NBER Digitization Tutorial

Malika Korganbekova

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Research Interests: Digital marketplaces; Marketplace fairness; Privacy regulation, Personalization

Committee members: Brett Gordon, Eric Anderson, Rob Porter and Caio Waisman

Most of my research projects are related to the economics of digitization with a particular emphasis on *antitrust, privacy and environmental regulation* of digital platforms. Below, I describe in more detail one of my working papers related to the dual role of platforms, and then I give brief descriptions of other working papers that we have preliminary drafts for.

Working papers

Platform self-preferencing, third-party sellers and competitor platforms. The welfare effects of dual platforms, such as Amazon, Walmart and Target, that serve both as *marketplaces* and as private label product *sellers* are ambiguous. On the one hand, private label products could offer lower prices and increase competition. However, lower prices and dual platform's ability to imitate third-party sellers' products could reduce the platform value to third-party sellers crowding them out from the platform, reducing competition and product variety. I investigate this trade-off empirically: I study how the introduction of more than 4,000 private label products on Amazon impacted consumer prices and third-party sellers' actions on Amazon and on a competitor platform.

I match Amazon's private label products to the most similar third-party sellers' products and conduct an event-study type analysis studying how third-party sellers' prices, wholesale costs and revenues changed **after private label products were introduced**. For matching, I train Deep Learning algorithms on products' text descriptions and images to build across-product similarity measures. For the event-study analysis on the matched products, I use (i) scraped Amazon data that includes *exact introduction dates of private label products* and (ii) unique third-party sellers' cost and transactions data that I've obtained from a collaboration with *Amazon's competitor that serves only as a marketplace.*

I show that (i) Amazon's private label products are 21% cheaper than the most similar third-party seller products, (ii) surprisingly, third-party sellers do not decrease their prices on Amazon, however, they start investing in their vertical relationships with the competing platform: third-party sellers decrease their wholesale costs (-1.5%) and increase their discounts (+10.1%) on the competitor platform which passes-through to lower retail prices, (iii) this results in higher revenue and quantity sold by third-party sellers on the competitor platform (+19% and +5.4%, respectively). Moreover, third-party sellers place higher share of their new patented products on the competitor website. These results suggest that Amazon's private label products offer lower prices which drives third-party sellers towards building stronger vertical relationships with the competing platform *that serves only as a marketplace*.

Other working papers. In collaboration *with Alex MacKay*, using detailed historical bargaining data, we study how retail platforms choose which sellers to ask for exclusive dealing and we test for potential *adverse selection in B2B exclusivity contracts*. With *Yufeng Huang and Aliya Korganbekova*, using large-scale field experiment, we study *how retailer's ranking algorithm affects third-party sellers' pricing strategies* and reputation incentives. With *Aliya Korganbekova*, we use Wayfair's experimental and observational data to study *the causal impact of fast shipping and platform's distribution centers on the environmental emissions*. We propose a new ranking algorithm that nudges consumers towards purchasing items that are physically closer to them. In my job market paper, I study how Internet browsers' *privacy policies affect retail platform's personalization algorithm performance and consumers' and sellers' economic outcomes*.

Overall, since I'm excited about topics related to the economics of digitization, I'd be thrilled to attend NBER Digitization Tutorial, and I hope that I'll be able to contribute to the discussions and meet faculty and fellow PhD students with similar research interests. I'm excited about labor and macro aspect of the topics this year because my third-party seller-related projects are related to how digital marketplaces affect local labor markets and small businesses.

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Education

Northwestern University, Kellogg School of Management — *Evanston, IL*
Ph.D. Candidate in Quantitative Marketing — *2018 - 2024*

Penn State University — *State College, PA*
M.A. in Economics (PhD track) — *2016 - 2018*

Central European University — *Budapest, Hungary*
M.A. in Economics (*cum laude*) — *2013 - 2015*

Lomonosov Moscow State University — *Moscow, Russia*
B.S. in Economics (*summa cum laude*) — *2009 - 2013*

Research Projects

Balancing privacy and personalization

I study the economic effects of browser privacy policies on digital platform's device recognition rates, consumer and seller outcomes. Using detailed clickstream data and large-scale field experiment I ran with US-based large online retail platform, I show that some privacy policies diminish the personalization experience for consumers and hurt smaller sellers. To alleviate these issues, I develop a privacy-preserving Graph Neural Network-based algorithm that practitioners in retail and other settings can implement.

Targeting exclusive products *(with Alex MacKay)*

Online retail platforms carry exclusive products to differentiate themselves from the competitors. We use detailed historical bargaining data between the platform and product sellers to test for adverse selection in B2B contracts. We derive implications for optimal contract design and help the platform target exclusivity offers more efficiently.

Ranking Algorithms and Equilibrium New-Product Prices *(with Yufeng Huang and Aliya Korganbekova)*

Using large-scale field experiment in rankings, we study how retailer's ranking algorithm affects third-party sellers' pricing strategies and reputation building incentives. We show that in response to randomized ranking boost that placed items 77 ranking positions higher, low-quality sellers increase their wholesale costs by 0.9-2.8%, while high-quality sellers decrease their wholesale costs by 1.5%. We find evidence that lower-quality sellers try to skim the short-term benefit of better ranking positions, while higher-quality sellers invest in long-term reputation building.

E-commerce and environment *(with Aliya Korganbekova)*

We study the trade-off between the environmental costs of fast shipping and economies of scale from the distribution centers. Using data on supplier rejection logs and field experiment with fast shipping badges, we show that removing distribution center would lead to 16-30% CO_2 emissions increase. We develop a ranking algorithm that exhibits items closer to consumers' location higher in the ranking pages. The algorithm reduces platforms' shipping costs and environmental costs without hurting consumer welfare.

Platform self-preferencing, third-party sellers and competitor platforms

I study the effect of Amazon private label products introduction on retail prices and third-party sellers' actions on Amazon and on the competitor website. Using scraped Amazon data and unique cost and transactions data from Amazon's competitor, I show that (i) Amazon's private label products are 21% cheaper than the most similar third-party seller products, (ii) third-party sellers, instead of decreasing their prices on Amazon, decrease their wholesale costs (-1.5%) and increase their discounts (+10.1%) on the *competitor platform*. Preliminary results suggest that Amazon's private label products drive third-party sellers towards building stronger vertical relationships with the competing platform *that serves only as a marketplace*.

Experience

Canadian Tire Corporation — *Toronto, Canada*
Academic Consultant — *2020-current*

- Developing statistical models for pricing and merchandising teams

Wayfair LLC — *Boston, MA*
Research Intern in Search & Recommendations — *June 2020 - current*

- Estimating causal effects of personalization algorithms and designing optimal sort for different business KPIs
- Building sequential recommender systems with Apache Airflow, Google Cloud Platform and PyTorch

Google LLC — *Wroclaw, Poland*
Associate Account Strategist — *August 2015 - September 2016*

- Consulted large Russian, Turkish & CIS Google advertisers on developing AdWords, YouTube, Mobile App campaigns
- Provided personal account management & analysis to a major airline company in Asia ($\times$2.5 spend growth, +5 new markets)
- Business Coordinator: Led team meetings, team events and cross-office collaboration events for the team of 50 people

Morgan Stanley *Budapest, Hungary*

Intern in Credit Risk Research *January 2015 - June 2015*

- Developed market risk analytics, credit risk analytics models to quantitatively assess Morgan Stanley's risk exposures

KPMG *Moscow, Russia*

Intern in Audit Department *January 2013 - June 2013*

- Performed audit of large Industrial, Energy and Consumer market firms (IFRS financial statements)

Troika Dialog *Almaty, Kazakhstan*

Intern in Mergers & Acquisitions *June 2012 - August 2012*

- Developed financial models and performed company valuation analysis of large Metals & Mining and Oil & Gas companies

Skills

Programming	Python, R, Matlab, Stata
Databases	Spark, SQL, Hadoop, Google Big Query, AWS
Languages	Kazakh, Russian, English (fluent), Turkish (fluent)
	French (upper-intermediate DELF B2 - 92/100), German (intermediate Goethe Institute B1 - 100/100)
Diversity & Inclusion	Mentor at Chicago Booth/Kellogg IDDEAS: Diversity Doctoral Education program for underrepresented undergraduate students

Honors & Awards

2018-2023	**Graduate Fellowship**, Northwestern University - $75,000 per year
June 2022	**American Marketing Association - Sheth Foundation Doctoral Fellow**, Northwestern University
June 2022	**INFORMS Society for Marketing Science Doctoral Fellow**, Northwestern University
2016-2018	**Graduate Assistant Scholarship**, Penn State University - $55,000 per year
2013-2015	**Full Scholarship for academic excellence**, Central European University - $35,000 per year
2009 - 2013	**Full Scholarship for academic excellence**, Government of Kazakhstan - $20,000 per year
2009 - 2013	**Dean's award for academic excellence**, Lomonosov Moscow State University
April 2013	**Finalist**, CFA Research Challenge EMEA Final, London, United Kingdom
March 2013	**Winner**, CFA Research Challenge Russian Final, Moscow, Russia

Invited Presentations & Conference Talks

Rising Scholars Conference, University of Chicago *Chicago, IL*

- *E-commerce and environment (with Aliya Korganbekova)* *2022*

Conference on Digital Experimentation, Massachusetts Institute of Technology *Cambridge, MA*

- *E-commerce and environment (with Aliya Korganbekova)* *2022*

INFORMS Marketing Science Conference, UChicago Booth School of Business *Chicago, IL*

- *New product launches: supplier-platform incentives (with Yufeng Huang and Aliya Korganbekova)* *June 2022*

AMA-Sheth Doctoral Consortium, UT Austin *Austin, TX*

- *E-commerce and environment (with Aliya Korganbekova)* *June 2022*

Trans-Atlantic Doctoral Conference, London Business School *London, United Kingdom*

- *E-commerce and environment (with Aliya Korganbekova)* *April 2022*

Wharton Innovation Doctoral Symposium, UPenn Wharton School *Philadelphia, PA*

- *New product launches: supplier-platform incentives (with Yufeng Huang and Aliya Korganbekova)* *March 2022*

Marketing Workshop, Kellogg School of Management *Evanston, IL*

- *Balancing personalization and data privacy* *2021, 2022*

Invited Conference Workshops & Discussions

Summer Institute in Competitive Strategy, UC Berkeley *Berkeley, CA — June 2021, 2022*

NBER Digitization Tutorial & NBER Economics of Privacy *Washington, D.C. — March 2022*

Instagram Recommendations Conference *Menlo Park, CA — March 2021*

RecSys — *Evanston, IL — September 2020*
Sheth Foundation Doctoral Consortium — *Austin, TX — July 2022*
ISMS Doctoral Consortium — *Evanston, IL — June 2022*

Other Research Experience

University of Chicago, Booth School of Business — *Chicago, IL*
Research Assistant for Professors Sarah Moshary and Anna Tuchman — *March 2020 - August 2020*

Northwestern University, Kellogg School of Management — *Evanston, IL*
Research Assistant for Professor Anna Tuchman — *August 2018 - September 2018*

Teaching

Structural Modeling in Quantitative Marketing (PhD-level) — *Evanston, IL*
Teaching Assistant for Professors Brett Gordon and Caio Waisman — *2019 - 2021*

Retail Analytics (MBA) — *Evanston, IL*
Teaching Assistant for Professors Eric Anderson, Brett Gordon and Anna Tuchman — *2019 - 2021*

International Business Strategy (MBA) — *Evanston, IL*
Teaching Assistant for Professor Daniel Spulber — *2020-2021*

Environmental Economics — *State College, PA*
Teaching Assistant for Professor Ron Gallant — *2016-2018*

References

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Caio Waisman
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Miscellanea

Citizenship	**Kazakhstan**
U.S. Visa	**F1**