

The Impact of Digitization on Print Book Sales: Analysis using Genre Exposure Heterogeneity

Siddhartha Sharma*, Rahul Telang[†] and Alejandro Zentner[‡]

A Online Appendix

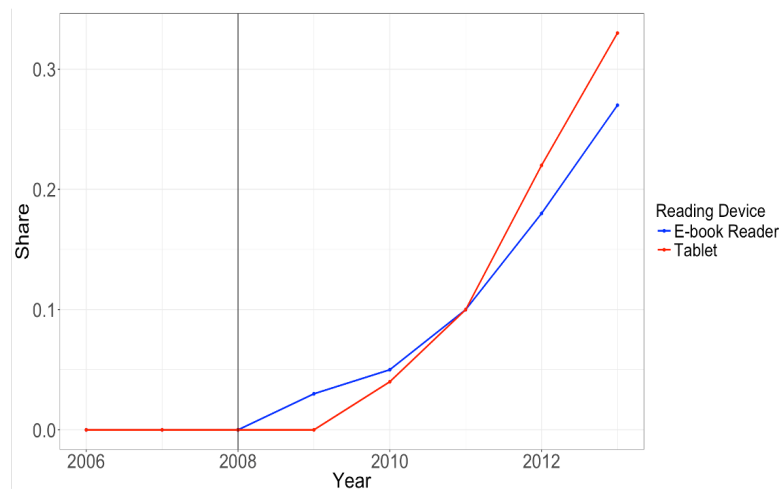


Figure A.1: *Share of US Adults Owning an E-reading Device*

(Source: <https://www.pewresearch.org/internet/2015/10/29/technology-device-ownership-2015/>)

[//www.pewresearch.org/internet/2015/10/29/technology-device-ownership-2015/](https://www.pewresearch.org/internet/2015/10/29/technology-device-ownership-2015/))

*Kelley School of Business, Indiana University, Bloomington, Indiana 47405, sishar@iu.edu

[†]Heinz College, Carnegie Mellon University, Pittsburgh, Pennsylvania 15213 rtelang@andrew.cmu.edu

[‡]Naveen Jindal School of Management, University of Texas at Dallas, Richardson, Texas 75080, azentner@utdallas.edu

Table A.1: Summary of Literature on Physical-Digital Channel Interaction

Industry	Paper	Data	Main Finding
Music	Zentner (2006) Oberholzer-Gee and Strumpf (2007)	Forrester Research, Europe, 2001, 22.5K users Nielsen SoundScan, US, 2002, 3K albums	Illegal file sharing decreases legal sales Illegal file sharing does not affect legal sales
Newspaper	Gentzkow (2007)	Scarborough Research, DC, 2000-03, 16K users	Online channel reduced print readership
Movie	Danaher et al (2010) Ma et al (2014) Peukert et al (2017) Lu et al (2020)	NBC content on iTunes, 2007-08 BoxOfficeMojo, VCDQuality, 2006-08, 533 movies Country-level box office, 2011-2012, 308 movies All US movies, 2015-17	Legal digital channel mitigates the impact of piracy on the physical channel Pre-release piracy reduces box office sales Megapload shutdown had a positive effect on wide-release movies and a negative effect on niche movies Post-release piracy is associated with an increase in box office revenue
Retail	Wang and Goldfarb (2017) Bell et al (2018) Kumar et al (2019)	US specialty retailer, 2010-12, 42K users US eyewear retailer, 2010-13, 1927 ZIP codes US clothing retailer, 2001-04, 213K customers	Opening a physical store leads to lower online sales in places with a strong presence, and vice versa Opening a physical store leads to higher online sales Opening a physical store leads to higher online sales
Book	Chen et al (2019) Li (2021) Nagaraj and Reimers (2023)	US publisher, 2010, 182 titles Comscore and Esri, USA, 2008-12, 73K online transactions Pre-1923 Harvard library, NPD BookScan, 2003-11, 9K books	Delaying ebook release did not impact hardcover sales, although the standard errors are large Most ebook sales come from cannibalizing print sales Digitization had a positive impact on physical book sales

Table A.2: Effects with Different Sales Thresholds

	<i>DV: ln(Sales)</i>			
	> 100	> 50	> 10	> 2
AF	0.424*	0.481**	0.455*	0.329
	(0.166)	(0.180)	(0.195)	(0.191)
AF*Post	-0.360**	-0.412**	-0.392**	-0.306*
	(0.122)	(0.131)	(0.137)	(0.119)
<i>N</i>	117582	142368	231231	329747

Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Note: Cluster-robust standard errors (at the subgenre level) are shown in parentheses. All specifications include year and publisher fixed effects.

Table A.3: Heterogeneous Effects Over Time for Adult Fiction

	<i>ln(Sales)</i>
AF	0.428*
	(0.166)
AF*2008-11	-0.183
	(0.117)
AF*2012-15	-0.529***
	(0.138)
<i>N</i>	117582

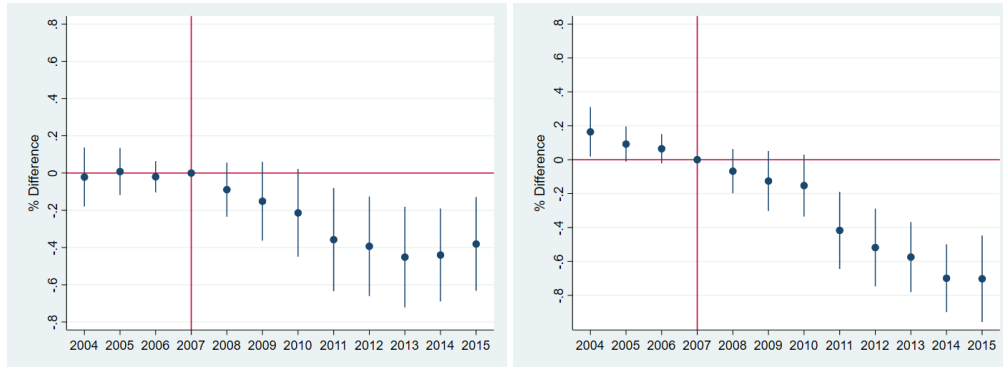
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Note: Cluster-robust standard errors (at the subgenre level) are shown in parentheses. The specification includes year and publisher fixed effects.

Table A.4: Count and Average Unit Print Sales Summary for Major and Non-major Publishers

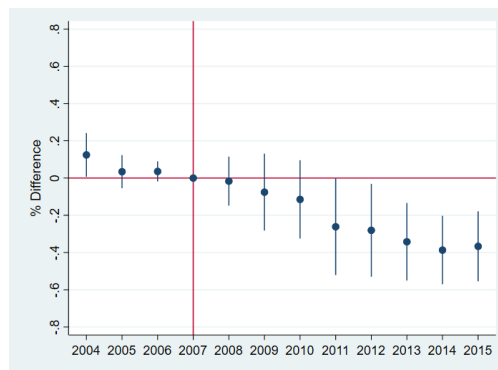
		#Books		Sales per Book	
		2004-07	2008-15	2004-07	2008-15
Major	Adult Fiction	17,524	39,385	13,031 (50,566)	10,546 (56,004)
	Juvenile Non-fiction	4,240	8,097	7,227 (21,791)	8,681 (30,278)
Non-major	Adult Fiction	10,609	23,375	1,831 (4,783)	825 (3507)
	Juvenile Non-fiction	4,897	10,000	1,559 (3,387)	1,477 (4,736)

Standard deviations in parentheses



(a) Juvenile Fiction as Control Group

(b) Religion as Control Group



(c) Adult Non-fiction as Control Group

Figure A.2: *Effect for Adult Fiction over Years with Different Genres as Control Group*

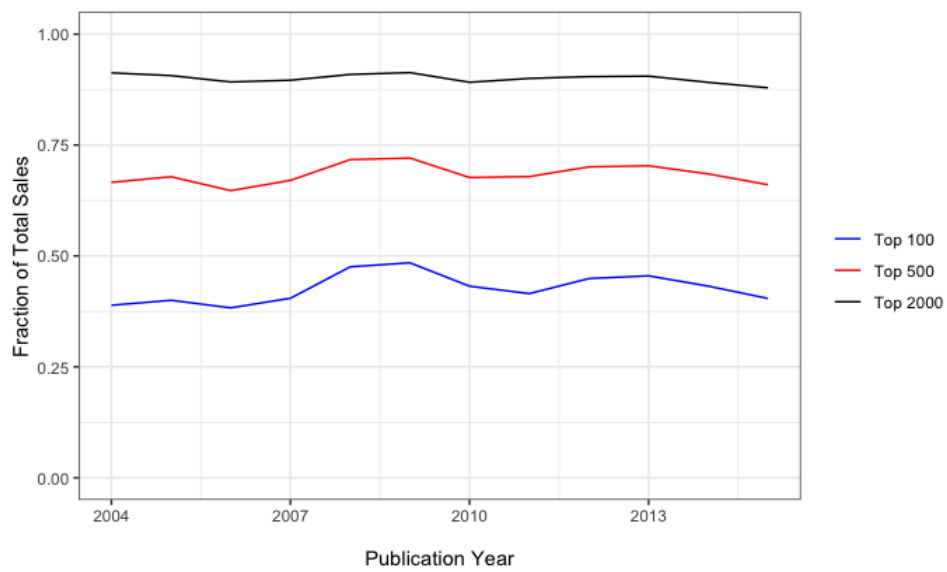


Figure A.3: *Fraction of Total Print Sales of Top N Titles in Adult Fiction over Years*

Table A.5: Balance Before and After Matching Subgenres

Variable	Matched	Treated	Control
Avg. Price	No	17.9	35.7
	Yes	17.9	17.8
Avg. Pre-period Sales	No	4514	2647
	Yes	4514	3119

Table A.6: Effect Estimates for Same Number of Non-top Books

	Non-top 100	Non-top 500	Non-top 1000	Non-top 2000
AF	0.526*** (0.147)	0.746*** (0.121)	0.996*** (0.111)	1.450*** (0.085)
AF*Post	-0.332** (0.112)	-0.291** (0.094)	-0.282*** (0.080)	-0.496*** (0.055)
<i>N</i>	115183	105587	93593	69689

Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Note: Cluster-robust standard errors (at the subgenre level) are shown in parentheses. All specifications include year and publisher fixed effects.

Table A.7: Effect Estimates for Adult Fiction using Different Approaches

Specification	Estimate (%)
JNF as control group	30
Genre ebook share as treatment	26
PSM at subgenre level	27
ANF as control group	24
JF as control group	26
REL as control group	38
Controlling for price and other variables	29
With publisher-year FE	36

Table A.8: Heterogeneous Effects for Adult Fiction using the First Specification

Sub-sample	Estimate (%)
Major publishers	26
High-selling books	18
Paperback	38
2012-15	41