

**ADVERTISING, INTANGIBLE ASSETS, AND UNPRICED ENTERTAINMENT**

Leonard I. Nakamura

Federal Reserve Bank of Philadelphia

June 1 2004

The views expressed here are those of the author and do not necessarily reflect those of the Federal Reserve Bank of Philadelphia or the Federal Reserve System. Victoria Geyfman provided excellent research assistance.

# **ADVERTISING, INTANGIBLE ASSETS, AND UNPRICED ENTERTAINMENT**

Leonard I. Nakamura

## **Abstract**

This note addresses two aspects of advertising: its role in subsidizing entertainment and news, and its role as an investment. I argue that in both aspects 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.

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

### **I. Introduction**

Advertising has two roles in the economy: one of informing consumers about products and the other of subsidizing entertainment and news, that is, media. When it performs these two roles simultaneously, it can be unusually productive—I shall argue that one unit of input of this type can produce two units of real output, one nominal, the other a rise in the real output of media, which should be accounted for by a decline in price of recreation. The subsidizing of entertainment and news by advertising is not currently captured in the national income accounts, and to the extent that advertising has an investment component for the advertiser, that is not captured either. In this note, 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 subsidies from 1935 to 2002. I argue that properly accounting for the two roles of advertising 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.

That advertising should be capitalized and depreciated rather than expensed has been argued 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). U.S. corporate reporting of advertising as a separate item of expenditure has been declining since 1993, so aggregate empirical evidence has become somewhat less available. Aggregate data on advertising revenue are available from Coen (2004) and from the annual Census Bureau Survey of Service Industries.

The role of advertising as a subsidy to media was pointed out by Borden (1942). Borden estimated that subsidies to newspapers, magazines, and radio in 1935 accounted for \$380 million of total advertising expenditure of \$1.32 billion, in a year when GDP was \$73.3 billion. Such subsidies increase the entertainment and information available to consumers. 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. In this article, I argue that the real impact of this entertainment should be included in GDP, making a sharp distinction between the social advertising that stands alone (for example, direct mail) and advertising that is bundled with entertainment, news, or information.

Ultimately, I argue that while much of the economic literature has focused on possible inefficiencies and social costs associated with advertising, it is possible to interpret advertising as being unusually socially beneficial. The manufacturer of the product being advertised is, in my perspective, viewed as 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. An image that might be useful in understanding the social productivity of broadcast advertising is to imagine two types of message sending. One can inform individuals by traveling to their homes, or a group of advertisers can pay for an entertainment that attracts individuals to a central location where they can be efficiently informed.

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 subsidized entertainment, the output is being provided by a firm. I thus believe that it is more reasonable to have subsidized entertainment appear in the accounts as a larger real output and a reduced price.

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. Advertising and media

In this section I develop estimates of the advertising subsidy to entertainment. I begin with the Coen estimates, a consistent annual data series going back to 1935, of gross advertising expenditures – the expenditures by the advertisers. 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 subsidy. 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 aggregate data on U.S. advertising expenditures are available primarily from two sources: Robert Coen's estimates and the U.S. Census Bureau's Annual Surveys of Service Industries. 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.<sup>1</sup> 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.<sup>2</sup>

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, yellow pages, and miscellaneous expenditures, the remainder is the part I am considering to be potentially subsidizing 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

---

<sup>1</sup> 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.

<sup>2</sup> 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.

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 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 the subsidy to entertainment.

*Borden's estimates of advertising subsidy to entertainment.* 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 subsidy 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 subsidy 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? To find out, we have to examine how much of total expenses simply go back into the production and administration costs of the advertising portion of the product, and how much supports the content.

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.

For 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 lineage, 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 these using the ratio of content lineage to advertising lineage 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 subsidy to content. Similar calculations showed that 28 percent of magazine advertising and 73 percent of radio advertising was a subsidy to entertainment and news content.

*More recent data on subsidies.* 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 subsidy 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' subsidy 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 subsidized 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 advertising revenues of TV. Attributing something like 70 to 75

percent of advertising revenues to the subsidization of content in current TV would seem reasonable.

*My new estimates.* I do not have the data to reproduce Borden's detailed work on entertainment subsidy. 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 subsidy 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 subsidy 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 subsidy 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 subsidy 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 subsidy 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 subsidy 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 subsidies 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 these 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. 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 consumer surplus was \$39.7 billion. My estimate of the nominal entertainment subsidy from advertising for TV in that year is \$2.2 billion; for all media the subsidy is \$5.6 billion. Thus the consumer

surplus from TV was a large multiple of the entertainment subsidy to TV in 1969 and, indeed, was 7 times the entire advertising subsidy to all media.

*The 1950s rise of TV watching amid a decline in purchases of recreational services.* The impact of advertising subsidies 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.<sup>3</sup>

Figure 3 shows that the percentage of personal consumption expenditures represented by recreation services was falling during the 1950s.<sup>4</sup> 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 subsidy, 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.

### III. Advertising as an investment

---

<sup>3</sup> 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.

<sup>4</sup> World War II rationing may account for the high ratio of recreation services expenditure in the mid-1940s.

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 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 a 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, 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).

#### IV. A sketch of theory

*Differentiated products.* Let us begin by assuming that advertising is informative in a one-period model with free entry. 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  $F$  and marginal per unit cost  $c$  and output  $q$ , the price  $p = F/q + c$ , and output = resource cost =  $F+cq$ .

From the perspective of the national income accounts, the aggregate consumer benefit exceeds the total cost of producing the new goods, including the fixed costs, since marginal utility measured in current dollar units must equal the price,  $F/q + c$ , for each differentiated good. From a welfare perspective, it is possible that there may be excessive product differentiation, so that there is a net marginal decrease in welfare from the last product introduced. But that depends on the balance of countervailing forces at worst, and if we consider the group of differentiated products as a whole, the gains must outweigh the 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. 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 small with respect to income, we can approximate the utility of the aggregate of consumers by

$$U(z, M) = z + bM - \frac{1}{2} M^2 - a_U M$$

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:

$$\Pi = (p + \alpha - \alpha' - c_M)(b - a_U - p)$$

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  $U = 1 - (b - a_U)(c_M + \alpha') + \frac{1}{2}(b - a_U)^2$ . 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 subsidy, 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 published profits) is larger than  $(b-a_u)^2$  while the direct utility of consumers is  $\frac{1}{2} (b-a_u)^2$ . 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 subsidy may overstate the 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 subsidy estimates.

In the absence of advertising, the publisher charges  $p = \frac{1}{2} (c_M + b)$  and  $M = \frac{1}{2} (b - c_M)$ . Resource costs are  $\frac{1}{2} c_M (b - c_M)$ . Utility  $U = 1 + \frac{3}{8} (b - c_M)^2$ . Consumer expense is  $pM = \frac{1}{4} (b^2 - c_M^2)$ . It can be shown, of course, 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 newspaper 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.

*Investment.* In a multi-period context, there are three possibilities to be considered about the investment value of advertising. One is that the good is sold for only one season and that it has no positive impact on future choices. In this case there is no investment component to the advertising expenditure, either private or social, and we simply have the one-period model.

A second is that the good is sold by an advertiser who retains market power for multiple periods, and the cost of advertising is amortized over several periods. In this case, not all of the advertiser's expenditure shows up in the price of the differentiated product, and from a national income accounts perspective, some of the fixed cost contribution of current economic activity is missed when output is measured. It thus would be appropriate to consider this advertising an investment expense, both social and private.

A third possibility is that the good is sold by an advertiser who earns a margin over production costs only for one period. Thereafter generic entrants are able to copy the initial product without needing new advertising. Alternatively, entrants' new products that build upon and supplant the existing product (as in a quality ladders model) may end the market value of the initial product. In this case the fixed cost of the advertising is fully captured in a single period in the cost of the advertised good, but the private value of the advertising may be less than the social value.<sup>5</sup>

*Caveats.* Persuasive advertising – advertising that shifts utility functions (as in Dixit and Norman) – 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

---

<sup>5</sup> The issue of business stealing – taking the profits of rivals – also occurs as an offsetting issue here.

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 to aid us in more deeply understanding advertising and intangible output.

## V. Summary

This note has argued that there are two unmeasured contributions of advertising to output: as an investment and as a subsidy 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 subsidy 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 unmeasured contributions to real output.

## REFERENCES

- Bloch, Harry, "Advertising and Profitability: A Reappraisal," *Journal of Political Economy* 82, No.2 Part I, March-April 1974, 267-286.
- Borden, Neil, *The Economic Effects of Advertising*, Irwin, Chicago, 1942.
- Bublitz, B. and M. Ettridge, "The Information in Discretion Outlays: Advertising, Research and Development," *Accounting Review*, 64, 1989, 108-124.
- Coen, Robert, "Bob Coen's historical advertising statistics," at <http://www.universalmccann.com/ourview.html>, downloaded May 2004.
- Comanor, William S. and Thomas A. Wilson, "Advertising, Market Structure and Performance," *Review of Economics and Statistics* 51, November 1967, 423-440.
- Dixit, Avinash K. and Victor Norman, "Advertising and Welfare," *The Bell Journal of Economics* 9, 1978, 1-17.
- Dixit, Avinash K. and Joseph E. Stiglitz, "Monopolistic Competition and Optimum Product Diversity," *American Economic Review* 67, 1977, 297-308.
- Goettler, Ronald, "Advertising Rates, Audience Composition, and Competition in the Network Television Industry," Carnegie Mellon GSIA Working Paper 1999-E28, August 1999.
- Grossman, Gene M. and Carl Shapiro, "Informative Advertising with Differentiated Products," *Review of Economic Studies* 51, Jan. 1984, 63-81.
- Hall, Bronwyn, "The Stock Market Value of R&D Investment During the 1980s," *American Economic Review* 83, 1993, 259-264.

Hirschey, Mark and Jerry J. Weygandt, "Amortization Policy for Advertising and Research and Development Expenditures," *Journal of Accounting Research* 23, Spring 1985, 326-334.

Kothari, S.P., Ted E. Laguerre, and Andrew J. Leone. "Capitalization Versus Expensing: Evidence on the Uncertainty of Future Earnings from Capital Expenditures Versus R&D Outlays," *Review of Accounting Studies*, 7, 2002, pp. 355-82.

Nevo, Aviv, "Measuring Market Power in the Ready-to-Eat Cereal Industry," *Econometrica* 69, 307-342, 2001.

Noll, Rober G., Merton J. Peck, and John T. McGowan, *Economic Aspects of Television Regulation*, Brookings Institution, Washington DC, 1973.

Peles, Yoram, "Rates of Amortization of Advertising Expenditures," *Journal of Political Economy* 79, Sep-Oct. 1971, 1032-1058.

Schmalensee, Richard, "Inter-Industry Studies of Structure and Performance," in Richard Schmalensee and Robert D. Willig, eds., *Handbook of Industrial Organization, Vol. II*, Noth-Holland, New York, 1989, 951-1009.

Stigler, George J. and Gary S. Becker, "De Gustibus Non Est Disputandum," *American Economic Review* 67, March 1977, 76-90.

Weiss, Leonard W. "Advertising, Profits, and Corporate Taxes," *Review of Economics and Statistics*, 51,4, November 1969, 421-430.

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. Subsidy to entertainment and news <sup>1</sup>	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. Subsidy to entertainment and news	0.54%	0.40%	0.56%	0.58%	0.54%	0.65%	0.65%	0.70%
17. Advertising 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 calculation and Coen, Robert, "Bob Coen's historical advertising statistics," at <http://www.universalmccann.com/ourview.html>

<sup>1</sup>Equals 0.6 times sum of (4),(5) and (6), 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*

	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%
Total	79%	81%	81%	81%	82%

Source: Tables 1 and 2.

	Unmeasured subsidies to entertainment and news, ratio to total measured personal consumption expenditures	Unmeasured subsidy to newspapers and periodicals ratio to measured PCE of magazines, newspapers and sheet music	Unmeasured subsidy 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 subsidy included, annualized growth rates (2000 chained dollars)			
	Measured real personal consumption expenditures	Measured recreation services without subsidy	Recreation services with advertising subsidy
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.

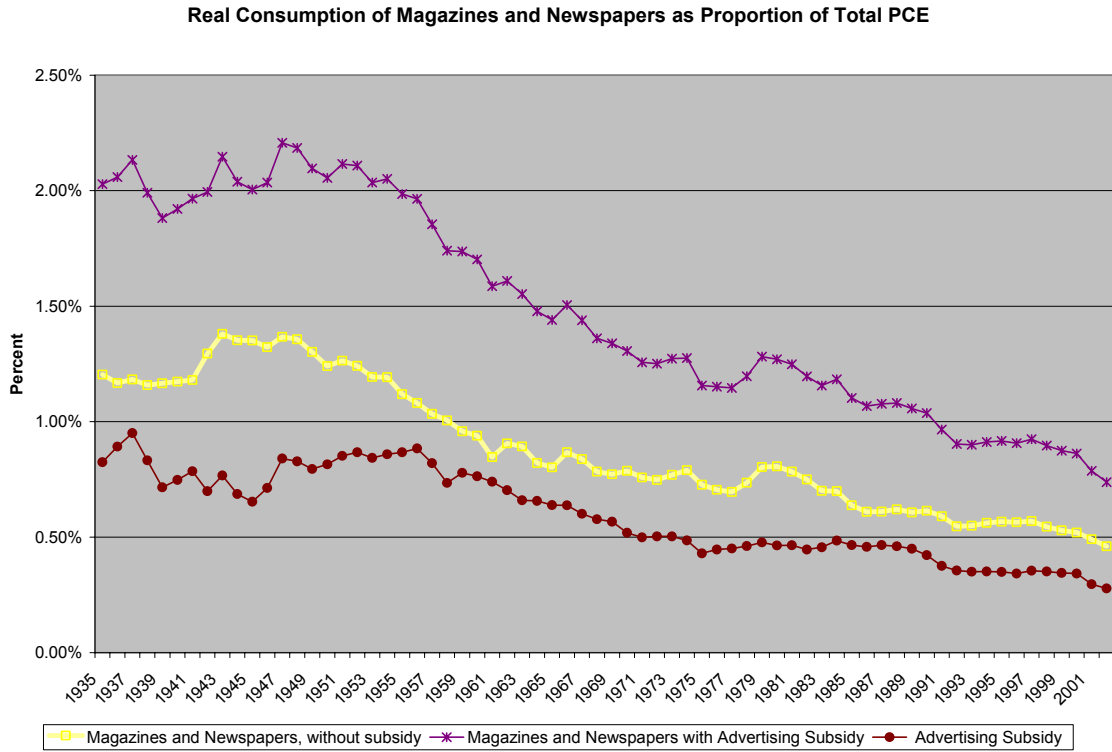


Figure 2.

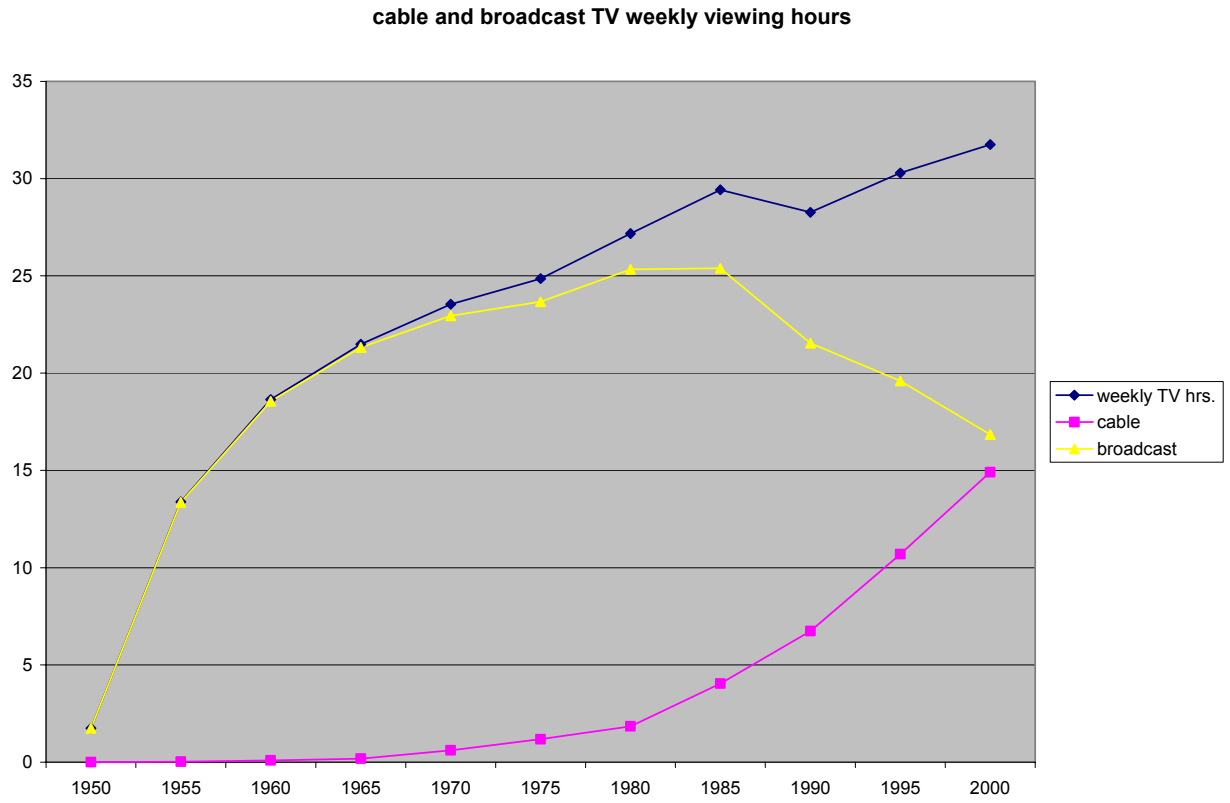


Figure 3.

