ZACHARY NOLAN

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## EDUCATION

Ph.D. Economics, Duke University, 2020 (expected).

Committee: Allan Collard-Wexler (chair), Carl Mela, James Roberts, Curtis Taylor, Jonathan Williams

B.A. Economics, *Summa Cum Laude*, University of Florida, 2014.

B.S. Mathematics, University of Florida, 2014.

## RESEARCH INTERESTS

Quantitative Marketing, Industrial Organization, Digital Platforms, Telecommunications

## WORKING PAPERS

1. Nolan, Z. Optimal Assortment on an Integrated Platform.
(JOB MARKET PAPER)

Abstract: In many industries, consumers rely on platforms to access goods or services. Integrated firms that both provide access to and sell goods on a platform face a trade-off between maintaining the value of the platform and promoting the integrated goods. When products are substitutes, altering product assortment allows the platform to gain market share by foreclosing third-party competitors. This paper studies internet service providers (ISPs), which sell broadband internet access as well as TV services. Online video increases the value of internet access, but also competes with the ISPs' TV products. I develop and estimate a model of demand for information goods, for which value derived from a subscription depends on the time allocated to viewing content. The main finding of the paper is that an ISP strategy of limiting assortment to a subset of available online content is not generally profitable for ISPs. The additional revenue gained from substitution from online video to TV is offset by a loss in the profitability of the platform itself as willingness to pay for internet access falls substantially when streaming applications are excluded. Finally, substitutition from online video to TV reduces internet bandwidth usage, which may decrease the need for costly infrastructure investments.

2. Mcmanus, B., A. Nevo, Z. Nolan, and J. W. Williams. Sterring Incentives on Platforms: Evidence from the Telecommunications Industry
(formerly: Steering Incentives and Bundling Practices in the Telecommunications Industry).

Abstract: We use a unique dataset which documents both Internet and TV usage as well as a change across markets in the pricing policy of an Internet Service Provider (ISP) to measure the provider's ability to steer consumers across different subscription options and influence usage decisions. We document the increase in consumers who "cut the cord" and show that these consumers tend to increase their Internet usage. This trend reduces the ISP revenue and increases costs, both generating an incentive to steer consumers, especially heavy Internet users, to bundled packages. We present a simple model which extends traditional models of bundling to demonstrate the main economic effects. Next we measure the effects in the data and find that, consistent with the model, the ISP's introduction of internet usage allowances and overage charges steered internet-only consumers into bundled TV and internet subscriptions; this effect was greatest for heavy users of streaming services most similar to conventional TV. Internet usage growth–especially in streaming video services–was curtailed for consumers who added TV subscriptions, and it also fell

for consumers who did not upgrade their internet usage allowances. Finally we provides elasticity estimates and discuss the implications of these findings for antitrust and regulatory issues in the telecommunications industry.

3. Malone, J., A. Nevo, Z. Nolan, and J. W. Williams. The Unbundling of the Telecommunications Industry: Evidence from Cord-cutting.

CONFERENCE PRESENTATIONS

2019: AEA/ASSA Annual Meeting (Atlanta), IIOC (Boston)

2018: SEA Annual Meeting (Washington D.C.), NET Institute Conference (NYU Stern)

2017: CableLabs Smaller Market Conference (Keystone)

TEACHING

*Duke University*

ECON 205 - Intermediate Microeconomics: Fall 2015, teaching assistant for Curtis Taylor

ECON 208 - Econometrics: Spring 2016, teaching assistant for James Roberts

*University of Florida*

UF Teaching Center, Mathematics Tutor, 2012-2014

Courses: Multivariate Calculus, Linear Algebra, Differential Equations, Real Analysis

RESEARCH AND PROFESSIONAL EXPERIENCE

University of North Carolina at Chapel Hill, Department of Economics, research assistant for Jonathan Williams (2016-2019)

CableLabs, Summer Internship - Strategy (2017)

HONORS, SCHOLARSHIPS, & AWARDS

NET Institute Summer Research Grant, 2019

NET Institute Summer Research Grant, 2018

Summer Research Fellowship, Duke University, 2015, 2016

Graduate Tuition Scholarship, Duke University, 2015, 2016

Graduate First-year Fellowship, Duke University, 2014

Anderson Scholar, University of Florida, 2012

Phi Beta Kappa, University of Florida, 2012

REFERENCES

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Jonathan Williams, jonwms@unc.edu

James Roberts, j.roberts@duke.edu

Carl Mela, mela@duke.edu

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