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The Declining Cost of Advertising: Policy Implications

DR. MICHAEL MANDEL

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SUMMARY

The global debate over the relationship between digital advertising and quality journalism has intensified in recent months, with Congressional hearings in the United States and the release of official reports on the subject in Australia and the United Kingdom.

On the one hand, advertisers have greatly benefited from the decline in the cost of advertising relative to gross domestic product (GDP), with much of the gains being passed onto consumers. On the other hand, traditional print publishers—who had grown accustomed to decades of rising advertising rates—are finding themselves chasing the plunging price of digital ads, as the natural forces of supply and demand drive down the price of digital ads.

This paper lays out some of the key facts underlying this debate. We show that the share of GDP going to advertising in media has dropped by roughly 25% in the United States, and other countries such as Australia, France, and Germany. The main reason: Digital ads cost less than their equivalent print counterparts. We calculate, based on several assumptions, that for every $3 that an advertiser spends on digital advertising, they would have to spend $5 on print advertising to get the same impact. The benefits of these lower prices flow directly to advertisers and consumers.

Moreover, the price differential between print and Internet advertising has been widening, not narrowing. Since 2016, the price of print advertising in U.S. newspapers is down 6%, based on the first four months of 2019. But the price of Internet advertising sold by digital platforms and other non-print publishers is down 23% over the same stretch.

Moreover, newspapers have become increasingly uncompetitive, even in the digital realm. According to the BLS, the price of digital advertising sold by print newspapers has only declined by 4% since 2016. If these figures are accurate, they explain why newspaper publishers have been losing share in the advertising market—they are simply not meeting the market price.

This analysis informs the policy debate over quality journalism. The Australian and UK reports argue for a need for new regulatory authorities to govern the digital advertising market. In our view, the data suggests that excessive regulation runs the risk of raising advertising rates, hurting consumers, and slowing essential innovation in journalism.

The Declining Cost of Advertising: Policy Implications[1]

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INTRODUCTION

In a December 2018 preliminary report, the well-respected Australian Competition and Consumer Commission made the case that digital advertising was undercutting the traditional business models for news and journalism.[2] The ACCC warned of the "risk of under-provision" of news and journalism, and recommended creating a new regulatory authority to oversee digital advertising.

The same regulatory authority, according to the ACCC report, would also "monitor, investigate and report on the ranking of news and journalistic content by digital platforms and the provision of referral services to news media businesses." The report also argues for setting up a new regulatory framework to govern production and distribution of content through all channels, including news and journalistic content.

The ACCC's arguments are being echoed in other parts of the world. In the United Kingdom, the government-commissioned "Cairncross Review," released February 2019, argued that the government needed to regulate interactions between the digital platforms and news publishers in order to protect the publishers from "undue harm."[3] The author of the report, Dame Frances Cairncross, called for a regulator with "a full set of powers to command information and ensure compliance," warning that "[i]f those powers proved insufficient, government should implement stronger measures."

In March 2019, the European Union levied a $1.7 billion fine on Google for supposed anticompetitive behavior in the digital ad market.[4] A recent column in a U.S. newspaper blamed "news deserts"—counties without local newspapers—on Facebook and Google. As the author wrote: "billions of advertising dollars that once stayed in local economies and sustained local reporters all over the country now get vacuumed out to Silicon Valley, fattening the profits of companies that compete for our attention without producing any journalism."[5]

THIS REPORT

The old model of ad-supported journalism is clearly struggling. The ACCC report, the Cairncross Review, and similar arguments point the finger of blame at digital platform companies such as Google and Facebook. The implicit assumption is that these companies are artificially diverting revenue away from the traditional news media, and specifically print media, to the detriment of the public interest. Consequently, these reports call for a new regulatory authority to intervene in dynamic business-to-business markets and restore the news industry to health.

In this paper, we will argue that the ACCC report and similar arguments substantially misunderstand the dynamics driving the news and advertising business. In this research, we do a cross-country study of the advertising markets in four countries—Australia, the United States, France, and Germany. We will show that the share of GDP going to advertising has dropped by roughly 25% in Australia, the United States, France, and Germany. Assuming that the actual amount of advertising has not diminished, this implies that the overall price of advertising has dropped, benefiting both advertisers and consumers.

Second, using data from the United States, the largest advertising market, we show that there was a 20-year run-up of print advertising prices in the 1980s and 1990s, which we argue was linked to traditional news publishers exercising market power. In other words, they raise prices for advertising far faster than the rate of inflation. Moreover, since 2010 the price of Internet advertising has dropped by more than 40%, while the price of advertising with traditional media has not declined, or even risen a bit, suggesting that Internet advertising is perhaps a more competitive segment than print advertising.

Taken together, this implies that the shift from print to digital advertising is being driven in large part by the relative (low) price of digital advertising. We calculate, based on several assumptions, that for every $3 that an advertiser spends on digital advertising, they would have to spend $5 on print advertising to get the same impact. In the economic sense, digital advertising is more productive than print advertising. The benefits of these lower prices flow directly to

advertisers and consumers.

Better targeting leads to higher returns on investment, while the lower cost of entry opens the door to smaller firms. Small businesses can grow more quickly and easily through digital advertising. Consumers benefit by the increased choice and access to more businesses.

What does this mean for policy? Conventional news media have been hit by two very different technological transformations simultaneously. First, the Internet has dramatically lowered the cost of distributing news, as we know it. Lower costs mean the supply curve for news shifts to the right, increasing the quantity of news supplied and driving down the (subscription) price.

This is Economics 101. As a result, there is more news and information available than ever before, across a wider range of topics. Yes, news media companies are making lower profits, but consumers of news can access global news sources that were not available before. The Sydney Morning Herald is one of the best newspapers in the world—but someone who wants global news can now get to the New York Times, Financial Times, or Times of India with just a click of a mouse or a small gesture.

Second, the real price of advertising has fallen sharply. This represents an increase in competition in the advertising market, not a decrease. Before the Internet, many newspapers and television stations effectively had oligopolistic power in their local markets. If a retailer or other local business wanted to run an ad to reach local customers, they had a limited number of options.

Today, advertisers have many more channels to reach buyers, suggesting that the price of advertising should be lower as competition intensifies. Traditional advertisers are no longer enjoying the market power that they once did. The Cairncross Review recognizes this trend, noting that "the supply of advertising 'space' online is almost limitless."

We suggest that attempts to protect traditional media through regulating digital advertising have the potential to raise prices to advertisers and consumers. In addition, we further suggest that such regulation might actually slow down the rate of innovation in news and journalism.

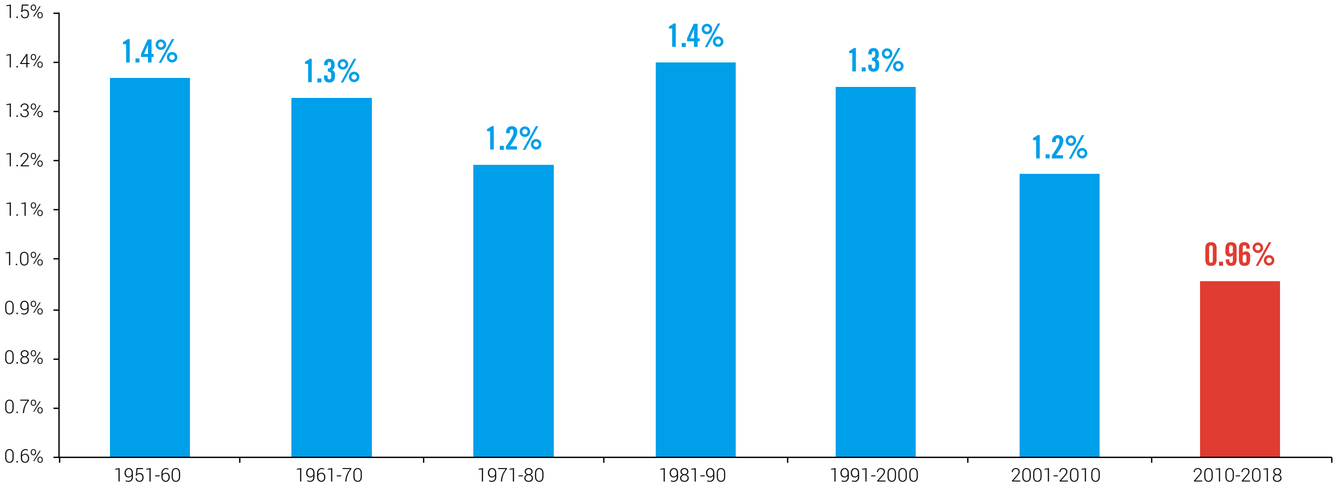
THE HISTORICAL PERSPECTIVE

In the economic and marketing literature, advertisers spend money with multiple goals: Providing consumers with information about their product; building brand awareness; and, of course, persuading people to buy. Moreover, the nature and form of advertising has changed over time.

But despite all the changes, historically advertising spending has paralleled gross domestic product (GDP) over time. In the United States, between 1951 and 2000, advertising spending on media averaged 1.3% of GDP, within a narrow range. No year was higher than 1.5% of GDP and no year was lower than 1.1%.[6]

But in recent years, advertising spend as a share of GDP has broken out of the long-term trend on the downside, as Figure 1 shows. Advertising on media averaged less than 1% between 2010 and 2018. (We use averages because special events such as the Olympics and elections can cause big swings from year to year).

FIGURE 1: U.S. SPENDING ON ADVERTISING AS SHARE OF GDP (AVERAGE)



Data: Robert Coen, WARC, BEA, PPI

Other measures of advertising spending show the same pattern. For example, consider the list of the leading U.S. advertisers published annually by Advertising Age magazine. In 2000, the top 100 advertisers spent US$83 billion in the United States.[7] By comparison, in 2017 the top 100 leading national advertisers spent US$128 billion on advertising. That's a 49% increase, which sounds impressive. The spending gain for the top 200 leading national advertisers from 2000 to 2017 is 52%, in nominal dollars, to US$155 billion.

However, over the same period nominal GDP increased by 90%, a far bigger gain. No matter what way you cut it, advertising spending has fallen way behind GDP growth.

What about looking forward? As of March, Zenith, an agency that is part of Publicis Media and regularly publishes advertising forecasts, was expecting 5.0% growth in advertising spending in the United States in 2019.[8] By comparison, nominal GDP in the first quarter of 2019 rose by 5.1% compared to a year earlier.

AUSTRALIA

Australia has a very strong advertising economy, with ad spending per capita trailing only the United States and perhaps the United Kingdom.[9] Therefore, it is important to analyze the behavior of Australia's advertising economy.

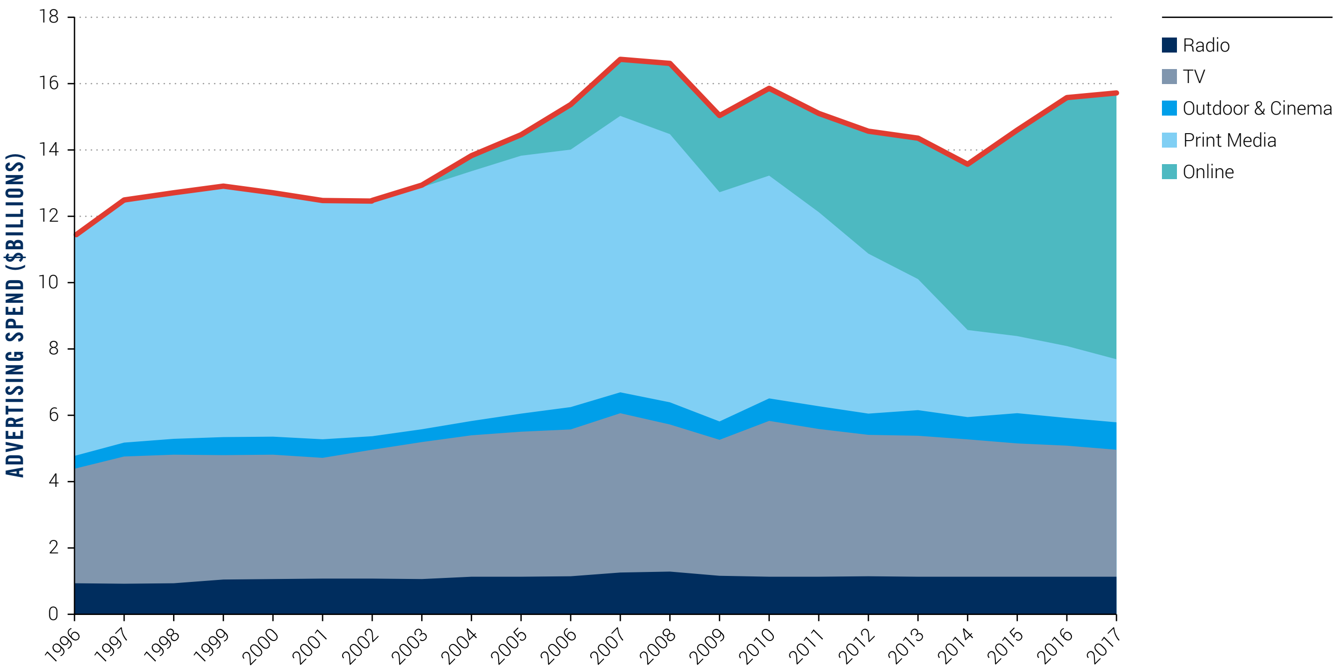
We take our advertising data directly from the ACCC report. Figure 2 below reproduces Figure 1.8 from page 33 of the ACCC report. The figure shows real advertising in 2017 Australian dollars.

Based on the ACCC's own figures, real advertising expenditures peak in 2007 at roughly A$16.5 billion, and then fell to below A$16 billion by 2017. Over the same period, real GDP in 2017 dollars went from A$1.4 trillion to A$1.8 trillion, a 29% increase.

In other words, real GDP rose substantially over the period 2007 to 2017, but real spending on advertising shrunk. If real advertising spending had risen at the same rate as real GDP, then advertising expenditures in 2017 would have been about A$5 billion higher.

This trend of falling or stable share of GDP is expected to continue in 2019, based on leading forecasters. In January 2019, Dentsu Aegis Network was predicting a 2.4% gain in Australian advertising spending in 2019, while Magna, part of the Interpublic Group, was forecasting a 3.8% gain. By comparison, the International Monetary Fund's latest economic outlook, released in April 2019, was forecasting a 4.3% increase in nominal Australian GDP in 2019.[10] The result? The fall in advertising as a share of GDP would continue.

FIGURE 2: ADVERTISING EXPENDITURE BY MAJOR ADVERTISING AGENCIES IN AUSTRALIA, ADJUSTED FOR INFLATION*



Note: Amounts adjusted to 2017 dollars.
Source: Commercial Economic Advisory Service of Australia, Advertising Expenditure in Main Media, 1996-2017, accessed 5 June 2018. ACCC Analysis
** This figure reproduces Figure 1.8 from page 33 of ACCC report.*

TABLE 1: MEDIA ADVERTISING AS PERCENTAGE OF GDP

	1991-2000	2010-2018	PERCENTAGE CHANGE
AUSTRALIA	1.22%	0.90%	**-26%**
FRANCE	0.77%	0.59%	**-23%**
GERMANY	0.89%	0.66%	**-26%**
UNITED STATES	1.28%	0.96%	**-25%**

Data: WARC, IMF, PPI

GLOBAL TRENDS

Table 1 shows the decline in advertising spending as a share of GDP for four countries: Australia, France, Germany, and the United States.[11] We compare the average of the 1990s (1991-2000) with the average of the recovery (2010-2018). In the first period, digital advertising is quite low or non-existent, and there is no mobile advertising at all. In the second period, world economies are already recovering from the Great Recession.

We see that each country starts from a different advertising base, but the size of the decline in percentage terms is about 25 percent. This may or may not be a coincidence but in the next section, we will use the size of the decline as an important input into estimates of declining prices for advertising.

A similar pattern of declining advertising share of GDP holds for China as well. GroupM, one of the world's largest advertising media companies, notes "China's advertising intensity peaked at 0.78% of GDP in 2006 and has trended down to a prospective 0.67% in 2019."[12]

And on a global scale, GroupM observes that advertising's share of global GDP peaked between 2004-2006 at 0.85%.[13] Going forward, Zenith expects global advertising expenditure to grow by 4.7% in 2019, compared to a 5.7% expected gain in global GDP.[14]

Now, it's important to remember that there are potential measurement issues. In particular, it is difficult to track the long tail of small advertisers.

ADVERTISING PRICES AND COMPETITION

If the advertising share of GDP is falling on a consistent basis, there are two possibilities: Either the "real" amount of ads per unit of GDP is dropping, or the price of advertising is dropping. Given the prevalence of advertisements in virtually every medium these days, it seems unlikely that the real intensity of advertising is falling in every country. Instead, it's much more probable that the average price of advertising is falling.

We will use data from the Producer Price program of the U.S. Bureau of Labor Statistics to assess both long-term and short-term changes in the price of advertising. All the usual caveats apply: Government price statistics often have a difficult time adjusting for changes in quality, and they can only sample a small fraction of potential products.

Nevertheless, the BLS has tracked the price of newspaper and periodical advertising in the United States since the early 1980s. As we can see from Figure 3, from 1982 to 2007, the BLS price indices for newspaper and periodical advertising almost quadrupled, while the overall core consumer price index only doubled. As a result, the real price of newspaper and periodical advertising increased by more than 60% over this period.[15]

Not all advertisers were equally affected by these price increases. The biggest advertisers could demand huge discounts and special deals in exchange for sustained advertising campaigns. However, small advertisers didn't have many alternatives, and they saw their costs skyrocket.

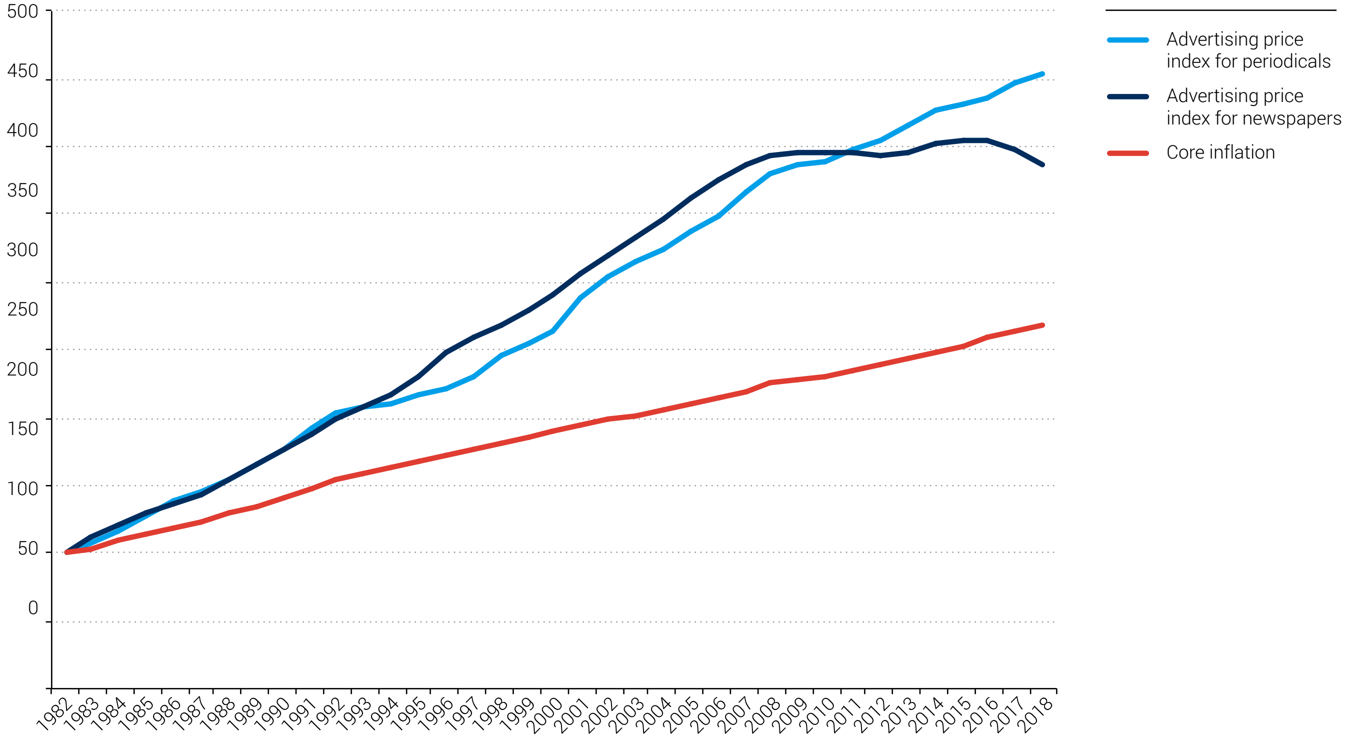
For example, compare the price of classified ads in the Washington Post in 1990 and 2000 (which is of course well before its purchase by Jeff Bezos). In 1990, the price of one line in an employment classified ad, placed one time in a daily edition of the Washington Post, was $6.70. By 2000, that same price had gone up to $11.06, a 65% increase. By comparison, the core consumer price index only rose by 34% over the same stretch.

There are three important points to note here. First, Craigslist, the leading online classified site, didn't expand to Washington, DC until August 2000.[16] Second, this 65% increase in the list price of employment classifieds matches the rise in the national BLS price index for newspaper advertising over this period. Third, the increase in newspaper advertising prices actually exceeded the 60% increase in the price of medical care over this period.

Indeed, the outsized increases in newspaper advertising prices—which continued through 2005—helped lift revenues and profits. For example, according to a report from the Pew Research Center, U.S. newspaper advertising revenues didn't peak until 2005-2006.[17] Indeed, despite the growing competition from Craigslist, newspaper classified ad revenue was still rising in 2005, probably because of price hikes.[18]

What about periodicals? The BLS data shows that periodical advertising prices continued to rise even after digital advertising became important. In 1993, People magazine was charging $103,000 for a full-page color advertisement, according to a USA Today article at the time.[19] Today, the list price for a full-page color ad in People is $403,000, which can include the digital edition as well.[20] Similarly, the price of a full-page color ad in Better Homes and Gardens went from $143,000 in 1993, according to the USA Today article, to $680,000 in 2018, far exceeding the overall rate of inflation.

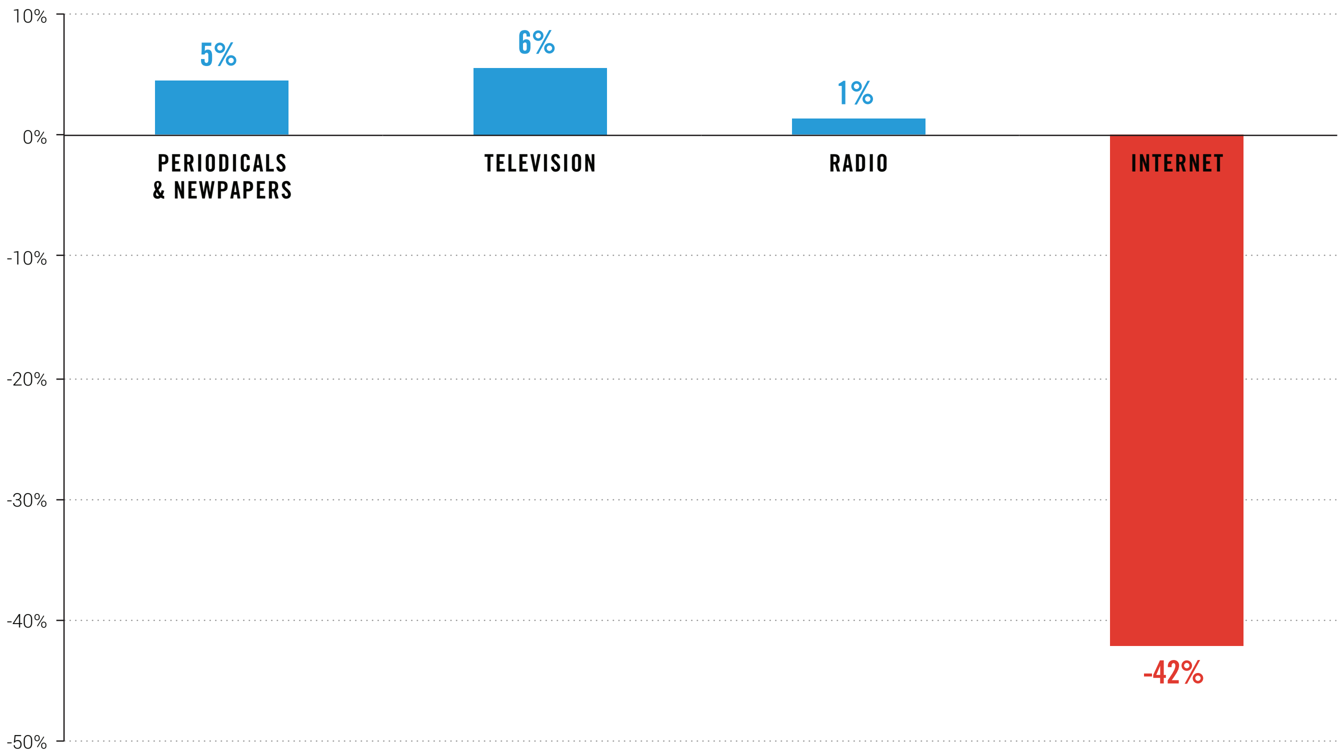
FIGURE 3: THE PRICE INDEX FOR PRINT ADVERTISING FAR OUTPACED INFLATION FOR MORE THAN 20 YEARS (1982=100)



Data: Bureau of Labor Statistics, PPI

Who was benefiting from these increases in print advertising prices? Certainly not advertisers or consumers. By contrast, data from the U.S. Bureau of Economic Analysis shows that value-added in the print industry—including newspapers, periodicals, books, and directories—peaked in 2005, and came close to another peak in 2007. Value added includes wages, profits, and other forms of capital income such as interest payments on debt.

FIGURE 4: INTERNET ADVERTISING GETS A LOT CHEAPER
PERCENTAGE CHANGE IN ADVERTISING PRICES, 2010-2019*



**based on first four months of 2019*
Data: BLS, PPI

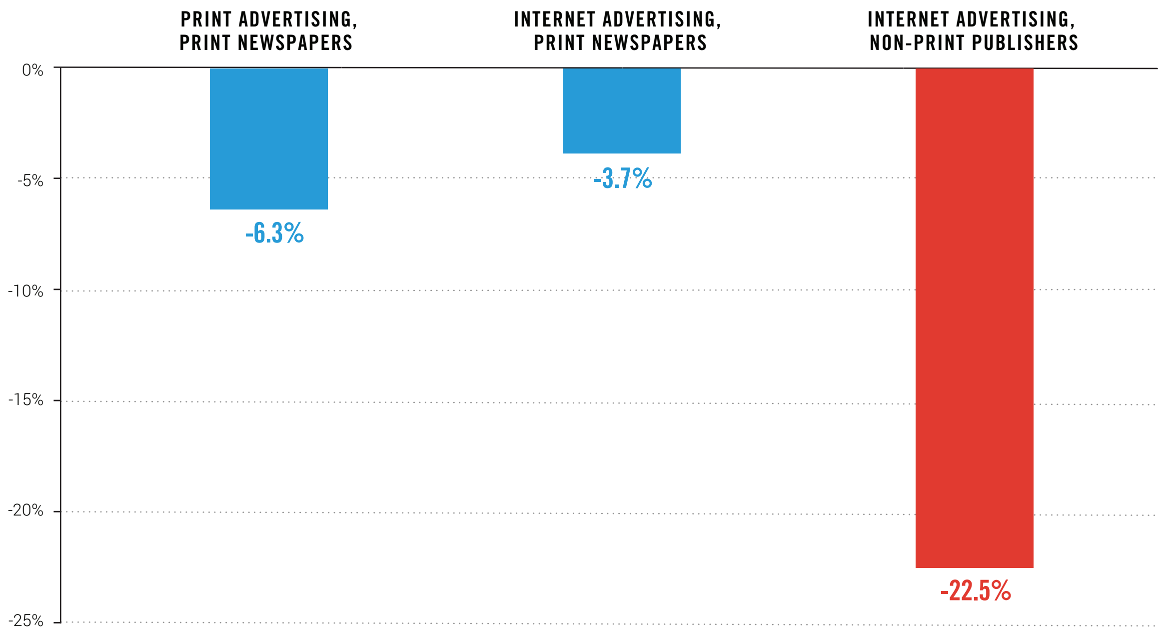
COMPARING PRINT AND DIGITAL

One important question is comparing the price trends of internet (digital) versus print advertising. As of 2010, the BLS started tracking the price of Internet (digital) advertising.[21] As Figure 4 shows, the price index for Internet advertising dropped by 42% from 2010 to 2019, while the price index for newspaper and periodical, television, and radio advertising either stayed flat or rose slightly.[22]

More recently, the BLS started to distinguish between print advertising sold by newspapers, digital advertising sold by newspapers, and digital advertising sold by digital platforms and non-print publishers. As Figure 5 shows, since 2016, the price of print advertising in U.S. newspapers is down 6%, based on the first four months of 2019. But the price of Internet advertising sold by digital platforms and other non-print publishers is down 23% over the same stretch.

Moreover, newspapers have become increasingly uncompetitive even in the digital realm. According to the BLS, the price of digital advertising sold by print newspapers has only declined by 4% since 2016.

FIGURE 5. PRINT NEWSPAPERS BECOME LESS COMPETITIVE IN DIGITAL ADVERTISING (PERCENTAGE CHANGE IN PRICES, 2016-2019*)



**based on first four months of 2019*
Data: BLS, PPI

So if we compare the advertising market of the 1990s with the advertising market since 2010, we see several important points:

- A sustained fall in advertising spending as a share of GDP, across the United States, Australia, and other countries.
- An implied drop in the average price of advertising, assuming that consumers are being exposed to as much advertising as before.
- An increase in the price of print advertising, as measured by the BLS.
- A decrease in the price of Internet advertising, as measured by the BLS.
- A decrease in print advertising spending as a share of GDP, and a rise in digital advertising spending as a share of GDP.
- Since 2016, the price of Internet advertising sold by print newspapers has dropped much less than the price of Internet advertising sold by digital platforms and non-print publishers.

The simplest explanation for all of these observations is that advertisers are finding that they can get a bigger bang for their buck by spending their money online rather than in print. Moreover, even in digital advertising, print newspapers are becoming increasingly uncompetitive, as they do not match the drops in the market price.

How can we quantify this comparison? The straightforward approach would be to look at the number of eyeballs (impressions) per print ad versus the number of eyeballs (impressions) per digital ad. But that's not a realistic calculation for two reasons. First, print is a persistent medium. As a result, the same newspaper or magazine can be read by multiple people—the difference between "circulation" and "readership." The multiplier is usually assumed to be 2.5, but some publications have claimed much higher. Second, it's very difficult in print to determine whether readers have actually looked at an advertisement.

Instead, we adopt an indirect approach, based on the observed behavior of advertisers across different countries. We first observe that advertising spending as a share of GDP is roughly 25% below its long-term average, as shown in Table 1. Or to put it another way, advertising spending would have to increase by 33% to get back to the long-term trend.

What has changed? In the classic language of economics, has there been a shift in the demand curve for advertising space, or a shift in the supply curve for advertising space/slots?

Now, there is no systematic evidence of a demand-side shift. Most companies have not suddenly become reluctant to advertise compared to the past (though there are some exceptions, as noted below). So the decline in advertising spending as a share of GDP is more likely to come from a supply-side change in the advertising market. In particular, the supply curve for advertising space/slots has shifted to the right, with the increasing supply of digital ads at a relatively low price compared to the price of "equally effective" print ads.

Let us make the assumption that spending by advertisers would, as a share of GDP, return back to its long-term trend if today's digital ads were replaced by equally effective print ads. As noted above, that would require a 33% increase in advertising spending. Since digital advertising spending is roughly about half of total media spending in the United States, the replacement print ads would have to cost about two-thirds more. That is, for every $3 that an advertiser currently spends on digital advertising, they would have to spend $5 on print advertising to get the same impact. To put it another way, digital ads are 40 percent cheaper than print ads of equivalent effectiveness.

This result should be viewed as a rough calculation. For one, if digital ads are really that much cheaper than print ads, advertisers might want to expand their purchases, even adjusting for price. The size of this effect depends on the elasticity of advertising demand with respect to the price of advertising. This effect would tend to lead to an underestimate of the price difference between digital and print ads.

On the other hand, businesses like hotels and restaurants may find that they get sufficient customers through digital platforms such as Hotels.com and Yelp that they need to advertise less in the media. In that case the commissions that get paid to the platform take the place of advertising. That could be a sizable amount. We should note, however, revenues in the "travel arrangement and reservation industry" are a smaller share of the economy today than they were in the late 1990s.

Finally, this stylized calculation also does not take into account the interaction between digital advertising and broadcast media such as radio and television. But it does give an idea of the magnitude of the differences in price between print and digital advertising.

POLICY IMPLICATIONS

The drop in advertising spending as a share of GDP is a powerful gain for advertisers, who are spending less to support a larger amount of production and consumption. Small businesses benefit from the lower entry costs of digital advertising. And its good news for consumers, since lower advertising costs mean lower prices for the products that they buy.

However, these positive trends for advertisers and consumers are not good news for news media companies, as traditionally structured. The legacy business models of journalism required oligopolistic pricing of advertising, which is never going to return. Before significant competition from online ads, newspapers effectively had oligopolistic power in their local markets. If a retailer wanted to run an ad to reach local customers, they had a limited number of options. That allowed print media to raise prices for advertising to keep profits high, even as circulation started to fall.

The rise of the Internet enabled the creation of digital ad channels that were much cheaper for the same effectiveness, thus lowering the deadweight loss of advertising on society.

The ACCC report seems to be suggesting that good journalism requires intervention by the government to protect the news industry from digital platforms. The real problem, though, is that the size of the advertising pie has shrunk because digital advertising is more effective and less expensive than print advertising. Moreover, advertisers can now attach their ads to streams of content that are not generated by the news media, including videos, user content, search and so on.

Thus, a new government agency charged with regulating digital advertising and protecting news and journalism organizations will inevitably adopt policies to raise digital advertising prices as the simplest way of achieving those ends. This will end up hurt consumers and advertisers.

Moreover, such an agency will only slow down innovation and the response of the news industry to changing economical and social realities. News media companies need to find not just a new business model, but a new journalistic model as well. People want verified information that they can trust, especially in the era of "deep fakes". Even esteemed journalistic organizations are currently not set up to deliver that sort of information, as shown by the recent scandal at *Der Spiegel*.[23] In that case an award-winning journalist at a respected publication repeatedly made up "facts" in stories in order to make them more appealing to his editors and readers.

How can journalism address these problems? Many news organizations are working to find innovative and sustainable business models online. For example, some news organizations are moving to a subscription model by using technology to pare costs and focus only on "non-commodity" news. This will greatly expand the variety of news available, rather than everyone reporting on the same big events.

Those particular recommendations in the preliminary ACCC report that are intended to protect existing news organizations from the likes of Google and Facebook will do nothing to fix these long-term problems. History suggests that a new regulatory authority will start by protecting existing news organizations. After all, that will be one of its key goals. Meanwhile journalistic innovators will have to navigate new bureaucracies to even offer their new products.

As a result, a new regulatory authority may have the effect of freezing the news industry in the past, rather than moving it into the future. That's not beneficial for the public good.

BIOGRAPHY
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Dr. Michael Mandel is chief economic strategist at the Progressive Policy Institute in Washington DC and senior fellow at the Mack Institute of Innovation Management at the Wharton School (UPenn). He was chief economist at BusinessWeek prior to its purchase by Bloomberg.

With experience spanning policy, academics, and business, Dr. Mandel has helped lead the public conversation about the economic and business impact of technology for the past two decades. Mandel's seminal analysis showing how ecommerce creates jobs and reduces inequality was featured by the Wall Street Journal, New York Times, Washington Post, Boston Globe, and Financial Times, among others. He recently wrote a report entitled "The Rise of the Internet of Goods: A New Perspective on the Digital Future for Manufacturers." He regularly writes about digital manufacturing for Forbes.com.

Dr. Mandel regularly engages with policymakers in Europe, Latin America, and Asia-Pacific on key issues such as privacy, tax policy, fiscal policy, regulation, and competition policy. His analysis of App Economy jobs covers the United States, the European Union, Mexico, Argentina, Brazil, Colombia, Japan, Vietnam, and Australia. He has studied the Australian tech sector in several papers.

Dr. Mandel started two businesses: South Mountain Economics LLC, a consulting firm focusing on emerging occupations and emerging industries; and Visible Economy LLC, which produced news and education videos for the college market. Dr. Mandel is the author of four books, including *The High Risk Society and Rational Exuberance: Silencing the Enemies of Growth and Why the Future Is Better Than You Think.* His essentials level economics textbook from McGraw-Hill, *Economics: The Basics,* is entering its fourth edition and widely used across the United States. Dr. Mandel received a PhD in economics from Harvard University, and taught at New York University's Stern School of Business.

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5 Johnson, Eric. "As newspapers shrink, the civic cost grows." Charlotte News & Observer, February 3, 2019. https://www.newsobserver.com/opinion/article225418885.html

6 The historical data on advertising spending on media as a share of GDP can be found here: http://www.galbithink.org/cs-ad-dataset.xls.

A broader measure of advertising spending, which includes non-media expenditures such as direct mail, follows the same pattern. This broader measure of adspend averages 2.1% of GDP between 1955 and 2000, with an annual low of 1.7% and a high of 2.5%.

A slightly different chart of advertising spending as a share of GDP, going back to the 1930s, which shows the same pattern can be found here:
https://www.spglobal.com/marketintelligence/en/news-insights/blog/advertising-market-growth-unable-to-keep-up-with-strong-gdp

7 https://adage.com/article/datacenter/100-lna-2001-ed-index/106432

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"Magna advertising forecasts (winter 2018 update)." December 2018. https://magnaglobal.com/magna-advertising-forecasts-winter-2018-update/

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12 "GroupM's 2019 ad forecast: $19 billion in new investment, 3.6% growth." December 2018. https://www.groupm.com/news/groupms-2019-ad-forecast-19-billion-new-investment-36-growth

13 "GroupM Forecast: 4.5% Global Ad Growth in 2018." June 2018. https://www.groupm.com/news/groupm-forecast-45-global-ad-growth-2018

14 https://www.zenithmedia.com/booming-internet-ads-power-faster-global-adspend-growth/

15 One peculiarity of this data is that the BLS tracks digital advertising sold by newspapers that have a print edition as part of newspaper advertising. By contrast, the digital advertising price index reflects companies that are purely digital. The implication is that the newspaper and periodical advertising price indices become less reliable as a pure indication of print advertising prices after 2007. However, in recent years, the BLS has started asking newspapers to report their print and digital advertising prices separately.

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https://www.journalism.org/fact-sheet/newspapers/

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https://money.cnn.com/magazines/fortune/fortune_archive/2005/12/12/8363113/index.htm

19 "Some magazines raise ad rates" USA Today, December 4, 1992.

20 https://static.people.com/media-kit/assets/peop2019_ratecard.pdf

21 The BLS asks companies to provide either data on average CPM or average CPC (price per click). In some instances actual transaction prices are provided.

22 As noted earlier, the Internet advertising price index only tracks advertising sold by companies that have no print edition. The newspaper and periodical category includes both print and digital advertising from companies that have a print edition.

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