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# ADVERTISING, INTANGIBLE ASSETS, AND UNPRICED ENTERTAINMENT

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**Abstract**

This paper addresses two aspects of advertising: its role in supporting entertainment and news, and its role as an investment. I argue that in both roles advertising's contribution to output is being undermeasured in the national income accounts. In some cases one unit of nominal advertising input should be counted as two units of real output. In rough orders of magnitude, I argue that it is plausible that two-thirds of advertising expenditure represents unmeasured contributions to output, and the level of real GDP should be increased accordingly.

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**Advertising, Intangible Assets, and Unpriced Entertainment**

## I. Introduction

Advertising is treated in the national accounts of most countries as an intermediate input which does not appear directly in output. Broadcast television and radio are treated as unpriced byproducts of advertising and also do not appear directly in output. Furthermore, although advertising apparently can have longlived impacts on profits, advertising expenditures are not treated as investment.

Belatedly following Borden's classic 1942 treatment of advertising, I shall argue that when entertainment is a joint product with advertising, it should be included as real output, even when its price is zero. This argument is an empirical claim that the combination of entertainment and advertising can be unusually productive—I shall argue that one unit of input of this type can produce two units of real output, one unit both nominal and real, the other a rise in the real output that occurs via a decline in the price deflator for the relevant recreation category.

Advertising and entertainment have long been intertwined as products. Borden (1942) estimated the net contribution of advertising to newspapers, magazines, and radio in 1935 accounted for $380 million (out of total advertising expenditure of $1.32 billion) in a year when GDP was $73.3 billion. These contributions increased the entertainment and information available to consumers relative to the prices paid.

Take as an example an actor who chooses between performing in a TV series or making a movie. Both are work in which the actor is paid to entertain consumers, but the movie is counted as part of personal consumption expenditure, while the TV performance is not, because the latter is paid for by commercials and not by the consumers. If the real

impact of this entertainment should be included in GDP, then advertising that is bundled with entertainment or news is different from advertising that stands alone (for example, direct mail). I argue that it is possible to interpret advertising bundled with entertainment is unusually socially beneficial. The manufacturer of the good being advertised is producing a joint product: entertainment and the advertised product. This is equivalent to the manufacturer's adding more quantity or a free gift to a product without raising its price, and similarly results in an increase in private utility.

This social benefit is relevant to arguments about advertising and the efficiency of product diversification (Grossman and Shapiro, 1984.) Grossman and Shapiro built on work by Salop to suggest that informative advertising is excessive under oligopoly and monopolistic competition. A more robust conclusion has been that there are two countervailing forces in product differentiation – differentiation may be insufficient because the consumer obtains surplus and differentiation may be excessive because the producer may steal surplus from rival producers. When advertising is bundled with entertainment, a third factor should be considered. The private benefit to the advertiser is less than the social benefit, which includes the entertainment. This is an additional argument that differentiation may be undersupplied when advertising is involved.

Why attempt to bring a free good under the aegis of the national accounts? How does it differ from air? The difference is that air is not produced privately, nor is it bid away from alternative uses, whereas TV or radio entertainments are. In this sense, broadcasts are like government expenditures on public parks, but they are unusual because they also have a private purpose and are privately supplied.

Using this analogy, one could impute nominal income and consumption to households and to consumers, paralleling the NIPA treatment of owner-occupied housing services and the forgone interest on bank deposits. In those cases, however, the household possesses a capital good that provides a return. In the case of advertising supported entertainment, the output is being provided by a firm. I thus believe that it is more reasonable to have this private-sector-supported entertainment appear in the accounts as a larger real output and a reduced price.

I shall also argue that a portion of advertising should be considered investment -- capitalized and depreciated rather than expensed. This argument has been made for decades (e.g. Weiss, 1969; and Bloch, 1974). Schmalensee (1989) noted the strong, positive relationship between the advertising/sales ratio and industry level profitability and that this stylized fact had proven unusually robust since it was first reported by Comanor and Wilson (1967). Recent evidence continues to suggest that advertising can be an important and durable source of profitable product differentiation (Nevo, 2001). However, several papers have argued that the depreciation rate for advertising varies sharply across industries and is typically more rapid than for R&D or tangible investment (Peles, 1971; Bublitz and Ettridge, 1989; and Hall, 1993).

In this article, the main focus is on the impact of advertising on entertainment and news, and I build on Borden's (1942) estimates to create a time series of such contributions from 1935 to 2002. I argue that properly accounting for entertainment and investment would increase real GDP by 1.5 percent and nominal GDP by about 0.8 percent, although both of these estimates are admittedly very approximate.

In the remainder of the paper I sketch the possible implications for national income accounting of this view of advertising and its role in the economy. I set forth numerical estimates based on published data and the extant literature, but these estimates are meant to be suggestive of orders of magnitude only. I briefly address the modeling issues that underlie these measures before concluding.

## II. A sketch of theory

Let us begin by examining advertising in a one-period model with free entry and without fixed capital (all economic costs will be time costs of labor). Direct advertising (that is, without entertainment or news, as in Grossman and Shapiro) enters into GDP as part of the fixed expenses associated with a differentiated product. The marginal utility of the differentiated product is equal to its price, which just covers fixed cost under free entry. For a differentiated product with fixed cost $F = F_0 + A$ (where $F_0$ represents nonadvertising fixed costs, say research and development, and A is the advertising cost of informing consumers of the good's existence) and marginal per unit cost $c_d$ (labor costs) and output $q_d$, the price $p_d = F/q_d + c_d$, and output $p_d q_d$ = resource cost = $F + c_d q_d$.

From the perspective of the national income accounts, the aggregate consumer expenditure on output $y_d = p_d q_d$ is reflected in personal consumption expenditures in that amount for the advertised good. This is equal to the total cost of producing the goods, including the fixed costs. Advertising is one of the intermediate costs of producing the advertised good.

Investment. In a multiperiod model, it is possible that fixed costs may be incurred prior to consumption. If the fixed costs are incurred at time t but production and consumption occur at time t+1, and if – as is currently the case in national income

accounting – the fixed costs are expensed, then in period t this industry will show a loss of F, zero output, and F labor costs. Then in period t+1, in equilibrium, the advertising firm must spend $c_d q_d$ and consumers will pay $F(1+r) + c_d q_d$. Measured output will be $F(1+r) + c_d q_d$, with $F(1+r)$ recorded as corporate profit and $c_d q_d$ as labor income. Thus in period t output and profit are understated, while output and profit are overstated in period t+1, as a result of the failure to capitalize and depreciate fixed costs.

Now consider the case of advertising with entertainment. In this case, the non-entertainment costs associated with direct advertising are reduced by the entertainment, which draws consumers to the advertisers' messages. Payments to entertainers or other content producers enable the entertainers to produce a consumer product: entertainment. At the same time, these payments substitute for the payments that would otherwise have gone to direct advertising costs. The full value of the advertisers' costs still is covered by the differentiated product being advertised, but in addition, a new consumption good – entertainment -- is produced. Part of F is being spent to produce entertainment M.

The case is directly analogous to a joint product in which a rise in the value of one product (advertising) reduces the price paid for the other product (entertainment) while not changing its real value. Nevertheless, we must be cautious since the consumer does not pay directly for the entertainment.

A simple example to illustrate the point is as follows.

*Model of entertainment good.* Let M be a monopoly entertainment good that may be supported by advertising. The measure one household/consumers supply their unit labor inelastically and jointly own the shares of the firm supplying the monopoly

entertainment good. With a specific piece of media that is small with respect to income, we can approximate the utility of the aggregate of consumers by

$U(z,M)= z + bM-1/2\ M^2 -a_UM$

where z is the numeraire good (produced one for one by labor, which thus has a unit wage), and M is the units sold of the medium in question, which we shall consider to be a newspaper. Here $b>0$ is a parameter representing the utility of the newspaper, and $a_U>0$ is a parameter representing the disutility of advertising to readers when advertising is present in the publication, and equal to zero if advertising is not present. Demand can be shown to be $M = b – a_U – p$, where p is the price charged for the newspaper.

The newspaper has labor costs of publication $c_M$ per unit sold, and sells the publication at a price $p \geq 0$, receiving $\alpha$ per unit from advertisers but also paying a labor cost of $\alpha'$ per unit for the direct costs of including advertising in the paper. Thus the newspaper's profit will be equal to:

$$\Pi = \left( p + \alpha - \alpha' - c \right)\left( b - a_u - p \right)$$

Then it is easy to show that if $\alpha-\alpha' \geq b-a_u+c_M$, then the equilibrium price $p = 0$ (assuming newspapers cannot be sold at a negative price) and quantity $M = b-a_u$. Advertisers pay $\alpha(b-a_u)$. Profit of the publisher is $\Pi= (\alpha-\alpha'-c_M)\ (b-a_u)>(b-a_u)^2$ since $(\alpha-\alpha'-c_M)> (b-a_u)$. Consumer utility is $U = 1-\left(b-a_u\right)\left(c_M+\alpha'\right)+\frac{1}{2}\left(b-a_u\right)^2$. Direct advertising costs are $\alpha'(b-a_u)$, while $c_M(b-a_u)$ is to be shared between advertising and content. If the disutility of advertising $a_u$ is great, this would show up in a small audience. For television and radio, the direct costs of advertising and transmission appear to be generally small relative to the entertainment advertising support, that is,

relatively small $c_M$ and $\alpha'$. These distribution costs are larger for magazines and newspapers, and thus contribute to the generally positive prices for these publications.

That being said, in this example the value of the entertainment good (as measured by publisher profits) is larger than $(b-a_u)^2$ while the direct utility to consumers is ½ $(b-a_u)^2$. Thus unlike the case when consumers pay for the entertainment, direct utility may be less than the payment to the entertainer. In this case, it is possible that the entertainment support from advertising measured as I have may overstate its contribution to consumer welfare. It is thus important to have calculations such as those by Noll et al to verify that the contributions to consumer welfare are in line with my advertising contribution estimates.

In the absence of advertising, the publisher charges p= ½ $(c_M+b)$ and M= ½ $(b-c_M)$. Resource costs are ½ $c_M(b-c_M)$. Utility $U = 1+\frac{3}{8}\left(b-c_M\right)^2$. Consumer expense is pM= 1/4 $(b^2 - c_M^2)$. It can be shown that direct utility exceeds consumer payments.

Measuring real output. A formal way to measure this gain in utility is to deflate nominal expenditures with a price index based on an expenditure function that gives the nominal expenditure corresponding to a given level of utility. Such a price index will be lower in the periods in which the newpaper is available at zero price. Thus the constant utility price level falls, and real output is higher when the newspaper exists compared to when it does not, although it does not enter into the expenditure basket of the individual.

*Caveats.* Persuasive advertising – advertising that shifts utility functions (as in Dixit and Norman, 1978) – fits less easily into a national accounting framework. Stigler and Becker (1977) question whether mental or emotional associations suggested by an advertisement should be considered as changing the utility function or changing the

product. They argue the latter. One way of viewing their argument is to draw a parallel with scientific research on the value of a drug (say, the blood-thinning properties of aspirin). Although no physical change has occurred to the drug, the perceived nature of the product has changed, raising its utility for the buyer. Similarly, taking a course on Shakespeare changes the perceived nature of theatrical performances and changes consumer demand. If by appending an emotional association to a product the advertiser of the product raises demand for it, then the product has changed and demand for it may change while the utility function remains stable. Under this interpretation, advertising can be treated as informative.

Another case that challenges the treatment I recommend is the case of gratitude toward the sponsor. In sponsoring a product, the advertiser may count on the consumer's gratitude raising the consumer's willingness to pay for the advertiser's product as a means of indirectly paying for the entertainment. In this case, the utility of the differentiated product is less than the price paid by the consumer, so that the real value of the entertainment has been at least partially accounted for in the consumer payment for the differentiated product, and it would be incorrect to increase the total real value of consumption by the value of the entertainment. This effect would not negate the consumer surplus calculation in the experiment in which cable TV payments are used to infer the value of TV broadcasts.

Finally, as a practical matter, including these changes in the national income accounts does not have much impact on long-run measures of inflation or growth, only levels. Advertising has been roughly the same proportion of GDP for a long time. These

issues are more important as aids in more deeply understanding advertising and intangible output.

III. Advertising and media

In this section I develop estimates of the advertising contribution to entertainment, using Borden's conceptual framework. Borden separated media receipts from advertising into two parts: a portion that represents the costs of reproducing and distributing the advertising message itself, and a portion that reduces the cost of the entertainment to the customer.

I begin with the Coen estimates (2005), a consistent annual data series going back to 1935 of gross advertising expenditures – advertisers' expenditures rather than media revenues. I relate these to recent data from the Service Annual Survey, which provide net advertising revenues of the media, a better base for calculation of the advertising contribution. Then I discuss Borden's 1942 calculations of the proportion of net advertising revenues that support entertainment and news and provide some sketchy, more modern data.

*Coen's estimates of gross advertising expense*. Relatively complete annual aggregate data on U.S. advertising expenditures by medium are available primarily from two sources: Robert Coen's estimates (1935 to present) and the U.S. Census Bureau's Annual Surveys of Service Industries (1998 to present). These data are gathered from advertising agencies and from information sector firms – the media. Data from the investing firms – the purchasers of advertising – are more scanty. Coen, who is director of forecasting for the advertising firm of Universal McCann, has made detailed estimates by type of media extending back to 1935. These early estimates have their roots in Neil

Borden's study (1942) for the Harvard Business School that was funded in part by the widow of Alfred Erickson, one of the founders of Universal McCann. Borden's statistics are benchmarked by detailed estimates he made for 1935, using the 1935 Census of Business.[1] Coen's data appear to represent estimates of the total *gross* costs of advertising expenditures on media, including expenditures on advertising production, and commissions to advertising agencies and media purchasing agents.[2]

Coen's historical statistics are summarized in Table 1, which provides decade average data in nominal terms from the 1940s to the 1990s. As a percent of nominal GDP, the decade averages fluctuate between 1.6 percent and 2.3 percent. It is this expenditure for advertising – the out-of-pocket expenses of producers and sellers of products – which may have an investment component.

If we omit expenditures on direct mail, outdoor display advertising, the yellow pages, and miscellaneous expenditures, the remainder is the part I am considering to be potentially supporting news and entertainment: advertising in newspapers, periodicals, television including cable, and the Internet. These fluctuate between 1 percent and 1.4 percent of GDP.

*Service Annual Survey data on net media advertising revenue.* The U.S. Census Bureau's Service Annual Survey for Information Sector Services makes available recent data on revenues and expenses of newspaper, magazine, and database publishers, radio and television broadcasters, and cable TV operators. Table 2 gives data on advertising

[1] Unfortunately, the 1935 Census of Business does not appear to have fully captured small businesses, so, for example, local newspapers appear to be undercounted. Coen has corrected for some of these biases in his estimates.

[2] However, these do not appear to include all marketing expenditures, as they appear to represent mainly expenditures associated with media and do not include such items as celebrity sponsorships or pharmaceutical company detailing to physicians. It is difficult to know where to draw the line between advertising and sales expense; in practice, payments to media are usually singled out.

revenues and receipts from customer payments for subscriptions and individual copies. The data here on advertising revenues are *net* of costs of advertising agency commissions and so forth. Generally speaking, the data are about four-fifths of the comparable figures from Coen (Table 3). These net revenue data are the more appropriate source for calculating advertising's support to entertainment.

*Borden's estimates of advertising contribution to entertainment and news.* The portion of the entertainment medium's revenue that is directly allocable to the cost of distributing the advertiser's message ought not to be counted as a contribution to entertainment. This is an aspect of advertising on which Borden was able to obtain considerable data in making his estimates for 1935 of the entertainment and news contribution of advertising. The question is, how much of advertising expenditures on a magazine or radio program pays for the content or program, and how much pays for the transmission of the advertising message itself?

Borden divides media expenses into (1) content or program costs, such as music royalty payments or payments to performers, that were clearly entertainment or news, (2) costs of soliciting advertising that were clearly advertising costs, and (3) production costs which he split based on the relative proportion of published pages or broadcast time devoted to content.

In the case of newspapers, for example, he used a survey of 23 daily newspapers to estimate that 35 percent of revenues came from circulation and 65 percent from advertising. The survey also suggested that content was 65 percent of the linage, while advertising was 35 percent. And it showed that expense directly attributable to editorial and news was 17 percent, while advertising sales salaries and other direct advertising

expense was 8 percent. All other costs were 75 percent. Allocating "all other costs" using the ratio of content linage to advertising linage implied that total content expenses were 65.75 percent of the total, while advertising expenses were 34.25 percent of total expenses. Since expenses were 93 percent of revenues, advertising expenses were 32 percent of total revenues, while advertising revenues were 65 percent of total revenues.

This allowed him to estimate that roughly 50 percent of the advertising revenue was a contribution to content. Similar calculations showed that 28 percent of magazine advertising and 73 percent of radio advertising was a contribution to entertainment and news content.

*More recent data on advertising's contribution to media*. Over time the ratios underlying these estimates have evolved. Newspaper advertising now accounts for 80 percent of revenue, and circulation for only 20 percent. This suggests that the contribution rate to newspapers may have increased.

Radio. At the time of Borden's calculation, commercial-sponsored radio broadcasts accounted for only 35 percent of broadcast time, and direct advertising sales costs were only 5 percent of expenses. By contrast, in the 1970s, commercial radio stations' commercial-sponsored broadcasts were generally 100 percent of broadcast time, and direct advertising sales costs were roughly 20 percent of expenses of radio broadcasters. Thus commercial radio stations' support to broadcasts has fallen, possibly to 60 percent of revenues.

Broadcast television was not a significant source of advertising until the 1950s. Television networks and stations in the late 1970s, according to FCC data, devoted more than 50 percent of their expenses to programming costs and about 10 percent to direct

selling costs. At that time, advertising was limited in TV prime time to 6 minutes per hour according to Goettler (1999). These data would imply 80 to 90 percent of advertising revenues supported content. At that point, while radio may have fallen below Borden's estimates, commercial television broadcasts appear to have been somewhat above them.

The National Association of Broadcasters' rule limiting commercial time on TV was declared a violation of antitrust laws in 1981. Since then, the proportion of TV prime time devoted to commercials has risen considerably, and in 1996, commercial time was 15.35 minutes per hour in prime time according to Goettler (citing the Commercial Monitoring Report). Thus advertising time has risen from 10 percent of prime time to over 25 percent. On the other hand, the proportion of television expenses devoted to programming has remained high. The Service Annual Survey's data on expenses do not give advertising sales expenditures nor total programming costs, but 40 percent of expenses in 2001 and 2002 were for broadcast rights and music license fees, not including network and station productions, such as news broadcasts, which alone may account for 10 percent of TV revenues. So it is likely that program costs continue to account for over half of the advertising revenues of TV. Attributing something like 70 to 75 percent of advertising revenues to support for content in current TV would seem reasonable.

*My new estimates*. I do not have the data to reproduce Borden's detailed work on advertising's contribution to entertainment. But based on my limited data, it does not seem wholly inaccurate to use his estimates, applying his radio ratio of 75 percent to all broadcasting, including TV, cable TV, and Internet advertising. This may somewhat

overestimate the contribution in recent years. I base my estimates of advertising expense on Coen's long historical data series, which I reduce by 20 percent to make the Coen data on gross advertising expense approximate the Service Annual Survey's estimates of net advertising revenue as suggested by Table 3. Thus the ratios I apply to Coen's data are 40 percent for newspapers, 20 percent for magazines, and 60 percent for broadcasting (I used round numbers to emphasize the limited quantitative basis for these estimates). I arrive at an overall entertainment advertising contribution of $410 million for 1935, somewhat larger than Borden's $380 million estimate. The primary cause of the difference is that Coen has a somewhat larger estimate of local newspaper advertising than Borden in 1935.

The resulting entertainment contribution numbers vary from about 0.4 percent to 0.7 percent of GDP (Table 1). As a proportion of measured personal consumption expenditures on recreation, it has varied from 11 percent to 16 percent It is interesting to note that while the advertising contribution has risen modestly relative to nominal GDP as a whole, it has fallen relative to personal consumption expenditures for recreation.

At a more disaggregated level, we can assign the advertising contribution to newspapers and magazines to the PCE detailed expenditure category of "magazines, newspapers, and sheet music," part of the major product category "other nondurables." Acknowledging the contribution to magazines and newspapers would make this category between one-half and three-quarters larger in real terms (Table 4 and Figure 1). The TV and radio broadcasts, together with advertising contributions to cable TV and the Internet, would naturally fall into recreation services and might best be placed with all other

recreation services. Doing so would make the major product category of recreation services larger in real terms by one-tenth to one-third.

*Noll et al.'s measures of consumer surplus for broadcast TV*. Are the size of these quantitative estimates of entertainment reasonable? The development of community antenna (cable) TV gives us the econometric evidence to estimate the consumer surplus from the most important source of advertising entertainment, broadcast TV. Noll et al. (1973), using data from 1969, estimated the consumer surplus from broadcast TV. They estimated the willingness to pay for the basic TV service portion of cable TV by exploiting variation in the local availability of over-the-air broadcasts. A preliminary finding was that in areas with little or no over-the-air TV, 80 percent of households were willing to pay $5 per month for no-frills cable access to those stations. This was approximately equal to the per-viewer cost of TV paid by advertisers.[3] Even without estimating a sloped demand curve, the minimum consumer surplus was equal to TV revenues.

From a parameterized model, they estimated consumer surplus from the broadcasts of three TV networks as being 5.1 percent of household income in 1969 (Table 5); personal income in nominal terms was $779 billion, so the consumer surplus was $39.7 billion. My estimate of the nominal entertainment contribution from advertising for TV in that year is $2.2 billion; for all media the contribution is $5.6 billion. Thus the consumer surplus from TV was a large multiple of the entertainment contribution to TV in 1969 and, indeed, was seven times the entire advertising contribution to all media.

[3] There were 62.2 million households in 1969. Eighty percent of these times $60 a year is approximately $3 billion. Coen's data give $3.6 billion spent by advertisers on TV; net TV revenues were probably about $3 billion.

*The 1950s rise of TV watching amid a decline in purchases of recreational services.* The impact of advertising contributions on the time series of real recreation services from 1935 to 2002 is substantial. One clear fact is that television viewing rose very rapidly between 1950 and 1960 (Figure 2). About half the rise in total viewing time of TV over the past five decades took place in that period.[4]

Figure 3 shows that the percentage of personal consumption expenditures represented by recreation services was falling during the 1950s.[5] This is anomalous, in that per capita real incomes rose in this period, and recreation services, as a luxury good, would be expected to expand. This anomaly is further evidence that the rise of free alternative entertainment influenced consumer behavior. Once we add in the advertising contribution, the decline disappears. Indeed, were we to include a larger proportion of broadcast advertising expenditures in recreation services, as the consumer surplus measures might suggest, the expected increase in proportion of real recreation services would appear. Put another way, consumers during this period acted as if they were switching from alternative sources of entertainment to television. That suggests, as do the data on consumer surplus, that consumers placed a substantial valuation on TV entertainment.

IV. Advertising as an investment

The treatment of advertising as an investment would be directly analogous to investment in durable goods. In the national accounts, investments in tangible goods and

[4] These data splice together data on annual viewing hours for 1984 to 2000 from Veronis Suhler Stevenson published in the 1994, 1999, and 2003 Statistical Yearbooks, with average viewing per day data for 1984 and earlier from A.C. Nielsen from the Statistical Abstract. The two series do not agree in 1984; the former gives 1520 hours per year, which is 29.2 hours per week, while the latter gives 6.96 hours per day. I forced the Nielsen data to equal the Veronis Suhler Stevenson data in 1984.

[5] World War II rationing may account for the high ratio of recreation services expenditure in the mid-1940s.

in software are treated as part of gross domestic final product, while material and labor inputs to production are treated as intermediate goods. Similarly, in a monopolistic competition environment (Dixit and Stiglitz, 1977; or Grossman and Shapiro, 1984) fixed expenditures to differentiate a product such as advertising may be treated as investments if their costs are amortized over several periods and more appropriately as intermediate goods if their costs are covered in current output.

Advertisements that introduce a new model of car may well be intended to have an impact extending over the life of the model, that is, over several years. For example, advertising to introduce a TV show may continue to influence viewing of reruns of DVD sales years later. Advertising expenditures for repeat purchase goods such as cereals, beer, toothpaste, or drugs similarly plausibly have long lives.

It is equally evident that some portion of advertising expenditure is intended to be immediately expensed. For example, advertisements of automobile clearance sales or zero-interest financing are likely to have only a short-term impact on sales. Indeed, such advertising may well be accompanied by short-term *declines* in future auto sales and profitability and in *current* equity prices.

Indirect estimates of the component of corporate advertising expenditures that should be counted as investment are typically obtained using regressions of advertising against measures of contemporaneous corporate market value, or future profits or sales. In these regressions, a short-run negative correlation of advertisement expenditure and equity or profits will likely reduce the apparent life of average advertising expenditure by mixing negative effects and positive ones in individual firm and panel regression analysis as in Peles; Bublitz and Ettredge; and Hall. The fact that Peles and Bublitz and Ettredge

find lower lives for durables (that have strong cyclical components) than for nondurables is indicative of this possibility.

From the perspective of investment only the positive effects should be counted. At the same time, advertising that is intended to have only short-run benefits for the advertiser should not be counted as investment. It thus seems appropriate to consider that some fraction of advertising be considered investment. The Hall study gives a point estimate of advertising's impact on market value being about one-third, implying that one-third of advertising is being treated by equity holders as a capital expenditure and not a current expense.

If we use Hall's one-third of advertising expenditures as an estimate, then the investment component of advertising varies from 0.5 percent to 0.8 percent of GDP. Total unmeasured contributions of advertising to GDP would be roughly two-thirds the size of advertising expenditures, and from 0.9 percent to 1.5 percent of GDP (Table 1, line 18).

## V. Summary

This note has argued that there are two unmeasured contributions of advertising to output: as an investment and as a support to entertainment and news. The role of advertising as an investment has been the subject of substantial controversy. Yet over the years repeated studies have shown that there is some durable market power due to advertising. Hall's estimate – that one-third of advertising expenditure is investment – is a plausible benchmark, but this estimate ought to be updated with additional data.

My estimates for the entertainment support value of advertising are equally approximate. I have argued that a substantial proportion of advertising expenditures on

entertainment and news creates a positive contribution to consumer surplus and that this ought to be counted in GDP. In particular, doing so helps make the time series on real recreation services closer to the true overall impact on the U.S. consumer of radio and television. These two underappreciated values of advertising imply that two-thirds of advertising might be viewed as an unmeasured contribution to real output.

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| Table 1. Coen Advertising Expenditures Data, by media, nominal, 1935-2002 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1935-39 | 1940-49 | 1950-59 | 1960-69 | 1970-79 | 1980-89 | 1990-99 | 2000-02 |
| 1.Newspapers | 810 | 1144 | 2836 | 4399 | 8881 | 23826 | 36714 | 45779 |
| 2.Periodicals | 235 | 535 | 1164 | 1835 | 2894 | 7241 | 12051 | 15940 |
| 3.Yellow Pages* | 0 | 0 | 0 | 0 | 0 | 0 | 10392 | 13532 |
| 4.Radio | 150 | 395 | 601 | 918 | 2123 | 6040 | 11523 | 18678 |
| 5.Broadcast TV | 0 | 6 | 883 | 2460 | 5924 | 19835 | 32332 | 41917 |
| 6.Cable TV | 0 | 0 | 0 | 0 | 0 | 0 | 6487 | 15829 |
| 7.Internet | 0 | 0 | 0 | 0 | 0 | 0 | 502 | 5678 |
| 8.Direct Mail | 318 | 431 | 1252 | 2243 | 4372 | 14727 | 31541 | 45128 |
| 9.Outdoor | 40 | 78 | 179 | 187 | 355 | 875 | 1281 | 5162 |
| 10.Other | 385 | 634 | 1689 | 2934 | 6002 | 11533 | 22140 | 30903 |
| 11. Total Advertising | 1938 | 3222 | 8605 | 14976 | 30551 | 84076 | 164962 | 238545 |
| | | | | | | | | |
| 12.Entertainment and News (1,2,4,5,6,7) | 1195 | 2079 | 5485 | 9612 | 19823 | 56942 | 99608 | 143821 |
| 13. Contribution to entertainment and news[1] | 461 | 805 | 2258 | 4153 | 8960 | 26503 | 47602 | 70761 |
| | | | | | | | | |
| Percent of GDP | | | | | | | | |
| 15. Total Advertising | 2.27% | 1.58% | 2.13% | 2.09% | 1.84% | 2.07% | 2.25% | 2.35% |
| 16. Contribution to entertainment and news | 0.54% | 0.40% | 0.56% | 0.58% | 0.54% | 0.65% | 0.65% | 0.70% |
| 17. Advertisng Investment (one-third of (15)) | 0.76% | 0.53% | 0.71% | 0.70% | 0.61% | 0.69% | 0.75% | 0.78% |
| 18.Unmeasured contribution to GDP: (16)+(17) | 1.30% | 0.92% | 1.27% | 1.28% | 1.15% | 1.34% | 1.40% | 1.48% |

*Before 1990, included in Other.

Source: Author's calcualtion and Coen, Robert, "Bob Coen's historical advertising statistics," at http://www.universalmccann.com/ourview.html

[1]Equals 0.6 times sum of (4), (5), (6), and (7) plus 0.4 times (1) plus 0.2 times (2).

| Table 2. Media revenues from customers and advertisers, 1998-2002, Service Annual Survey data | | | | | |
|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 |
| Newspapers: Joint revenues | 41435 | 44331 | 47371 | 42698 | 42861 |
| Circulation | 8592 | 8818 | 9149 | 9474 | 9628 |
| Advertising | 32843 | 35513 | 38222 | 33224 | 33233 |
| Magazines: Joint revenues | 30703 | 32732 | 33812 | 34493 | 34087 |
| Circulation | 13948 | 14912 | 14397 | 16031 | 16175 |
| Advertising | 16755 | 17820 | 19415 | 18462 | 17913 |
| Directories and databases | 11163 | 12088 | 12840 | 13422 | 13326 |
| Circulation | 1274 | 1409 | 1682 | 2206 | 2163 |
| Advertising | 9889 | 10679 | 11158 | 11215 | 11162 |
| Radio Advertising | 10901 | 12254 | 13921 | 12424 | 13380 |
| Broadcast TV Advertising | 29121 | 31031 | 34937 | 30718 | 33611 |
| Cable TV | 47098 | 53403 | 59287 | 63981 | 68648 |
| Subscription and pay per view | 39064 | 43636 | 47278 | 51756 | 54823 |
| Advertising | 8034 | 9767 | 12009 | 12225 | 13825 |
| | | | | | |
| All media | 170421 | 185839 | 202168 | 197736 | 205913 |
| Direct consumer payments | 62878 | 68775 | 72506 | 79467 | 82789 |
| Advertising | 107543 | 117064 | 129662 | 118268 | 123124 |
| | | | | | |
| Advertising as proportion of joint revenues from customers and advertisers | | | | | |
| Newspapers | 79% | 80% | 81% | 78% | 78% |
| Periodicals | 55% | 54% | 57% | 54% | 53% |
| Databases | 89% | 88% | 87% | 84% | 84% |
| Cable TV | 21% | 22% | 25% | 24% | 25% |
| All media | 63% | 63% | 64% | 60% | 60% |

Source: U.S. Census Bureau, Service Annual Survey, *Information Sector Services, 2002*

Table 3. Advertising Revenues of Selected Media: Data from US Census Bureau Service Annual Survey as Proportion of Coen Data

| | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|
| Newspapers | 74% | 76% | 78% | 75% | 75% |
| Periodicals | 114% | 113% | 112% | 119% | 120% |
| Broadcast Television | 74% | 78% | 78% | 79% | 80% |
| Cable Television | 78% | 78% | 78% | 78% | 85% |
| Radio | 72% | 71% | 72% | 70% | 71% |
| Totals of selected media | 79% | 81% | 81% | 81% | 82% |

Source: Tables 1 and 2.

Table 4. Unmeasured advertising contributions to media in relation to measured personal consumption expenditures, 1935-2002

| | Contribution to all media, ratio to measured PCE for recreation goods and services | Contribution to newspapers and periodicals, ratio to measured PCE of magazines, newspapers and sheet music | Contribution to TV, radio, and Internet, ratio to measured PCE of recreation services |
|---|---|---|---|
| 1935-39 | 14.7% | 71.7% | 10.1% |
| 1940-49 | 12.1% | 57.6% | 13.7% |
| 1950-59 | 15.7% | 73.9% | 28.9% |
| 1960-69 | 15.5% | 77.2% | 34.5% |
| 1970-79 | 12.7% | 63.5% | 31.9% |
| 1980-89 | 14.2% | 68.4% | 34.6% |
| 1990-99 | 11.8% | 63.8% | 27.9% |
| 2000-02 | 11.7% | 62.2% | 28.9% |

Source: Bureau of Economic Analysis and author's calculations.

| Table 5. Estimated consumer surplus as percent of household income from selected levels of free television service, network affiliated stations, 1969 | | |
|---|---|---|
| Number of stations | Total surplus | Marginal surplus |
| 1 | 2.6 | 2.6 |
| 2 | 4.06 | 1.46 |
| 3 | 5.07 | 1.01 |

Source: Noll et al., 1973, Appendix A, Table A-2.

| Table 6. Real personal consumption, total, recreation services, and recreation services with advertising contribuiton included, annualized growth rates (2000 chained dollars) | | | |
|---|---|---|---|
| | Measured real personal consumption expenditures | Measured recreation services | Recreation services with advertising contribution |
| 1935-39 | 4.4% | 3.5% | 4.1% |
| 1940-49 | 4.1% | 3.9% | 4.3% |
| 1950-59 | 3.7% | 1.8% | 3.2% |
| 1960-69 | 4.4% | 4.6% | 4.7% |
| 1970-79 | 3.5% | 5.6% | 5.6% |
| 1980-89 | 3.3% | 6.4% | 6.2% |
| 1990-99 | 3.3% | 4.7% | 4.6% |
| 2000-03 | 3.5% | 3.4% | 2.9% |

Source: Bureau of Economic Analysis and author's calculations.

Figure 1.

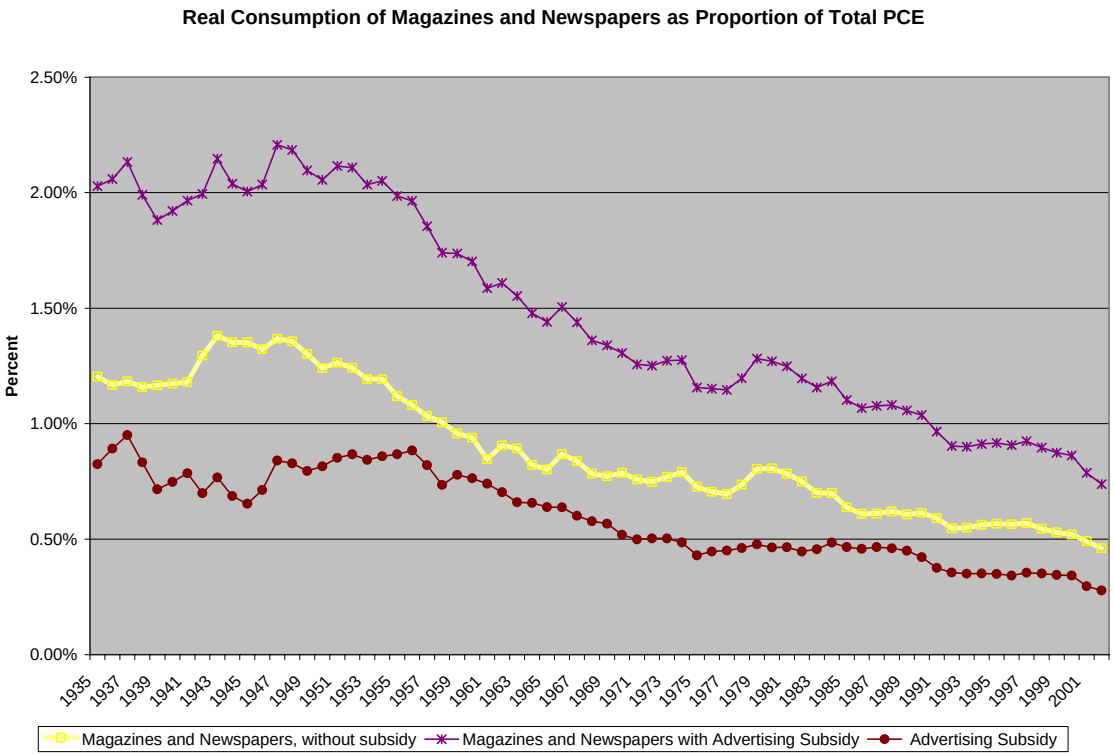

Real Consumption of Magazines and Newspapers as Proportion of Total PCE
Percent
2.50%
2.00%
1.50%
1.00%
0.50%
0.00%
1935
1937
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Magazines and Newspapers, without subsidy
Magazines and Newspapers with Advertising Subsidy
Advertising Subsidy

Figure 2.

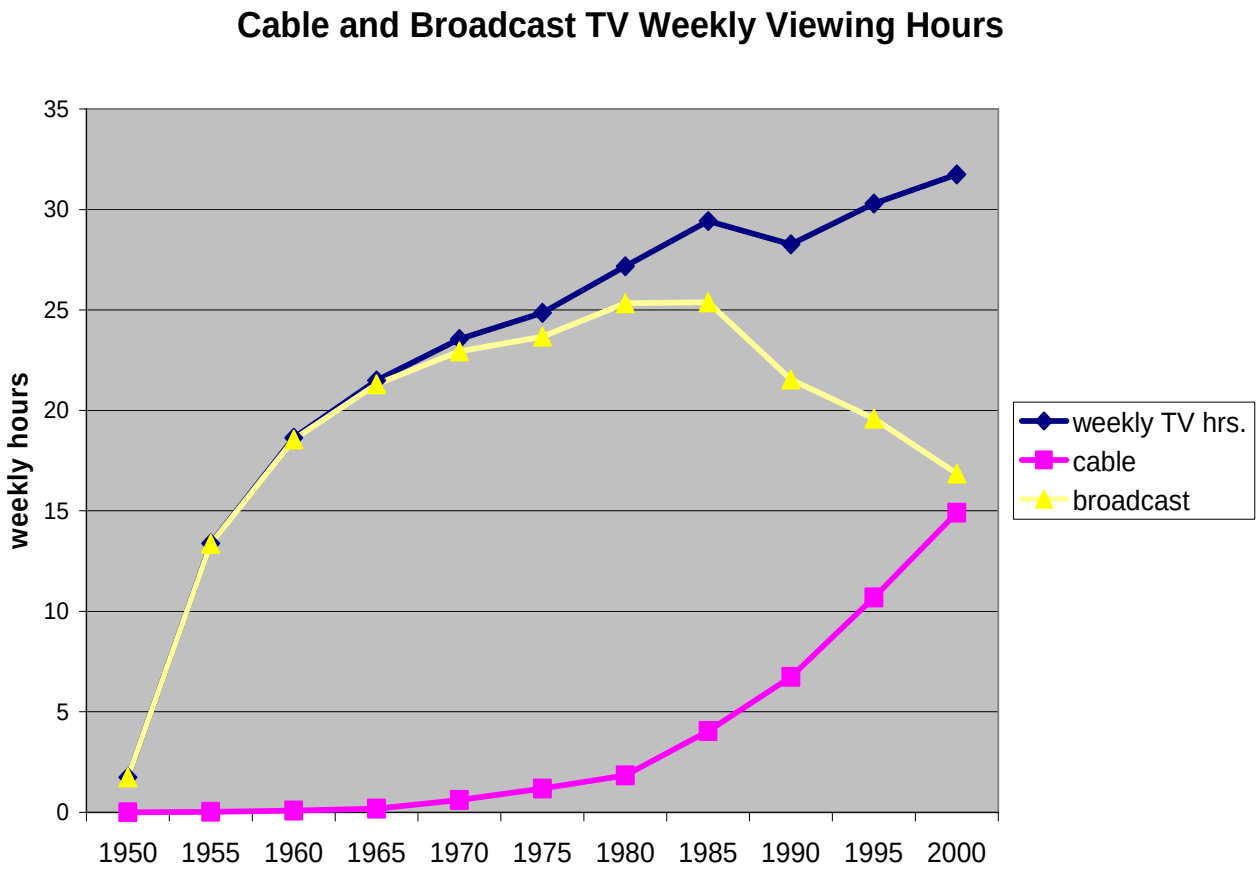
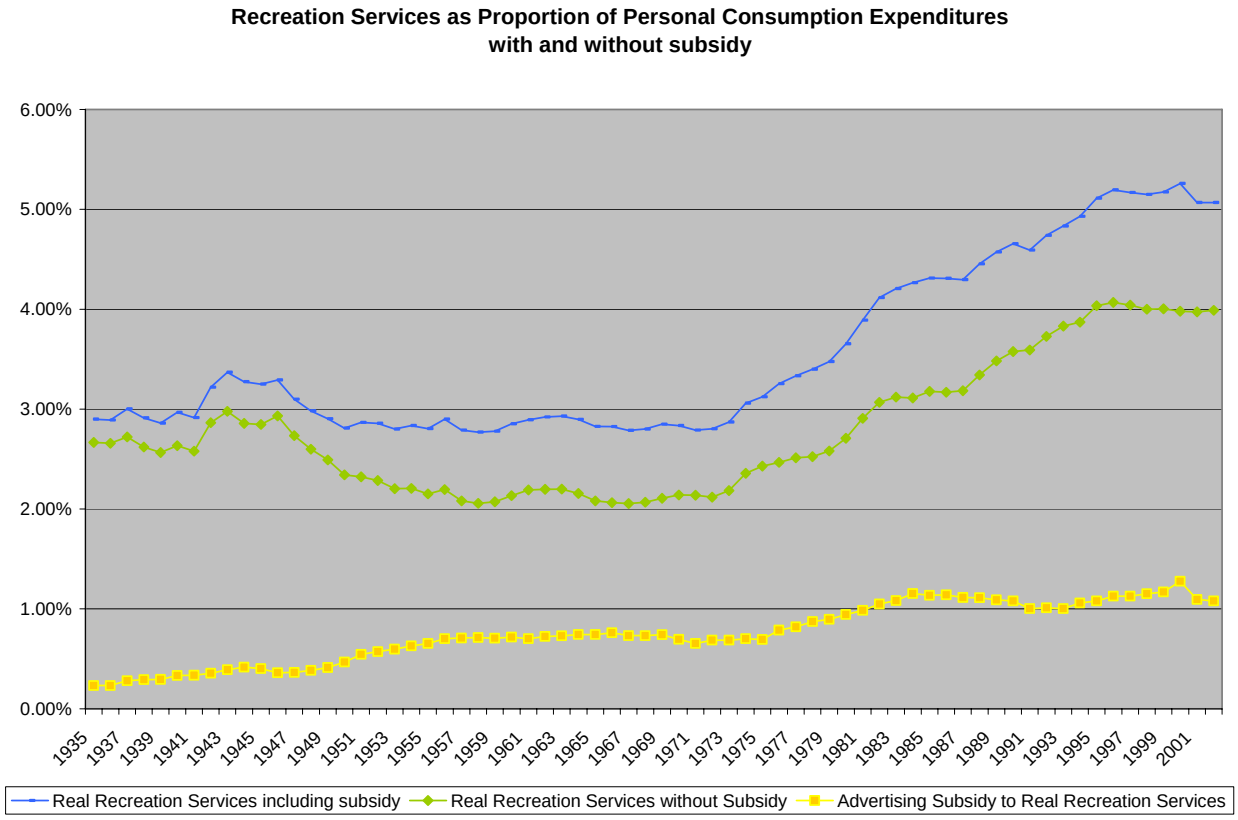

Cable and Broadcast TV Weekly Viewing Hours
weekly hours
35
30
25
20
15
10
5
0
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
weekly TV hrs.
cable
broadcast

Figure 3.


Recreation Services as Proportion of Personal Consumption Expenditures
with and without subsidy
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
1935
1937
1939
1941
1943
1945
1947
1949
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Real Recreation Services including subsidy
Real Recreation Services without Subsidy
Advertising Subsidy to Real Recreation Services