# RESEARCH STATEMENT

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My research interests lie in the fields of Industrial Organization, Applied Microeconomics, and Game Theory. I am particularly interested in using game theoretical tools to model, explain, and predict the strategic behavior of firms that operate and compete in network industries, mainly the telecommunications industry. My research aims to generate a combination of novel theoretical predictions that are empirically testable using consumer microdata and data drawn at the firm or industry level.

My dissertation introduces a general theoretical dynamic model combined with an empirical analysis regarding the effect of switching costs on market equilibrium outcomes and social welfare in a network industry. Switching costs include any real or perceived additional cost that consumers incur when switching providers, which may explain consumer inertia and could be responsible for reinforcing the market dominance of a particular provider. The fact that firms have incentives to strategically use switching costs, in addition to service prices, makes switching costs an important market force to explore.

My job market paper, "Competition with endogenous and exogenous switching costs," introduces a general theoretical framework for dynamic competition under the presence of two types of switching costs: endogenous costs in the form of switching fees, which are set by providers, and exogenous individuals switching costs, specific to consumers. I propose a two-period game with two providers competing in a consumer subscription market. In contrast to prior research, my proposed model analyzes the combined effect of switching fees and individual heterogeneous switching costs, incorporates consumer heterogeneity, allows for introductory offers, and in an extended version, includes marketing investment by providers. Consumers are heterogeneous in two dimensions: their relative preference of one firm over the other, and their idiosyncratic cost regarding switching provider (these may include a psychological pain, opportunity cost, red tape, etc.). Consumers choose their provider in the first period as a function of prices and their relative taste shock. Their second-period decision, on whether to stay or switch providers, depends on both types of switching costs and prices of the second period.

I show that there are symmetric subgame perfect Nash equilibria in pure strategies, in which the market is split in half between providers and a third of the consumer population switches providers in the second period. The equilibrium switching fees and prices are not uniquely determined, but they lead to unique multi-period payoffs in terms of providers' profits and consumer surplus. These total payoffs are unaffected by the ability to set switching fees, but are directly affected by exogenous switching costs. Switching fees are neutral, they only intensify intertemporal price variation and, therefore, affect intertemporal payoffs by accentuating the trade-off between present and future benefits, leaving multi-period payoffs unaffected. This result is consistent with the observation of some telecom providers that dismiss the use of Early Termination Fees (ETFs). Moreover, my model's result has important policy implications; it suggests that effective regulatory policies should reduce exogenous switching costs (by implementing number portability, standardization or compatibility policies in the telecommunications industry, for example) rather than eliminate or regulate any switching fees (e.g., ETFs).

Likewise, my model predicts that second period prices are increasing in exogenous switching costs, and consumer

surplus decreases with exogenous switching costs. Thus, we can expect that a reduction of exogenous switching costs would lead to lower prices, and to higher demand for services. I empirically test such prediction in the Peruvian mobile telecommunications market, in which a major reform that reduced individual switching costs (unlocked handset policy) was implemented in early 2015. By banning the locked handset sales, this policy freed consumers to use a phone in any of the competing network providers, thus imposed an external reduction of the exogenous individual switching costs. Using longitudinal consumer survey data and firm level data I obtained for Peru in the period between 2013-2015, I found evidence that the unlocked handset policy generated a 33% increase in the demand for mobile services (measured as minutes of call) of consumers who switched and, moreover, I found that any change of current consumers' status (consumption plan or provider) would induce a 28% increase in their demand for the service. Currently, I am working on quantifying the impact of the 2015 Telecommunications reform on social welfare. My objective is to formulate a full structural model of the telecommunications industry, that can also be applied to other markets.

I am ultimately interested in analyzing and understanding the possible sources of consumer inertia and market power. Market power is also exercised in the upstream markets, hindering the benefit to society that can arise from competition. Analysis of buyer power is relevant in agricultural markets in which farmers sell their products to large industries or retailers, and may be at a disadvantage when bargaining with large purchasers. In "Milking the milkers: a study on buyer power in the dairy market of Peru," co-authored with Jose Tavera, we analyzed the dairy market and tested the existence of conditions that facilitates the exercise of buyer power. We used aggregated data and found evidence that dairy companies exert significant buying power in the raw milk market, aggravating downstream market power concentration. Such a structure suggests detrimental effects on consumer welfare and highlights the importance of overseeing buyer power within antitrust legislation.

My future research agenda includes working in richer game theoretical models that consider two-part tariffs and network effects, which adds additional dimension and complexity to the problem of switching costs, thereby enriching our understanding of network industries. The latter, along with the so-called platform industries, are of great interest to me because, among other reasons, they challenge the conventional way that economists think about pro-competitive policies. On the empirical spectrum, I also intend to use my general theoretical model of switching costs to explain the dynamics we observe in many other markets, including health insurance, transportation, and banking. I expect to apply tools of model-based estimation I have developed through my coursework and in working with my advising team. Furthermore, I plan to use computational and machine learning methods in my intended work by leveraging consumer-level data and big data from platform industries. I believe an integrated analysis that combines theoretical work (with appropriate modeling techniques), and empirical analysis using computational techniques is essential to uncover and understand complex market forces in network and platform industries.