NYU LEONARD N. STERN SCHOOL OF BUSINESS

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Dear Sir or Madam,

I am writing to apply for the 2018 NBER Economics of Digitization Tutorial. Currently, I am a PhD candidate in my final year at the NYU Stern School of Business, being advised by Arun Sundararajan and John J. Horton.

My research interests lie at the intersection of information systems, economics, and data science, with a focus on online platforms. My dissertation, entitled "Three Essays on the Sharing Economy: From Market Design to Public Policy," attempts to explicate how these new digitally-enabled firm-market hybrids that rely on decentralized and heterogeneous crowds of providers—individuals and small businesses who vary in their scale, expertise, and objectives—for the supply of capital, change our understanding about online platform design and management.

The first part of my thesis focuses on the public policy implications of home-sharing platforms, arguably one of the most important applications of the sharing economy. Home-sharing platforms allow hosts to rent out their apartments, imposing costs on their neighbors, and potentially creating a market failure due to uninternalized externalities. We consider four public policy responses that differ with respect to the party that the decision right to host is allocated to. We find that allocating the hosting rights to building owners not only prevents market failure, but also results in a socially optimal hosting level. We test other predictions of our theoretical model on data from NYC rentals, and explore how factors such as moving costs affect the predictions of our model.

The second essay examines how the highly personal nature of consumer-provider interaction in such platforms can lead to the erosion of reputation systems employed therein. Using data from a large online labor market, we find that reputation scores inflate: by using a natural language processing approach, we estimate that at least 36 to 48 percent of the increase in feedback scores is due to inflation. We argue that this is a systematic problem that arises due to (1) giving bad feedback being costly to raters, and (2) what constitutes "bad" feedback being endogenous. We test this conjecture by exploiting a market intervention where the costs of assigning bad feedback were raised. We find that, following the increase in costs, feedback scores immediately began to inflate. We examine the implications of reputation inflation for online platform design.

The third essay examines the implications of a novel feature of the sharing economy business model: unlike traditional firms, sharing economy providers have full control over deciding the

availability of their assets and services. We report on the results of a field experiment on a platform where providers could formerly price their assets, and where different degrees of control over this decision were taken from the providers. Providers reacted by communicating their concerns and feedback, and by dropping out of the platform. However, providers also reacted by blocking unwanted transactions, and by reducing the availability of their assets, a behavior which is unique to sharing economy platforms. We examine the relative magnitude of these channels of retaliation, and suggest a method for implementing market design changes in sharing economy platforms. The contributions of my thesis include (i) showing how the negative externalities problem created by such platforms can be resolved through a decentralized public policy approach, (ii) showing that, in the sharing economy setting, the usefulness of online reputation systems may erode over time, and elucidating the reasons behind this phenomenon, and (iii) examining the new ways that users express their dissatisfaction with platform decisions in the sharing economy, and how firms should introduce new features in anticipation of this reaction.

My dissertation committee members are Professors Arun Sundararajan (chair), John J. Horton, and Srikanth Jagabathula, and the expected defense date is June 2018. Abstracts of my working and published papers can be found in the Appendix, and most up-to-date versions can be accessed through my website.

In terms of course of study, my undergraduate degree is in theoretical computer science with a focus on algorithmic game theory. During my doctoral studies I have taken courses spanning operations research/management (optimization, stochastic processes, queueing theory, dynamic programming) information systems (seminars in digital economics, IT and organizations, and Data Science/Machine learning) and theoretical and empirical economics (microeconomic theory, game theory and mechanism design, econometrics, structural modeling, and bayesian estimation methods).

Thank you in advance for considering my application, and I look forward to attending the NBER Digitization Tutorial.

Sincerely,

Apostolos Filippas
PhD Candidate, Information Systems
New York University, Stern School of Business