers and magazines need not synchronize his consumption to a production schedule and he may be very selective; that is he may read those parts of the paper (magazine) he wishes, when he wishes. In contrast, the television viewer who does not watch (or record) the 7:00 o'clock news loses the opportunity forever and his receiver displays everything the broadcaster transmits whether the viewer is interested or not. Thus the television viewer is exposed to commercial messages whether he wishes to be or not; the newspaper reader may read the advertisements as selectively as he reads the news and entertainment portions—he may even read some parts more than once. Broadcasting is a service; newspapers and magazines are goods.

Still another difference is that the consumer of print media has no costs other than the purchase of the newspaper or magazine.[44] In contrast the television signal is free but the viewer has substantial costs associated with his viewing. The cost to the consumer is clearly identifiable.

Finally, the industrial structure of the broadcasting industry is substantially different from that of the newspaper and magazine industries. There are a limited number of TV channels and radio broadcasting frequencies available and an upper limit to the number of broadcast commercial messages that may be sold.[45] In contrast, there is no physical or governmental limit to the number of newspapers or magazines that may be published, although substantial financial resources may be required to start a commercially successful venture. Perhaps more importantly, there is no limit to the volume of advertisements carried in the print media. If this difference in structure means that there is greater competition in the print media, it may result in a greater proportion of the total costs of radio and television being imposed on the viewer-listener than the proportion of print media costs imposed on the reader.

Conceptual Problems

Newspaper and magazine readers do not pay all the costs of the production and distribution of their reading matter; advertising revenues pay a substantial portion. If readers really "pay" these additional costs by exposing themselves to printed advertising, then the additional value should be added to consumption as has been proposed in the cases of television and radio broadcasting. But the differences between the broadcasting and print media affect the argument in favor of this addition.

The print media are private goods not public services. This means that the reader can control his consumption of reading material with selectivity and can match his marginal utility to marginal costs. I can, for example, read an almost unlimited number of descriptions of the Wimbledon tennis tournament by buying several local newspapers, hundreds of out-of-town newspapers, and several magazines; my appetite for such reading material is limited mainly by my time and money constraints. My television consumption of this same event is, on the one hand, limited to precisely that portion and those views that are selected by the television broadcasters and, on the other hand, my marginal cost of viewing is negligible.[46] I can buy newspapers and magazines until my marginal cost equals my marginal utility; the value of these reading materials is determined by the market economy. Applying the principle stated by Hicks[47] these consumer goods are properly valued in the official GNP.

[44]His time is not considered to be a cost although for some purposes it should be considered.

[45]Technology has expanded the number of frequencies available; both UHF television channels and FM radio frequencies have been added since 1950.

[46]Of course, I must buy a little more electricity and perhaps more repair, but these additional costs are negligible. Again, the viewer's time is not considered.

[47]*Op. cit.*

A counterargument is that the marginal cost of the print media (particularly newspapers) is so small as to be negligible; that is, the difference between the marginal newspaper, purchased for a few cents, and the marginal television program watched, purchased for a few cents worth of electricity and maintenance, is too small to be meaningful. That is, the marginal utilities of an additional article read or an additional television program watched are weighed against the personal time spent and not against the trivial additional cost. In the end, the choice between these two points of view may be a matter of taste. The cost of producing and distributing the nonadvertising portion of newspapers and magazines less the amount paid for them by consumers in 1976 is estimated below.

Consumer Services Provided by Advertising-Supported Newspaper Publishing

Table 6 is a selected portion of the GNP accounts for a hypothetical soap-newspaper economy showing only the transactions (including imputed transactions) for the Consumer and the Household Display Enterprise. The Consumer buys soap for the amount spent by business in 1976 for newspaper advertising ($9.9 billion).[48] The Consumer also buys "news reader services" ($9.3 billion), estimated as 70 percent of the cost of producing, printing, and distributing newspapers.[49]

TABLE 6
SELECTED GNP ACCOUNTS FOR A HYPOTHETICAL SOAP-NEWSPAPER ECONOMY
ALTERNATIVE APPROACH
(Based on U.S. Data for 1976)

	Millions of Dollars	
	Income	Product
Consumer		
Purchase of Soap		9,910
Purchase of news reader services		9,263
Household Display Enterprise		
Sale of advertising display space		9,263
Purchase of newspapers		(4,859)
Profits (imputed)	4,404	
Value Added	4,404	4,404

Following the procedures developed in the section on television, display space for advertising material is sold by the Household Display Enterprise and the

[48]It was assumed that the costs of selling, composing and printing advertising, including overhead, was 30 percent of the total current revenues of newspapers. While this is an arbitrary assumption—no sound basis for allocation was found—it does seem reasonable. One might argue that the consumer benefits from newspaper advertising in ways he does not benefit from broadcast advertising; he need read only those ads that interest him and, in most cases, there is more genuine information provided in newspaper ads than in broadcast commercials.

[49]Coen, *op. cit.*

price is determined by the cost of producing and distributing the news ($9.3 billion). There is no corresponding sale of display space for "news" because the cost of the "display" of both news and advertising is incorporated in the total cost of producing and distributing the newspaper. The Enterprise has intermediate purchases of the newspapers ($4.9 billion) and makes a profit of $4.4 billion; i.e. profit is the value of the "news" less its dollar cost to the Consumer.

The Enterprise's profit on newspaper advertising display is large for several reasons: First, the volume of newspaper advertising in 1976 was 47 percent larger than that for television, 325 percent larger than radio, and 454 percent larger than magazines; that is, the gross "subsidy" is very large at the start. Second, the portion of the total cost of producing and distributing newspapers paid by advertising is large; 75 percent as compared to 41 percent for television and 45 percent for radio. Third, it should be emphasized that the derived profit is an increasing function of the proportion of total costs allocated to the production and distribution of "news;" for example, profit would be reduced to $1.8 billion if this proportion were 50 percent.

Consumer Services Provided by Advertising-Supported Periodical Publication

Table 7 is a selected portion of the GNP accounts for a hypothetical Soap-Magazine economy showing only those transactions (including imputed transactions) for the Consumer and the Household Display Enterprise. The Consumer buys soap in the amount spent by business in 1976 for magazine advertising ($1.8 billion) and buys magazine reader services ($3.5 billion), estimated (as in the case of newspapers) as 70 percent of the cost of producing and distributing magazines. The Household Display Enterprise sells advertising display space for the same amount ($3.5 billion) and purchases magazines for $3.0 billion. Profit ($0.5 billion) is the value of (nonadvertising) magazine reading material less its dollar cost.

Again, the imputed profit is a function of the total advertising "subsidy" ($1.8 billion), the proportion of total costs financed by advertising (37 percent) and the proportion of total costs allocated to advertising (30 percent). If the proportion of total costs allocated to advertising were to be increased to 37 percent, imputed profits to magazine readers would be zero.

Conclusion

The value of consumer services provided by business through advertising-supported media has not been counted in the official NIPA because they do not meet the definition of "final goods and services;" that is, because consumers do not pay for them in conventional market transactions. It is clear, however, that these services are obtained via a nonmarket exchange: The advertiser provides (or subsidizes) media services in return for the consumer's tacit agreement to display advertising in his/her home. Media services are "final" because consumers pay for them by providing advertising display services in exchange for media services.

The value of media services has been estimated for the United States in 1976 based on this principle. Media services were valued at their cost as Government

TABLE 7

SELECTED GNP ACCOUNTS FOR A HYPOTHETICAL SOAP-MAGAZINE ECONOMY
ALTERNATIVE APPROACH

(Based on U.S. Data for 1976)

	Millions of Dollars	
	Income	Product
Consumer		
Purchase of soap		1,789
Purchase of magazine reader services		3,492
Household Display Enterprise		
Sale of display space to advertising		3,492
Purchase of magazines		(3,037)
Profits (imputed)	455	
Value Added	455	455

TABLE 8

SELECTED GNP ACCOUNTS FOR A HYPOTHETICAL SOAP-MEDIA ECONOMY
ALTERNATIVE APPROACH

(Based on U.S. Data for 1976)

	Millions of Dollars	
	Income	Product
Consumer		
Purchase of:		
Soap		20,750
Television services		11,749
Radio services		3,197
News reader services		9,263
Magazine reader services		3,492
Total		48,451
Household Display Enterprise		
Sales of display space/time:		
Television		11,749
Radio		3,197
Newspapers		9,263
Magazines		3,492
Intermediate purchases		
Electricity		(1,464)
Repairs		(1,492)
Newspapers		(4,859)
Magazines		(3,037)
Depreciation	7,460	
Interest	2,032	
Profits:		
Television	2,024	
Radio	474	
Newspapers	4,404	
Magazines	455	
Value Added:	16,849	16,849

Addendum: TV and radio receivers for investment: 9797 services are valued. A summary of these estimates for television, radio, newspapers, and magazines (Table 8) indicates additional income and product of \$16.8 billion. On the product side, households consume \$27.7 billion of media services and have intermediate expenditures of \$10.9 billion for a net additional product of \$16.8 billion. On the income side, households have depreciation (on TV and radio receivers) of \$7.5 billion, imputed interest of \$2.0 billion, and profits of \$7.4 billion. Thus more than half of the additional income comes from the imputed return on investment in consumer durables (9.8 billion).

Should the official NIPA be modified to reflect the value of consumer services provided by business through advertising-supported media? It is the present writer's view that they should be, but only as one part of a general expansion of the accounts that would include other nonmarket transactions (for example, environmental costs and benefits) while preserving the present market-oriented accounts for use in conventional analysis. Many writers, for example, Juster, Ruggles and Ruggles, Eisner, and Kendrick, have proposed such an expansion. BEA's Environmental and Nonmarket Economics Division, while it is not committed to any particular view on this point, is working on a number of individual projects that should contribute to the discussion of this question.[50]

[50]See John E. Cremeans and Janice Peskin, Developing Measures of Nonmarket Economic Activity Within the Framework of the GNP Accounts, Southern Economic Association Conference, Washington, D.C., November 1978.