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ABSTRACT

U.S. newspapers' digital experiment has been going on for more than two decades, with Christensen's disruptive technology thesis providing theoretical support for the industry's digital transformation process. Most newspapers expanded their digital offerings, erecting paywalls since 2011. However, little is known about local newspapers' paywall results. To extend media economics research on digital news consumption and to assess the influence and practicality of the disruption theory in the context of the newspaper business, this study systematically examines consumer demand for 50 major U.S. newspapers' multiplatform products through analyzing their circulation and pricing data. Results reveal that they charged digital subscribers a fraction of the print subscription price, but digital subscribership remained small, contributing only 3% of total reader revenue. Digital performance as weak as such raises concerns about the viability of digital subscriptions as a revenue source, provides support for the "online news as an inferior good" thesis, and calls for a reassessment of self-disruption as a practical strategy for newspaper firms.

Introduction

U.S. newspapers have been trying to transform themselves from print to digital for more than two decades, but most are struggling in this transformation process. Having experimented with advertising, subscription, and mixed models (Mings and White 2000), none brings in sufficient revenue to make up for the loss on the print side (Pickard and Williams 2014). However, acting upon the assumption that the future is online, major newspapers continue their digital transformation efforts despite difficulties in monetizing online content.

While most U.S. newspapers have expanded their product portfolio to include digital offerings of all sorts (Picard 2005; 2009), the lack of a working revenue model is a persistent problem (Myllylahti 2014). While most U.S. newspapers are now charging for digital news access (Williams 2016), paywall results as proprietary data are often

inaccessible. Thus, commentaries almost always rely on anecdotal information, and a systematic, industry-wide evaluation is lacking. Nonetheless, given a weakened industry and dwindled resources, an accurate understanding of consumer demand for digital news products is more important than ever. As an attempt to evaluate U.S. newspapers' digital subscription results, this study offers an empirical examination of 50 U.S. newspapers' digital circulation and pricing data.

Aside from professional relevance, this study serves two purposes on the theoretical front. The first, at the micro level, is to update and extend media economics research on consumer demand and willingness to pay for multiplatform news products. Previous studies explored news consumers' response to print versus digital content in terms of use, preference, and paying intent, identifying a gap between a newspaper's digital and legacy products, with the print edition outperforming its digital counterparts. Others explored the origin of the performance gap, indicating that online news is an inferior good, for which demand has a negative relationship with income (Chyi and Yang 2009). This "inferior good" thesis helped explain the difficulties news organizations encounter when charging users for online news access, as revealed in many paywall studies (Chyi 2012; Cook and Attari 2012; Kristensen and Solvoll 2019; Lichterman 2014; Myllylahti 2014). But it is not until recently that paywalls have become a common practice (Williams 2016), offering an opportunity to update and advance news consumption research.

At the macro level, this study evaluates the influence of Clayton M. Christensen's disruptive technology/innovation thesis (1997) in the context of the newspaper business. Through the Newspaper Next campaign launched in 2005, Christensen's consulting firm devised digital innovation plans for newspaper firms (American Press Institute 2006; Gray 2016). At the core of the campaign were two propositions: 1) print newspapers, disrupted by the Internet, may shrink into a boutique product, and 2) to survive, newspaper firms must think and act like disruptors (American Press Institute 2006). This narrative subsequently served as the theoretical foundation for strategies such as "digital first" (Paton 2010). Through examining consumer demand for multiplatform newspaper products, this study assesses the practicality of the disruptive innovation thesis.

In sum, through analyzing the top 50 U.S. newspapers' paywall results, this study serves three purposes: 1) to provide a systematic review on the performance of newspaper paywalls, which is the most comprehensive of its kind, 2) to renew and extend media economics research on news consumption and willingness to pay for online news after paywalls became an industry standard, and 3) to revisit the disruptive technology thesis and evaluate its practicality in the context of the newspaper business.

Digital Subscriptions: Professional and Theoretical Relevance

Viability of Digital Subscriptions as Revenue Source

Acting upon the assumption that "the future is online," the U.S. newspaper industry has taken a technology-driven strategy, expanding its digital offerings on multiple platforms and seeking digital revenue (Chyi 2013).

Up till 2011, the vast majority of U.S. newspapers gave their online content away for free, focusing on advertising revenue with very limited success. From 2007 to 2014, industry-wide digital advertising revenue increased only slightly from $3.2 billion to $3.5 billion (Pew Research Center 2015),[1] which was a fraction of total U.S. digital advertising spending (Interactive Advertising Bureau 2017).[2]

In 2011, *The Dallas Morning News* and *The New York Times* erected paywalls around their online content, and a large number of U.S. newspapers followed suit. By 2015, more than 450 newspapers in North America charged a subscription fee for at least part of their content online (News&Tech 2015)—77 of the 98 U.S. newspapers with total circulation of 50,000 or more did so (Williams 2016).

The prevalence of paywalls indicates a shift from the advertising model to "reader revenue." In recent years, with Google and Facebook dominating the online advertising market (Ingram 2017), and print advertising revenue declining continuously, the industry has lost faith in advertising as a viable revenue source (Doctor 2017a; Seale 2020), and major newspapers such as *The New York Times* have (re)focused on digital subscriptions (The New York Times 2017). A global survey of 200 digital leaders reported that most (52%) expected subscription to be their top priority in 2019 (Newman 2019).

Digital subscription as a revenue strategy has triggered several rounds of debates in U.S. newspapers' digital transformation process (Chyi 2012). Overall, readers' response to paywalls was rarely positive. But this time, *The New York Times* stands out as a high-profile case and has received substantial attention because its metered model has generated an unprecedented number of subscribers (The New York Times Company 2020). *The Wall Street Journal* also reported having nearly 1.3 million digital subscribers (News Corp 2018).

While media coverage often emphasizes paywall results achieved by national newspapers, the vast majority of U.S. newspapers are local news outlets. Anecdotal information suggests that local newspapers' paywall results are not nearly as impressive. For example, *The Los Angeles Times* claimed 105,000 digital subscribers in 2017, ranked No. One among all regional newspapers in the United States, followed by *The Boston Globe* (90,000), *Chicago Tribune* and *Star Tribune* (50,000 each). "For most of the local press, the numbers are far, far lower" (Doctor 2017b, para. 9). However, a systematic analysis of industry-wide data is not available.

Also noteworthy is the so-called "subscription surge," observed after the 2016 U.S. election (Newman et al. 2017). Stories such as "Trump Bump grows into subscription surge—and not just for the New York Times" (The Street, March 3, 2017), "Trump's victory has people signing up for news like crazy" (Fortune, March 7, 2017) seem to suggest the future of newspapers is online.

The Reuters Institute Digital News Report also documented the subscription surge from 2016 to 2017. About 16% of U.S. adults surveyed said they paid for online news in 2017, up from 9% in 2016. But the figure remains 16% in 2019, indicating a lack of growth. It has to be noted that these figures include those who pay for print newspapers but are granted digital news access for free[3] (Newman et al. 2019). Since print readers account for the vast majority of overall newspaper readership (Barthel 2016; Chyi and Tenenboim 2017), the methodology greatly inflates the percentage of news consumers willing to pay for digital news in a given market.

In sum, despite renewed interest in reader revenue, paywall data as a key indicator of user demand for newspapers' digital products are not readily accessible. Through presenting and analyzing 50 U.S. newspapers' paywall results, this study provides much needed information as the industry struggles through a critical stage of digital transformation.

Online News Consumption, Propensity to Pay, and Perceived Inferiority

Another purpose of this study is to update and extend scholarly research on digital news consumption. At the individual level, research on news consumers' response to digital news products has identified three distinct factors—format preference, use, and paying intent—each representing a unique dimension of online news consumption. For example, people do not always use what they prefer, and they are often unwilling to pay for what they use. A number of studies examined factors driving online news consumption in different contexts (Chyi 2012; De Waal, Schönbach, and Lauf 2005; De Waal and Schoenbach 2010; Goyanes 2014; Hargrove, Miller, and Stempel 2011; Kristensen and Solvoll 2019; Skogerbø and Winsvold 2011; Thurman 2014; 2018). In an effort to integrate previous research, Chyi and Lee (2013) developed a theoretical model using structural equation modeling, which depicts the interrelationships of key predictors of online news consumption. It was found that age, gender, news interest, preference, and online news use have direct impacts on paying intent, with age and news interest being the strongest predictors.

One thing made clear by this body of research is news consumers' lukewarm response to newspapers' digital offerings, which has not changed much despite that "it's hard to find a technology news organizations don't embrace" (Picard 2009). In contrast, the print edition outperforms digital offerings in usage (Chyi and Tenenboim 2017; Hargrove, Miller, and Stempel 2011), engagement (Thurman 2014; 2018), preference (Chyi 2012; De Waal, Schönbach, and Lauf 2005), emotional attachment (Chyi and Yang 2013), and paying intent (Chyi 2012)—all by a wide margin. In addition, a recent study revealed that major U.S. newspapers' seven-day home delivery price more than doubled from 2008 to 2016, yet demand remained inelastic in most cases (Chyi and Tenenboim 2019), suggesting that newspaper readers' attachment to the legacy product is stronger than expected. Therefore, news format, the "materiality" of media (Schrøder and Kobbernagel 2010), makes an enormous difference in terms of willingness to pay and price sensitivity.

Another line of research explored why news consumers find digital news not as engaging, less likable, less satisfying, and not worth paying for, despite a great many attributes defining this new way of news access—convenience, immediacy, interactivity, to name just a few. Seeking an explanation for users' negative perception of online news, Chyi and Yang (2009; 2013) tested the proposition that online news is an inferior good.

In microeconomics, the theory of goods distinguishes inferior goods from normal goods. When income increases, the demand for an inferior good decrease; when income decreases, the demand for an inferior good increase, other things being equal. Typical examples include ramen noodles, fast food, and bus travel—things people

consume more when income decreases. In contrast, the demand for a normal good is positively associated with income—an example would be a nice meal in a sit-in restaurant. Whether a good is an inferior or normal good is determined by the income elasticity of demand, which is the percentage change in quantity demanded divided by the percentage change in income, everything else held constant. When the income elasticity of demand is negative, the product is an inferior good (Hoskins, McFadyen, and Finn 2004).

Chyi and Yang (2009) analyzed Pew survey data and through regression analyses identified a negative relationship between income and online news use on the other-things-being-equal basis. In other words, online news is an inferior good among users. They also identified a positive relationship between income and print newspaper use, suggesting that online news and print newspapers coexist not as two normal goods but as a combination of an inferior and a normal good. Because people do not like inferior goods as much as they like normal goods, when their income rises, they purchase the more expensive alternatives that are normal goods. This provides an explanation for the print-online performance gap in paying intent, which would be difficult to interpret otherwise.

Since most of these studies were conducted in the pre-paywall era, it is important to reassess news consumers' response to digital news products now that paywalls have become an industry standard and reader revenue a new goal. Additionally, this study seeks to explore the relationship between a newspaper's digital and legacy products through analyzing major U.S. newspapers' circulation and pricing data.

Disruptive Technology, Death of Print, and the Prospect of a Digital Future

The third purpose of this study is to revisit Clayton M. Christensen's disruptive technology/innovation thesis (1997), which posits that incumbent companies are often threatened by disruptive innovations that emerge in new but insignificant markets by presenting a different set of attributes unavailable in existing products. Large companies tend to ignore them because the emerging products often only take up a small share of the market in early stages. However, managerial negligence almost always leads to failure in taking preventive measures against the invasion of disruptive products before they gain momentum and take over the market sweepingly.

In short, successful companies which do not take quick, determined actions will perish. The prophecy was so "scary," as suggested by Andrew S. Grove, former CEO of Intel, that it drew substantial attention and became one of the most influential scholarly works embraced by corporate managers (Danneels 2004; King and Baatartogtokh 2015; Tellis 2006).

While the U.S. newspaper industry started responding to the perceived opportunity and threat of the Internet through digitizing their products as early as in the mid-1990s, those efforts were described by Christensen's student Clark Gilbert as rigid and conservative (Silverthorne 2002).

In 2005, Christensen's consulting firm and the American Press Institute (API) launched a campaign, *Newspaper Next: The Transformation Project*. Guided by the disruptive technology theory, the campaign aimed to transform the newspaper industry

digitally. Newspaper publishers were advised to set up a separate digital company, allocate resources to digital operations, and break existing business models.

The launch of this transformation campaign was described with a Hollywood blockbuster analogy. In many of those movies, a scientist, more often than not in a lab coat, would alert the public of an impending disaster that is about to wipe out humanity (Ellis 2011). Christensen played a similar role when delivering such a warning to newspaper executives:

> A powerful wave of disruption is sweeping the newspaper industry, but it doesn't have to be a disaster. There are at least as many growth opportunities as threats, and companies that learn to think and act like disruptors can not only survive but prosper. The Newspaper Next approach gives them the tools they need (quoted in American Press Institute 2006, 2).

Similar narratives came from Clark Gilbert, a founding partner of Christensen's consulting firm:

> These are scary times for newspaper veterans. Hardly a day goes by without news about disappearing readers, shrinking revenues, declining stock prices, or looming layoffs. … The bad news is that when the dust of disruptive change settles, historically even the best-run companies typically end up in the loser's column (Anthony and Gilbert 2006).

Backed up by data showing quickened declines in print readership and advertising revenue (American Press Institute 2006; 2008), these warnings did not go unnoticed by an industry that was obsessed with the "death of print" narrative even in the 1990s when newspapers enjoyed sustained growth in advertising and circulation revenue (Picard and Brody 1997).

By late 2008, the project was halted because of the recession (Gray 2016), but the influence of Christensen's thesis was profound and long-lasting. Convinced that print media were on the verge of extinction, newspaper executives responded to the 2008 recession by cutting back on print and emphasizing digital. Many newspapers adopted the "digital first" strategy (Paton 2010), which led to massive layoffs and unprecedented turbulence in the newsroom (Nemanic 2020). Nearly 10 years later, the influence of the disruption thesis remained evident in *The New York Times'* 2014 *Innovation Report*, which includes "a lengthy, glowing summary" of Christensen's arguments (Lepore 2014, para. 6):

> Disruption is a predictable pattern across many industries in which fledgling companies use new technology to offer cheaper and inferior alternatives to products sold by established players (think Toyota taking on Detroit decades ago). Today, a pack of news startups are hoping to "disrupt" our industry by attacking the strongest incumbent—The New York Times.

While few considered this campaign successful, the newspaper industry did attempt to disrupt itself, and the efforts continued long after the campaign was over. But the disruption thesis has been subject to little criticism (Lepore 2014), and very few questioned its applicability in the newspaper business. Given the influence of this theory in the newspaper industry, this study seeks to assess its practicality through analyzing major U.S. newspapers' digital and print circulation data, which may shed light on the "death of print" narrative and the prospect of a digital future for newspapers.

Research Questions

This study seeks to achieve three unique yet interdependent goals. Through systematically examining major newspapers' digital circulation and pricing data, this study fulfills the first goal of evaluating the industry's paywall results, which, at the same time, updates and extends existing research on digital news consumption at the micro level (the second goal). At the macro level, an evaluation of paywall results and an up-to-date understanding of news consumers' propensity to pay for digital news would help evaluate the practicality of the disruption theory in the context of the newspaper business (the third goal).

The first goal is to provide a systematic review on newspaper paywall results. To fulfill this goal, this study presents the top 50 U.S. newspapers' digital and print circulation data, addressing the following research question:

RQ1: What is the level of digital circulation for the top 50 U.S. newspapers? How does it compare with the same newspaper's print circulation?

The second goal is to update and extend media economics research on news consumption and willingness to pay for multiplatform newspaper products. With RQ1 addressing the size of the subscriber base, RQs 2-3 examine the price of subscriptions, which reflects the amount digital subscribers are willing and able to pay for the product:

RQ2: What is the price for digital subscriptions? How does it compare with the same newspaper's price for print subscriptions?

RQ3: To what extent do newspapers use introductory discounts to acquire new digital subscribers?

Additionally, drawing on previous research, this study seeks to explore factors that might have an impact on digital circulation. Price is one plausible factor. In addition, since print and digital newspapers are related goods, the price of the print edition could have an influence on the demand of the digital edition. Also relevant is print circulation, as previous studies identified a positive relationship between print circulation and traffic to newspaper sites (Chyi 2011; Chyi and Sylvie 2001; Sylvie and Chyi 2007). Finally, the size of the newspaper market is examined because newspaper consumption historically varies by geography-related factors (Tillinghast 1981). Taken together, this study seeks to explore the plausible influence of these factors (price, price of print subscriptions, print circulation, and size of the market) on digital circulation, addressing the following research question:

RQ4: What factors are associated with a newspaper's digital circulation?

The third goal of this study is to evaluate the influence and the practicality of the disruptive technology thesis in the newspaper business. Specifically, this study examines the extent to which current industry data validate or invalidate the "death of print" narrative and the prospect of a digital future for newspapers. An empirical analysis on user demand for major newspapers' product offerings (addressed by RQs 1-4) serves this purpose. In addition, since a digital future hinges on digital revenue, this study seeks to estimate the extent to which digital subscriptions contribute to overall reader revenue, addressing the following research question:

RQ5: To what extent do digital subscriptions contribute to overall reader revenue? How does digital subscription revenue compare with the same newspaper's print subscription revenue?

Method

Sample

The analysis includes 50 daily newspapers widely circulated in the U.S. Drawing on Pew Research Center's methodology, the sample consists of the top 49 U.S. newspapers by average Sunday circulation for Q3 2015 and Q3 2016, with the addition of *The Wall Street Journal,* which does not publish on Sundays. These are the same 50 publications featured in the "Newspaper Factsheet" in the 2016 State of the News Media Report (Pew Research Center 2017). The sample includes four national newspapers (*The Wall Street Journal, USA Today, The New York Times,* and *The Washington Post*) as well as 46 metro newspapers operating in 28 states.

Data Collection

Each newspaper's digital and print circulation, subscription prices, and market size were collected from the audit reports filed for the Alliance for Audited Media (AAM, formerly ABC, the Audit Bureau of Circulations).[4] Each audit report contains circulation figures, subscription and single-copy prices, among others. For most of the newspapers under study, data were retrieved from their 2017 audit reports. If the 2017 report was not available, data were retrieved from the 2016 or 2018 report.

To document introductory offers for potential subscribers, the researchers visited each newspaper's website and collected promotional subscription prices in September 2017.

Variables and Measures

Circulation. AAM reports circulation in paid and non-paid categories. Since the focus of this study is the number of paying subscribers, the analysis focuses on paid circulation.

"Total Average Paid Circulation" data (including individually paid circulation and business/traveler paid circulation) for weekdays (average Monday-Friday) were retrieved in three product categories:

1. Print, defined by AAM as "the traditional hard copy of the newspaper."
2. Digital Replica, defined by AAM as "the exact replica of the newspaper's print edition in a digital format," including layout, editorial, and advertising content. Examples are PDFs or e-reader versions.
3. Digital Nonreplica, defined by AAM as "a digital edition that is consistent in character and editorial content with the print edition. Advertising may differ." Examples include "a newspaper's restricted-access website, an app where readers

must have a paid subscription to view articles," or the e-reader version without advertising (Alliance for Audited Media 2018; 2019).

Subscription Price

Subscription price is the yearly basic price (based on 52 weeks) for home delivery print, digital replica, and digital nonreplica editions listed in the AAM audit reports.

Promotional Price

Promotional price is the discounted introductory price for the "unlimited digital access" package, offered to potential subscribers on these newspapers' websites. "Unlimited digital access" usually includes access to their websites, mobile device apps, digital-edition replicas, and in some cases (e.g. *The Arkansas Democrat-Gazette, New York Daily News,* and *New York Post*) the e-reader edition for the Kindle.

Market Size

Market size is the population residing in each newspaper's DMA,[5] estimated by the information provided by Nielsen Scarborough in the audit report.

Data Analysis

Circulation, subscription price, and promotional price (RQs 1-3) were analyzed with descriptive statistics. To compare digital and print in terms of circulation and pricing (RQs 1-2), ratio analyses were conducted. Bi-variate Pearson correlation analyses explored the relationship between digital circulation, price, print circulation, print price, and market size (RQ4). Subscription revenue (RQ5) was estimated by multiplying circulation and subscription price.

To account for the influence of statistical outliers, the analysis presents the median when reporting the average value of key variables, but the mean and standard deviation are also reported in the tables.

Results

RQ1 concerns the level of digital circulation. Table 1 presents the results. Among the 50 newspapers under study, 39 provided digital nonreplica (Web edition/app/e-reader without ad) circulation data, which ranged from 89 (*The Hartford Courant*) to 94,593 (*The Boston Globe*). The median was 5,556. It is noted that paywall pioneers such as *The Wall Street Journal, The Dallas Morning News,* and *The New York Times*, did not provide digital circulation data in their audit reports.

A total of 47 newspapers provided digital replica (PDF/e-reader edition) circulation data, which ranged from 9 (*The Jersey Journal*) to 186,478 (*Chicago Tribune*). The median was 5,696. *Chicago Tribune* was a statistical outlier; further investigation revealed that its 2016 digital replica circulation was 82,964, and the Q1 2018 figure was 48,894.

Overall, (median) digital circulation—5,556 for nonreplica and 5,696 for replica—was underwhelming.

Table 1. Circulation and price: Digital nonreplica, digital replica, and print.

State	Newspaper	Paid circulation					Subscription price				
		Digital nonreplica (1)	Digital replica (2)	Print (3)	Ratio (1)/(3)	Ratio (2)/(3)	Digital nonreplica (1)	Digital replica (2)	Print (3)	Ratio (1)/(3)	Ratio (2)/(3)
	The New York Times		1,280	513,776		0.2%		$260	$1,014		25.6%
	The Wall Street Journal			1,111,167					$525		
	USA Today	5,447[a]	7,679	796,767	0.7%	1.0%	$144	$99	$300	48.0%	33.0%
	The Washington Post	9,066[a]	619	286,481	3.2%	0.2%	$144	$100	$637	22.6%	15.6%
AR	Arkansas Democrat-Gazette		5,771	98,469		5.9%		$406	$406		100.0%
AZ	The Arizona Republic	10,384	6,155	142,354	7.3%	4.3%	$120	$120	$510	23.5%	23.5%
CA	Los Angeles Times	42,985	43,527	296,572	14.5%	14.7%		$259	$780		33.3%
CA	The Mercury News	519[a]	30,743	72,498	0.7%	42.4%	$72	$130	$465	15.4%	27.9%
CA	The Orange County Register		2,216	107,679		2.1%		$520	$520		100.0%
CA	The Sacramento Bee	6,618	11,506	104,486	6.3%	11.0%	$100	$100	$999	10.0%	10.0%
CA	The San Diego Union-Tribune	202[b]	18,414	106,775	0.2%	17.2%		$181	$289		62.9%
CA	San Francisco Chronicle	25,662	2,959	106,548	24.1%	2.8%	$72	$99	$694	10.4%	14.3%
CO	The Denver Post	2,557	17,716	105,553	2.4%	16.8%	$72	$165	$754	9.5%	21.9%
CT	The Hartford Courant	89[a]	9	66,282	0.1%	0.0%	$311	$311	$831	37.5%	37.5%
FL	The Miami Herald	6,144	5,493	100,991	6.1%	5.4%	$120	$100	$684	17.5%	14.6%
FL	South Florida Sun-Sentinel	4,788	6,819	70,389	6.8%	9.7%	$51	$51	$468	11.0%	11.0%
FL	Orlando Sentinel	7,225		69,968	10.3%		$207	$207	$675	30.7%	30.7%
IA	The Des Moines Register	6,983	4,535	60,249	11.6%	7.5%	$120	$120	$876	13.7%	13.7%
IL	Chicago Tribune	2,083[a]	186,478	224,910	0.9%	82.9%	$180	$180	$727	24.7%	24.7%
IN	The Indianapolis Star	10,424	5,542	82,125	12.7%	6.7%	$156	$156	$702	22.2%	22.2%
KS	The Kansas City Star	1,819	11,141	85,996	2.1%	13.0%	$142	$142	$1,040	13.7%	13.7%
KY	The Courier-Journal	6,020	5,211	76,330	7.9%	6.8%	$156	$156	$492	31.7%	31.7%
MA	The Boston Globe	94,593	2,385	116,992	80.9%	2.0%	$360	$360	$1,347	26.8%	26.7%
MD	The Baltimore Sun	11,776	16	63,826	18.5%	0.0%	$259	$130	$657	39.5%	19.8%
MI	Detroit Free Press	1,120[a]	8,945	167,598	0.7%	5.3%	$144	$144	$288	50.0%	50.0%
MN	Star Tribune	69,364	28,569	156,777	44.2%	18.2%	$197	$129	$410	48.0%	31.6%
MN	Twin Cities Pioneer Press		31,742	82,664		38.4%		$148	$422		35.1%
MO	St. Louis Post-Dispatch		887	91,794		1.0%		$162	$449		36.1%
NC	The Charlotte Observer	3,510	2,674	67,441	5.2%	4.0%		$100	$1,040		9.6%
NJ	The Jersey Journal		9	8,375		0.1%		$240	$296		80.9%
NJ	The Record	197	119	72,353	0.3%	0.2%	$168	$168	$939	17.9%	17.9%
NY	The Buffalo News	45,576	884	95,151	47.9%	0.9%	$168	$168	$273	61.5%	61.5%
NY	Newsday	6,778	736	179,892	3.8%	0.4%		$337	$1,039		32.5%
NY	New York Daily News	5,556[a]	11,216	183,805	3.0%	6.1%	$29	$25	$390	7.4%	6.5%
NY	New York Post	2,524[c]	36,704	214,670	1.2%	17.1%	$100	$99	$389	25.7%	25.4%

(continued)

Table 1. Continued.

State	Newspaper	Paid circulation					Subscription price				
		Digital nonreplica (1)	Digital replica (2)	Print (3)	Ratio (1)/(3)	Ratio (2)/(3)	Digital nonreplica (1)	Digital replica (2)	Print (3)	Ratio (1)/(3)	Ratio (2)/(3)
OH	Cincinnati Enquirer	9,834	5,705	64,373	15.3%	8.9%	$120	$120	$754	15.9%	15.9%
OH	The Plain Dealer	540[a]	1,942	123,176	0.4%	1.6%	$242	$242	$447	54.1%	54.1%
OH	The Columbus Dispatch		13,901	77,942		17.8%		$348	$519		67.0%
OR	The Oregonian	582[a]	1,549	96,333	0.6%	1.6%	$108	$240	$432	25.0%	55.6%
PA	Pittsburgh Post-Gazette	5,491	9,526	88,064	6.2%	10.8%		$36	$325		11.2%
PA	The Philadelphia Inquirer	1,533[c]	4,201	125,182	1.2%	3.4%	$120	$335	$619	19.4%	54.1%
PR	El Nuevo Dia		17,674	137,020		12.9%		$125	$273		45.8%
TX	Houston Chronicle	10,974	29,449	131,857	8.3%	22.3%	$60	$260	$728	8.2%	35.7%
TX	The Dallas Morning News		86,680	113,955		76.1%		$360	$779		46.2%
TX	San Antonio Express-News	4,660	8,274	59,098	7.9%	14.0%	$182	$182	$546	33.3%	33.3%
TX	Fort Worth Star-Telegram	908	4,955	61,650	1.5%	8.0%	$100	$100	$1,040	9.6%	9.6%
UT	Deseret News										
VA	The Virginian-Pilot	2,022	3,400	83,475	2.4%	4.1%	$120	$120	$240	50.0%	50.0%
WA	The Seattle Times	27,429	303	129,845	21.1%	0.2%	$207	$207	$546	38.0%	38.0%
WI	Milwaukee Journal Sentinel	9,653	5,696	97,909	9.9%	5.8%	$122	$122	$864	14.1%	14.1%
Median		**5,556**	**5,696**	**100,991**	**6.1%**	**5.9%**	**$132**	**$156**	**$546**	**23.1%**	**31.1%**
Mean		11,888	14,722	154,645	10.2%	11.3%	$146	$185	$621	26.1%	34%
(SD)		(19,717)	(29,927)	(187,456)			(71)	(103)	(261)		
Count (N)		39	47	49	39	47	34	48	49	34	48

Digital nonreplica: Web/app/e-readers without advertising.
Digital replica: PDF/e-reader editions.
Print: Weekday paid circulation.
[a]This includes "e-readers without advertising" only.
[b]This includes "tablet" only.
[c]This includes "e-readers without advertising" and "tablet" only.

The following analysis emphasizes digital nonreplica circulation because Web and app editions (as opposed to the PDF edition) are the focus of most newspapers' digital strategy.

Regarding how digital circulation compares with the same newspaper's print circulation. Table 1 presents each newspaper's print circulation, which ranged from 8,375 (*The Jersey Journal*) to 1,111,167 (*The Wall Street Journal*). The median was 100,991.

Among the 39 newspapers with data for both print and digital nonreplica circulations, without a single exception, print circulation exceeded digital circulation. Additionally, in the vast majority of these 39 cases, digital subscribers represented a tiny, often negligible portion of overall circulation. Overall, digital nonreplica circulation was only 6.1% of print circulation. One exception was *The Boston Globe*—its nonreplica digital circulation was about 80% of its print circulation. Table 1 presents the ratio of digital nonreplica circulation to print circulation for each of the 39 newspapers.

RQ2 concerns the price of digital subscriptions. Table 1 presents each newspaper's digital subscription price.

Digital nonreplica subscription price ranged from $29 (*New York Daily News*) to $360 (*The Boston Globe*) per year. The median was $132.

Digital replica price ranged from $25 (*New York Daily News*) to $520 (*The Orange County Register*). The median was $156.

Regarding how the price for digital subscriptions compares with the same newspaper's price for print subscriptions. Table 1 presents the results. The price of an annual print subscription ranged from $240 (*The Virginian-Pilot*) to a whopping $1,374 (*The Boston Globe*). The median was $546.

Among the 34 newspapers with pricing information for both print and digital nonreplica subscriptions, without a single exception, a print subscription cost more than a digital nonreplica subscription. Ratio analyses revealed that, overall, one digital nonreplica subscription generated less than a quarter (median = 23%) of the revenue generated from one print subscription. In other words, it takes more than four digital nonreplica subscribers (at the median price of $132) to generate as much income from one print subscriber (at the median price of $546).

RQ3 asks to what extent these newspapers use introductory discounts to acquire new digital subscribers. Table 2 presents these newspapers' promotional price and the length of the promotional period. Among the 50 newspapers under study, 33 offered a discounted price for digital subscriptions for 4 (*n* = 23), 8 (*n* = 2), 12 (*n* = 6), or 16 weeks (*n* = 1)—with the exception of *The New York Times*, which offered a year-long promotion. The introductory price ranged from as low as $0.06 (*The San Diego Union-Tribune*[6]) to $6 per week (*The Oregonian*). Deep discounts were the norm, with the median at $0.25 per week. Several newspapers offered promotional rates as low as $0.08 per week (e.g. *Los Angeles Times, The Hartford Courant, South Florida Sun-Sentinel, Chicago Tribune,* and *The Baltimore Sun*).

It was observed that most of these newspapers, on their websites, presented subscription offers in weekly (as opposed to monthly or yearly) terms to make the deal look more affordable. In addition, many sites emphasized "cancel anytime" as a way to alleviate the sense of commitment that may prevent potential consumers from signing up for a subscription.

RQ4 asks what factors (price, price of print subscriptions, print circulation, and size of the market) are associated with a newspaper's digital circulation. Table 3 presents

Table 2. Promotional price for digital subscriptions.

State	Newspaper	Price (per week)	# of weeks
	The New York Times	$2.00	52
	The Wall Street Journal	$1.00	12
	USA Today		
	The Washington Post	$0.25	4
AR	Arkansas Democrat-Gazette		
AZ	The Arizona Republic	$0.25	4
CA	Los Angeles Times	$0.08	12
CA	The Mercury News	$0.25	4
CA	The Orange County Register		
CA	The Sacramento Bee	$0.50	4
CA	The San Diego Union-Tribune	$0.06	16
CA	San Francisco Chronicle	$0.25	4
CO	The Denver Post		
CT	The Hartford Courant	$0.08	12
FL	The Miami Herald	$0.50	4
FL	Orlando Sentinel		
FL	South Florida Sun-Sentinel	$0.08	12
IA	The Des Moines Register	$0.25	4
IL	Chicago Tribune	$0.08	12
IN	The Indianapolis Star	$0.25	4
KS	The Kansas City Star	$0.50	4
KY	The Courier-Journal	$0.50	4
MA	The Boston Globe	$0.99	4
MD	The Baltimore Sun	$0.08	12
MI	Detroit Free Press	$0.25	4
MN	Star Tribune	$0.25	4
MN	Twin Cities Pioneer Press		
MO	St. Louis Post-Dispatch		
NC	The Charlotte Observer	$0.50	4
NJ	The Jersey Journal		
NJ	The Record		
NY	The Buffalo News	$1.50	4
NY	Newsday	$0.25	4
NY	New York Daily News		
NY	New York Post		
OH	Cincinnati Enquirer	$0.25	4
OH	The Plain Dealer	$3.50	8
OH	The Columbus Dispatch		
OR	The Oregonian	$6.00	8
PA	Pittsburgh Post-Gazette		
PA	The Philadelphia Inquirer	$0.25	4
PR	El Nuevo Dia	$0.99	4
TX	Houston Chronicle		
TX	The Dallas Morning News		
TX	San Antonio Express-News	$0.99	4
TX	Fort Worth Star-Telegram	$0.50	4
UT	Deseret News		
VA	The Virginian-Pilot		
WA	The Seattle Times	$0.25	4
WI	Milwaukee Journal Sentinel	$0.25	4
Median		**$0.25**	**4**
Mean		$0.72	7.52
SD		$1.17	8.76
Count (N)		33	

Source: Each newspaper's website, September, 2017.

the results of the bivariate correlation analysis. Digital nonreplica circulation is positively related to price ($r = .648$, $p < .001$), suggesting that the higher the price, the more digital subscribers. Additionally, the positive relationship between digital and

Table 3. Correlations between digital nonreplica circulation and plausible predictors.

	Digital nonreplica circulation	Digital nonreplica price	Print price	Print circulation	Market size
Digital nonreplica circulation	—	.648*** (23)	.087 (27)	.439* (27)	.106 (25)
Digital nonreplica price		—	.220 (23)	.048 (23)	.040 (22)
Print price			—	.028 (37)	.258 (32)
Print circulation				—	.537** (32)
Market size					—

Note. Cell entries are Pearson's *r* and *n*.
*$p < .05$ (2-tailed). **$p < .01$ (2-tailed). ***$p < .001$ (2-tailed).

print circulation ($r = .439$, $p < .05$) suggests that a strong print subscribership contributes to the same newspaper's digital subscribership.

RQ5 asks to what extent digital subscriptions contribute to overall reader revenue. Table 4 presents the results. Among the 33 newspapers with circulation and pricing data for all three editions (digital nonreplica, digital replica, and print), digital nonreplica revenue as a percentage of total subscription (or reader) revenue ranged from 0.05% (*The Record*) to 22.7% (*The Buffalo News*). The median was 0.7%. Digital combined (including both nonreplica and replica) revenue as a percentage of total subscription (or reader) revenue ranged from 0.1% (*The Hartford Courant*) to 23.1% (*The Buffalo News*). The median was 2.8%, which means the print edition generated 97.2% of total reader revenue. The print-digital revenue gap is deep and wide.

Additionally, it was observed that all but three newspapers (*The Dallas Morning News*, *Deseret News*, and *The New York Post*) offered print subscribers free access to digital content, but not vice versa, indicating an industry-wide effort to encourage readers to switch from print to digital.

Discussion

Through empirically examining the top 50 U.S. newspapers' circulation and pricing data, this study presents the following results:

First and foremost, these newspapers' digital subscribership was, in most cases, underwhelming. On average, only 5,556 subscribers paid for these major newspapers' digital nonreplica edition, which was only 6.1% of their print circulation. Even with digital replica subscribers (5,696), total digital circulation was only 12% of print circulation. (Note that print circulation has been declining for decades.)

Taking price into account, digital nonreplica subscriptions were sold at 23% of the price for a print subscription. Introductory discounts were as deep as 25 cents a week. Both suggest that newspaper publishers had difficulties charging digital subscribers a decent price. With a price so low and a subscribership so small, digital subscriptions contributed only 3% (median = 2.8%) of total reader revenue.

These findings fulfilled the three goals defined at the onset of the study, and their significance will be discussed in that order.

Digital Subscriptions as a Revenue Source

As acknowledged earlier, U.S. newspapers' emphasis on reader revenue originates from the dramatic declines in print advertising revenue and their lack of

Table 4. Estimated subscription revenue.

State	Newspaper	Subscription revenue				% of Total Revenue		
		Digital nonreplica (1)	Digital replica (2)	Print (3)	Total (4)	Digital nonreplica (1)/(4)	Digital combined [(1)+(2)] /(4)	Print (3)/(4)
	The New York Times		$332,634	$520,968,864				
	The Wall Street Journal			$583,362,675				
	USA Today	$783,714[a]	$760,221	$239,030,100	$240,574,035	0.3%	0.6%	99.4%
	The Washington Post	$1,304,416[a]	$61,591	$182,488,397	$183,854,404	0.7%	0.7%	99.3%
AR	Arkansas Democrat-Gazette		$2,343,026	$39,978,414				
AZ	The Arizona Republic	$1,244,834	$737,861	$72,543,598	$74,526,294	1.7%	2.7%	97.3%
CA	Los Angeles Times		$11,294,386	$231,326,160				
CA	The Mercury News	$37,306[a]	$3,996,590	$33,740,569	$37,774,465	0.1%	10.7%	89.3%
CA	The Orange County Register		$1,152,320	$55,993,080				
CA	The Sacramento Bee	$661,469	$1,150,025	$104,373,155	$106,184,649	0.6%	1.7%	98.3%
CA	The San Diego Union-Tribune		$3,341,773	$30,815,265				
CA	San Francisco Chronicle	$1,844,585	$292,941	$73,965,622	$76,103,147	2.4%	2.8%	97.2%
CO	The Denver Post	$183,797	$2,923,140	$79,586,962	$82,693,899	0.2%	3.8%	96.2%
CT	The Hartford Courant	$27,722[a]	$2,803	$55,112,157	$55,142,682	0.1%	0.06%	99.9%
FL	The Miami Herald	$736,543	$549,025	$69,094,003	$70,379,571	1.0%	1.8%	98.2%
FL	South Florida Sun-Sentinel	$246,486	$351,042	$32,942,052	$33,539,580	0.7%	1.8%	98.2%
FL	Orlando Sentinel	$1,499,043		$47,261,985				
IA	The Des Moines Register	$838,030	$544,245	$52,778,124	$54,160,399	1.5%	2.6%	97.4%
IL	Chicago Tribune	$374,690[a]	$33,543,663	$163,617,527	$197,535,879	0.2%	17.2%	82.8%
IN	The Indianapolis Star	$1,626,144	$864,552	$57,661,605	$60,152,301	2.7%	4.1%	95.9%
KS	The Kansas City Star	$259,117	$1,587,035	$89,435,840	$91,281,992	0.3%	2.0%	98.0%
KY	The Courier-Journal	$939,120	$812,916	$37,554,360	$39,306,396	2.4%	4.5%	95.5%
MA	The Boston Globe	$34,087,533	$858,314	$157,564,826	$192,510,673	17.7%	18.2%	81.8%
MD	The Baltimore Sun	$3,055,636	$2,080	$41,943,256	$45,000,972	6.8%	6.8%	93.2%
MI	Detroit Free Press	$161,280[a]	$1,288,080	$48,268,224	$49,717,584	0.3%	2.9%	97.1%
MN	Star Tribune	$13,670,257	$3,699,114	$64,322,468	$81,691,839	16.7%	21.3%	78.7%
MN	Twin Cities Pioneer Press		$4,704,164	$34,904,047				
MO	St. Louis Post-Dispatch		$143,694	$41,241,208				
NC	The Charlotte Observer		$267,266	$70,138,640				
NJ	The Jersey Journal		$2,159	$2,482,350				
NJ	The Record	$33,096	$19,992	$67,956,832	$68,009,920	0.05%	0.1%	99.9%
NY	The Buffalo News	$7,656,768	$148,512	$25,976,223	$33,781,503	22.7%	23.1%	76.9%
NY	Newsday		$248,385	$186,994,136				
NY	New York Daily News	$161,124[a]	$285,784	$71,683,950	$72,130,858	0.2%	0.6%	99.4%
NY	New York Post	$252,375[c]	$3,633,696	$83,609,672	$87,495,742	0.3%	4.4%	95.6%

(continued)

Table 4. Continued.

State	Newspaper	Subscription revenue				% of Total Revenue		
		Digital nonreplica (1)	Digital replica (2)	Print (3)	Total (4)	Digital nonreplica (1)/(4)	Digital combined [(1)+(2)] /(4)	Print (3)/(4)
OH	Cincinnati Enquirer	$1,180,080	$684,600	$48,550,117	$50,414,797	2.3%	3.7%	96.3%
OH	The Plain Dealer	$130,572[a]	$469,576	$55,084,307	$55,684,455	0.2%	1.1%	98.9%
OH	The Columbus Dispatch		$4,835,880	$40,489,310				
OR	The Oregonian	$62,786[a]	$371,574	$41,577,323	$42,011,683	0.1%	1.0%	99.0%
PA	Pittsburgh Post-Gazette		$346,746	$28,620,800				
PA	The Philadelphia Inquirer	$183,776[c]	$1,406,831	$77,462,622	$79,053,229	0.2%	2.0%	98.0%
PR	El Nuevo Dia		$2,209,250	$37,406,460				
TX	Houston Chronicle	$658,330	$7,656,740	$95,991,896	$104,306,966	0.6%	8.0%	92.0%
TX	The Dallas Morning News		$31,194,398	$88,825,643				
TX	San Antonio Express-News	$848,120	$1,505,868	$32,267,508	$34,621,496	2.4%	6.8%	93.2%
TX	Fort Worth Star-Telegram	$90,755	$495,252	$64,116,000	$64,702,007	0.1%	0.9%	99.1%
UT	Deseret News							
VA	The Virginian-Pilot	$242,640	$408,000	$20,023,983	$20,674,623	1.2%	3.1%	96.9%
WA	The Seattle Times	$5,690,969	$62,866	$70,895,370	$76,649,205	7.4%	7.5%	92.5%
WI	Milwaukee Journal Sentinel	$1,179,597	$696,051	$84,593,376	$86,469,024	1.4%	2.2%	97.8%
Median		**$699,006**	**$737,861**	**$64,116,000**	**$70,379,571**	**0.7%**	**2.8%**	**97.2%**
Mean		$2,410,374	$2,857,163	$92,584,103	$80,246,554	2.9%	5.2%	94.8%
(SD)		($6,205,698)	($6,205,698)	(108,872,885)	(51,595,186)			
Count (N)		34	47	49	33	33	33	33

Digital nonreplica: Web/app/e-readers without advertising.
Digital replica: PDF/e-reader editions.
Print: Weekday paid circulation.
[a] This includes "e-readers without advertising" only.
[b] This includes "tablet" only.
[c] This includes "e-readers without advertising" and "tablet" only.

competitiveness in the online advertising market. The fact that digital subscribership, even after the "Trump bump," remains insignificant suggests that the renewed interest in the digital subscription model as a revenue source is ill-based. While the industry adopted paywalls after 2011, news consumers' lukewarm response to digital subscriptions, as revealed in previous research, remains unchanged (see Chyi 2012).

Too often news executives assume that newspaper readers are platform-agnostic, but the findings of this study suggest that they are anything but. The print edition, at a much higher price, remains the most consumed format and the primary revenue driver for the vast majority of newspapers. In contrast, attaining digital subscribers remains extremely difficult, which echoes the readership and engagement gaps identified in previous research (Barthel 2016; Chyi and Tenenboim 2017; Thurman 2014; 2018). Underlying these gaps is a failure of gaining audience attention, which is not only a scarce commodity but also a source of monetization (Myllylahti 2019).

Also worthy of discussion is the finding that most newspapers offer digital news access to print subscribers at no additional cost, which reflects an intention to convert print readers to digital. A common rationale underlying such a strategy is the elimination of printing, paper, and delivery costs. It was once estimated that going online-only would reduce production cost by 35% (Edmonds 2007). Some even argue that each digital subscriber is pure profit because the marginal cost of serving more online consumers is zero, which does not consider costs associated with content production and technology investment. However, given the price gap between print and digital editions, encouraging high-paying readers to switch from print to digital is "exchanging analog dollars for digital dimes."

The findings presented here serve as a wake-up call. Newspapers must revise their digital transformation strategy, or the entire industry runs the risk of squandering already dwindled resources pursuing unrealistic goals.

Multiplatform Newspaper Consumption

On the theoretical front, the findings help update existing research on multiplatform newspaper consumption. First, the print-digital gap persists, with print outperforming digital in circulation by a wide margin. This reconfirmed previous research which suggested that the "container" of news is not neutral (Thurman and Myllylahti 2009). Also worthy of attention is the interplay between the print edition's price hikes since the recession (Chyi and Tenenboim 2019) and the persistent lack of paying intent for digital news products, resulting in an unprecedented price gap. Since willingness to pay is an indicator of utility, this widening price gap reflects a salient discrepancy in news consumers' perceptions of print and digital news products. Given "goods are what are thought of as goods" (Lancaster 1966, 132), these findings provide support for previous research on the perceived inferiority of digital content.

Given the findings of this study, the thesis that print and online newspapers coexist not as two normal goods but as a combination of a normal good and an inferior good (Chyi and Yang 2009) remains relevant, which helps explain why the much cheaper digital edition has failed to attain a larger subscribership or cannibalize the same newspaper's print subscriber base significantly. It is suggested that news, when

presented online, becomes an inferior good. A number of plausible factors explain why digital news is perceived as inferior: First, the screen-based reading experience is less than optimal, and the cluttered design and intrusive ads commonly seen on newspaper sites add to the level of annoyance. The power of tangibility in cognitive processing, which is still understudied, may be driving the print-digital gap (Chyi 2013).

Future research should investigate further how news consumers perceive existing and emerging news platforms, because the price, circulation, and revenue gaps revealed in this study reconfirm that newspaper readers respond to multiplatform newspapers in fundamentally different ways.

Practicality of Strategic Advice to Newspapers

Finally, this study sought to revisit Christensen's disruptive technology thesis and to assess its influence and practicality in the context of the U.S. newspaper business. While "the death of print" as an industry discourse predates the disruption thesis, the Newspaper Next campaign instilled among newspaper executives a keen sense of crisis with a "failure framework" (Christensen 1997, xvi). The advice given was self-disruption as a survival strategy (American Press Institute 2006; 2008)—"disrupt or be disrupted" (Josh Linkner, quoted in Lepore 2014). The findings of this study have made it clear that the U.S. newspaper industry failed to disrupt itself. Perhaps this industry did not fully follow Christensen's counsel to act progressively, as his colleague and some digital enthusiasts suggested (Buttry 2016; Gilbert 2013; Glenn 2011). Perhaps newspaper executives were misguided by a theory considered by other scholars as vague and lacking generalizability and predictive power (Danneels 2004; Gans 2014; King and Baatartogtokh 2015; Lepore 2014; Sood and Tellis 2010; Tellis 2006). Regardless, the fact revealed by this study is that not a single U.S. newspaper has successfully transformed itself digitally (judged by the share of digital revenue)—not even *The New York Times*, which, as of Q4 2019, boasted 4,395,000 digital-only subscribers[7] but still generated more revenue in print than online (The New York Times Company 2020). This raised questions about the applicability of the disruption theory or at least the practicality of Newspaper Next's strategic advice to the U.S. newspaper industry.

In 2015, Christensen indicated that his theory was widely misunderstood or misapplied. He also acknowledged that "universally effective responses to disruptive threats remain elusive" (Christensen, Raynor, and McDonald 2015, 15).

More than twenty years into U.S. newspapers' digital experiment, their paywall program has hit a hard wall. But digital performance as weak as such is both concerning and revealing. The newspaper industry should recognize that digital transformation is not a panacea and should address its crisis through audience research on news consumers' response to legacy and emerging news products. And media evolution needs to be understood in a framework that is more complicated than a "life or death" dichotomy.

Limitations

This study has two potential limitations. First, the analysis was based on AAM data but not all newspapers submitted comprehensive digital circulation and pricing information. Such cases were noted in the tables. Second, this study was based on U.S. data, so the

results may not be generalizable to other media markets. Nevertheless, according to the most recent report released by the Reuters Institute for the Study of Journalism (Newman et al. 2019), among the 38 media markets surveyed, only a handful of countries are characterized by a higher percentage of digital-only news subscribers than the United States—they are Norway (15%) and Sweden (14%). The equivalent figure in the United States is 8%. Therefore, paying for digital news is rare in most countries.

Notes

1. The Newspaper Association of America (now News Media Alliance) stopped releasing newspaper revenue data after 2014.
2. The amount was $72.5 billion in 2016.
3. Most U.S. newspapers with paywalls provide print subscribers with free digital access.
4. AAM is a nonprofit organization that audits data for print media in North America.
5. A DMA is a specific geographic area to which a county in the United States is exclusively assigned on the basis of the television viewing habits of the people residing in the county, defined by A.C. Nielsen.
6. 4 months of unlimited digital access for $1.
7. This figure included 926,000 subscribers of digital Crossword and Cooking products. As noted previously, *The New York Times* does not submit nonreplica digital circulation data to AAM.

Disclosure Statement

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