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I am writing to apply to attend the NBER tutorial on the Economics of Digitization. I am a fourth year economics PhD student at New York University's Stern School of Business. I began the program in the fall of 2019 and expect to graduate in the spring of 2025.

I am broadly interested in the economics of social media. There are many components of social media worth studying; I focus on influencers and influencer marketing. Influencer marketing is a new but widely used form of advertising that has only recently begun to attract attention in the economics literature. Influencer marketing differs from traditional (e.g. TV) advertising in at least two ways. First, social media influencers produce both advertisements (sponsored content) and organic content. On TV, the advertiser is not the same entity that produces the TV show. Second, sponsored content can be difficult to distinguish from organic content. While TV has dedicated ad segments, the distinction on social media is far murkier.

Because sponsored content is not always obvious, the Federal Trade Commission requires influencers to clearly mark it. Conversations with influencers and examinations of their posts indicate that breaking the rules is common and has few consequences. Should the FTC, then, regulate social media advertising more closely or devote more resources to monitoring content? The unique structure of social media means regulation creates unique tradeoffs. Since influencers who produce sponsored content also produce organic content, excessive regulation could discourage them from operating at all (if it reduces their income from sponsored content). Recent theoretical papers by Mitchell (2021) and Fainmesser and Galeotti (2021) suggest that regulation can be harmful.

This fall, I began work on my dissertation, which is titled "Influencer Dynamics". My goal is to answer a few questions concerning influencer marketing. I am working with a data company to collect Instagram posts from a set of food influencers of varying levels of fame. Focusing on a single type of content (food) allows me to control for the possibility that influencers in each "niche" behave differently.

I classify posts into four categories. Organic posts are those with no advertising. Sponsored posts are posts that include brand promotion and a clear statement that the post is an ad. Finally, there are branded posts, which mention a brand but don't specify whether the influencer was paid to create the post. Branded posts might be paid advertising (which violates FTC disclosure requirements) or they might mention a brand because the influencer genuinely believes that brand is best. For my dissertation research, I am examining the influencer's dynamic problem of choosing the optimal amount of each type of content.

The influencer faces a dynamic tradeoff because sponsored content hurts their long-term career growth. In my model, the influencer's follower base grows over time. It grows more

quickly if the influencer creates more organic content and more slowly if the influencer creates more sponsored content (advertising has a nuisance cost). The influencer is paid for sponsored content depending on how many followers they have. The influencer therefore trades off short term revenue from sponsored content with future revenue from a larger follower base.

Posting is costly because it requires time and effort from the influencer. Undisclosed sponsored content also carries the possibility of a fine or other punishment. This is where regulation enters the model: undisclosed sponsored posts become more costly if disclosure requirements become stricter.

With this model, my dissertation research will tackle a few questions. The first is the optimal dynamic policy for an influencer. For each influencer, my data will include a time series of the number of posts they create in each category. I will also collect a time series of each influencer's follower count. I can then use dynamic estimation techniques from the industrial organization literature to estimate the parameters of the influencer's problem. With these parameters, I can calculate the optimal policy for an influencer, that is, the quantity of each type of content they should create given a particular number of followers. Initial calculations using a small subset of my data indicate that an influencer should start their career by creating only organic content. Past a certain threshold follower count, they should start creating sponsored content and decreasing organic content. Very large influencers may post only sponsored content (certain celebrity Instagram pages demonstrate that this does happen).

Given parameter estimates, I plan to run counterfactuals to simulate the effects of stricter disclosure requirements. I can vary the parameters of the influencer's cost function that affect undisclosed sponsored posts. Since recent theoretical results indicate that stricter disclosure requirements may harm consumers, I am especially interested in how organic content responds in these simulations. If organic content decreases substantially, consumer welfare could be lower.

Finally, I plan to examine advertisement fit. Advertising can be informative, and it may be particularly valuable if it closely matches the tastes of its audience. A baking influencer provides more useful information to their followers by recommending baking-related products. Conversations with influencers indicate that fit is one of their most important considerations when deciding whether to accept a sponsorship. I plan to use post text information to classify influencers into categories and then assign sponsoring brands to these categories. I can then calculate the extent to which an influencer's sponsored content matches their niche and how this match value impacts the influencer. Examining brand fit will require modifying my model to, for example, allow the influencer to choose quantities of "high fit" and "low fit" sponsored content. The optimal choice of each may depend on the number of followers an influencer has; influencers may broaden their advertising as they grow.

My committee members are:

Luís Cabral, NYU Stern
Petra Moser, NYU Stern
Paul Scott, NYU Stern