November 27, 2016

Recruiting Committee
National Bureau of Economic Research
Ref: Post-Doctoral Fellowship on Household Finance

Dear Recruiting Committee Members,

I am excited to see that the National Bureau of Economic Research is inviting applications for a Post-Doctoral Fellowship on Household Finance, and I am writing to apply for the position. I expect to receive my Ph.D. in May 2017 from the Department of Economics at the University of Arizona.

The central goal of my research is to answer important questions about market design in health care and other markets using modern industrial organization tools. In my dissertation, I study how different forms of inertia affect the welfare of consumers, and how firms react to consumer inertia in terms of their decisions on prices, quality, and entry and exit of products or firms. In my job market paper, I study the effect of supply-side firm responses about pricing and offering of new products on consumer welfare in Medicare Part D in the United States. The second chapter of my dissertation studies the effects of increased competition induced by reductions of consumer inertia on quality and returns to skills for physicians, using uniquely detailed data from the Uruguay health care sector. The third chapter disentangles the effects of reductions in switching costs and in the length of contracts (lock-in) on consumer welfare, using quasi-experimental variation in the length of contracts in the Uruguayan health care system.

In addition to my dissertation, I have a number of completed and ongoing projects. In another paper in the same research area, I study the role of inertia on reclassification risk, analyzing the effects of implicit long-term contracts on the pass through of health shocks to premiums, and the welfare implications of different risk-sharing scenarios. My research agenda includes the study of other important aspects of the design of health care markets in the United States related to the configuration and impacts of provider networks, and the study of the role of dynamic incentives in financial institutions and housing markets. I currently have a co-authored paper in revision for resubmission at the *Journal of Financial Intermediation*. Finally, I have an outstanding teaching record, and successful experience in obtaining research funding.

The enclosed documents demonstrate why I would be an excellent addition to the NBER's Household Finance Working Group. Letters of recommendation will be sent to you directly from Professors Gautam Gowrisankaran, Price Fishback, Tiemen Woutersen, and Mo Xiao. I will be attending the ASSA meetings in Chicago and would welcome the opportunity to meet with you there, or elsewhere at your convenience. If you have any questions or to arrange an interview, please feel free to contact me at +1 (520) 425-9004 or sebastianfleitas@email.arizona.edu. Thank you for your consideration and I look forward to hearing from you.

Sincerely,



Sebastian Fleitas

SEBASTIAN FLEITAS

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EDUCATION

University of Arizona
Ph.D. Candidate in Economics
University of Arizona
M.A. in Economics 2011 - 2012
Universidad de la República, Uruguay
B.A. in Economics 2009

RESEARCH INTERESTS

Industrial Organization, Health Economics, Public Economics, Economic History

WORKING PAPERS

[1] "Dynamic Competition and Price Regulation When Consumers Have Inertia: Evidence from Medicare Part D" (**Job Market Paper**)

[2] "The Costs of Lock-in in Health Care Markets: Evidence from Hospital Choice in Uruguay"

[3] "Who Benefits from Intensified Competition: Competition, quality and returns to skill in health care markets"

[4] "Reclassification Risk in the Small Group Health Insurance Market" with Gautam Gowrisankaran and Anthony Lo Sasso

[5] "Forbearance by Contract: How Building and Loans Mitigated the Mortgage Crisis of the 1930s" with Price Fishback and Kenneth Snowden,*NBER Working Paper 21786 Revise and resubmit at Journal of Financial Intermediation*

WORK IN PROGRESS

[1] "Narrow Network Health Plans: Effects on Access, Cost, Quality, and Selection" with Gautam Gowrisankaran and Anthony LoSasso

[2] "Preferred Pharmacy Networks in Medicare Part D" with Gautam Gowrisankaran and Robert Town

[3] "Bank Overhang and the Supply of Mortgage Credit during the 1930s", with Price Fishback and Kenneth Snowden

ACADEMIC PRESENTATIONS

2016: IIOC 2016 Rising Stars Session, 6^{th} Biennial Conference of ASHEcon, NBER Health Care Summer Institute 2016 (invited to attend), Universidad de Chile (Center for Applied Economics), Becker Friedman Institute - University of Chicago, Latin American Chapter of the Econometric Society and Latin American Economic Association.

2015: NBER DEA Summer Institute 2015, ECORES Brussels IO Summer School, Western Economic Association International 2015, Economic History Association Meetings 2015.
2014: Empirical Lunch (University of Arizona). Economics Department Workshop (Universidad de la República, Uruguay).
2013: 7th World Congress of Cliometrics.
2009: XVth World Economic History Congress (WEHC, Utrecht, 2009)

TEACHING EXPERIENCE

University of Arizona

Sole Instructor of Record: Industrial Organization (Summer 2016), Economics of Regulation and Antitrust (Summer Sessions 2013 and 2014, Winter Session 2015)

Teaching Assistant (undergraduate): Public Economics, Economics of Strategy

Teaching Assistant (graduate): Econometrics II (non-linear models) Fall 2014 and 2015

ECLAC Summer School (United Nations)

Instructor: Reduced form Econometrics in Industrial Organization (2013), Structural form Econometrics in Industrial Organization (2013), Firms and Inequality (2015), Firms and Inequality (2016)

Universidad de la República, Uruguay

Instructor (graduate): Empirical Industrial Organization (2016)

Teaching Assistant (undergraduate): Principles of Economics, Macroeconomics I, Uruguayan Economic History, Latin American Economic History, International Trade

PRIOR RESEARCH POSITIONS

Research Assistant - University of Arizona

Professor Gautam Gowrisankaran (AHQR Grant 1R01HS024850-01)	2016-
Professor Gautam Gowrisankaran (NSF Grant SES-1425063)	2014-2016
Professor Price Fishback (NSF Grant SES-1061927)	2012-2013

Research Associate (2007-2011), Universidad de la República, Uruguay

GRANTS, HONORS and AWARDS

Graduate and Profesional Student Council Travel Grant, Arizona.	2016
Graduate and Professional Student Council (UofA) Research Grant	2015
Center for Management Innovations in Health Care Research Grant	2015
Graduate and Profesional Student Council Travel Grant, Arizona.	2015
Graduate Research Award. Department of Economics, Arizona	2013
Associate Researcher, Uruguayan National Research System	2012 -
George W. Coleman Scholarship, Arizona	2011
George Gregson Scholarship in Economics Arizona	2011
Scientific Research Sectoral Commision (Uruguay), Research Grant	2010

PROFESSIONAL ACTIVITIES

Refereeing: Revista de Historia Económica - Journal of Iberian and Latin American Economic History (Universidad Carlos III, Madrid), América Latina en la Historia Económica (Instituto Mora, Mexico), Estudos Economicos (University of Sao Paulo, USP)

Consultant for: United Nations (One UN Program, Montevideo, Uruguay, 2009), UNIDO-UN, Vienna, Austria (2011), ECLAC-UN, Santiago, Chile (2011, 2014), PriceWaterhouse Coopers (PWC, 2006)

Affiliations: American Economic Association, Econometric Society, American Society of Health Economists, Economic History Association, Western Economic Association, Latin American and Caribbean Economic Association, Sociedad de Economistas del Uruguay, Asociación Uruguaya de Historia Económica

Other: GPSC Travel Grants Evaluator Spring 2015

OTHER PUBLICATIONS

[1] "Technological intensity of the export structure and the real exchange rate" with Mario Cimoli and Gabriel Porcile, Economics of Innovation and New Technology, 22(4), 2013.

[2] "Total and social public expenditure: the Uruguayan case in the 20th century" (in Spanish) with Paola Azar, Revista de Historia Económica / Journal of Iberian and Latin American Economic History, 30(01), 2012

[3] Espacio del Producto y Cambio Estructural: un enfoque latinoamericano (con Alvaro Brunini y Guzmán Ourens), Economia e Sociedade, 22(47), 2013.

[4] Una revisión del desempeño de la industria en Uruguay entre 1930 y 1959 con Rodrigo Arnábal y Magdalena Bertino, Revista de Historia Industrial, 53, 2013.

OTHER

Software: R, Matlab, QGIS, Stata, Gretl, LaTeX
Languages : English (fluent), Spanish (native)

REFERENCES

For letters of recommendation, please contact Graduate Program Coordinator Liz Jenkins at ejenkins@email.arizona.edu.

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Last Update: October, 2016

Research Statement

Sebastian Fleitas
University of Arizona

The central goal of my research is to answer important questions about market design in health care and other markets using modern industrial organization tools. My research focuses on three broad areas: (1) the role of consumer inertia in health care markets, (2) the configuration and impacts of provider networks in health care markets, and (3) the effects of dynamic incentives in credit and housing markets. The use of tools from the field of industrial organization allows me to combine a solid theoretical background with clearly identified reduced-form and structural models, to analyze the welfare implications of equilibrium behavior in these markets, and to evaluate policy interventions and regulations aimed at improving welfare.

The presence of consumer inertia in health care markets has been well established in the literature. However, we still know very little about how different forms of inertia affect the welfare of consumers, and how firms react to consumer inertia in terms of their decisions on prices, quality, and entry and exit of products or firms. In my dissertation, I shed light on these issues in the context of different institutional settings of health care sectors in different countries. In my job market paper, I study the effect of supply-side firm responses about pricing and offering of new products on consumer welfare in Medicare Part D in the United States **(1.a)**. The second chapter of my dissertation studies the effects of increased competition induced by reductions of consumer inertia on quality and returns to skills for physicians, using uniquely detailed data from the Uruguayan health care sector **(1.b)**. The third chapter disentangles the effects of reductions in switching costs and in the length of contracts (lock-in) on consumer welfare, using quasi-experimental variation in the length of contracts in the Uruguayan health care system **(1.c)**. In another paper in this research area outside my dissertation, I study the role of inertia on reclassification risk, analyzing the effects of implicit long-term contracts on the pass through of health shocks to premiums, and the welfare implications of different risk-sharing scenarios **(1.d)**.

A second area of my research agenda studies other important aspects of the design of health care markets in the United States related to the configuration and impacts of provider networks, which are currently at debate in academia and in the policy agenda. In this area, I study the role of narrow networks on access, costs, quality and selection in the employer-sponsored group insurance market **(2.a)**, and the effects of the adoption of preferred pharmacy networks in Medicare Part D **(2.b)**. Finally, a third area of research studies the role of dynamic incentives on the behavior of borrowers involved in risk-sharing contracts with non-borrowers **(3.a)**, and on the lending behavior of financial institutions and its consequences on credit and housing markets **(3.b)**.

Working Papers

(1.a) *"Dynamic Competition and Price Regulation When Consumers Have Inertia: Evidence from Medicare Part D"* (Job Market Paper)

When consumer choices have inertia, firms have incentives to use dynamic pricing by first reducing the price to build a large market share, and then by increasing prices. This strategy may reduce consumer welfare through increases in the prices for incumbents, while also changing the patterns of entry and exit

in the market. Although the presence of inertia in health care markets has been well established, little is known about the welfare implications of dynamic pricing in these markets. In order to assess these implications, in my job market paper I develop and estimate a dynamic model of supply and demand for Medicare Part D prescription drug insurance plans, where multi-product firms consider consumer inertia in their decisions about premiums, offering new plans, and exit of plans. Using the model and the estimated parameters, I conduct counterfactual exercises where I explore the welfare effects of a policy that limits dynamic pricing by imposing fixed markups. I find that this policy, given the actual consumer inertia present in this market, would improve consumer welfare by 3.1%, through a reduction in premiums that is partially offset by a reduction of entry into the market. When the same policy is implemented in a counterfactual scenario without inertia, it has a larger positive effect, increasing consumer welfare by 9.4% relative to the benchmark. This difference indicates that policies that limit dynamic pricing can be more effective in improving consumer welfare in markets with lower levels of consumer inertia, where they are less likely to harm market entry.

(1.b) ***"Who Benefits from Intensified Competition: Competition, Quality and Returns to Skill in Health Care Markets"***

In health care markets, reductions of inertia in consumer choices may also lead to greater incentives for firms to increase quality. With non-perfectly substitutable inputs, hospitals could increase their quality by demanding better technology or better physicians. However, because only persons with a medical license are authorized to practice medicine, in the short run the elasticity of supply of high quality physicians is relatively inelastic. Therefore, an increase in the demand for high quality physicians could lead to an increase in their relative wages without increasing their total hours of work. In the second chapter of my dissertation, I assess these predictions using a quasi-experimental setting in the vertically integrated Uruguayan health care system, where competition across hospitals was increased via reductions in the inertia of consumers. I use administrative records on wages and hours of work in all hospitals for all specialists in the Uruguayan health care system, matched with data on the scores that specialists obtained in the medical specialty school admissions tests, which I use as an exogenous measure of quality of specialists. Consistent with the idea of an inelastic relative supply in the short run, I show that the increased competition shifted the relative demand for high quality medical specialists, increasing their relative wages but without strong evidence of an increase in quality, approximated as relative hours of high quality over lower quality physicians.

(1.c) ***"The Costs of Lock-in in Health Care Markets: Evidence from Hospital Choice in Uruguay"***

In addition to changing the nature of competition, reductions in consumer inertia have direct effects on consumer welfare. Health care markets usually generate consumer lock-in because consumers have to stay with the same provider between open enrollment periods. This lock-in generates costs for consumers but also potential benefits in total welfare, since it reduces the extent of adverse selection. In my third chapter, I study the welfare effects of consumer lock-in, using administrative records for Uruguay. The vertically integrated Uruguayan health care system and the regulated mobility across hospitals of its public health insurance policy provide a good setting to identify these costs. Even when hospitals

change characteristics and prices and consumers may want to re-optimize their option based on these changes, they are locked-in in the same hospital for at least three years before they are able to choose a new hospital in a yearly open enrollment period. These features allow me to develop a dynamic discrete choice model of demand for differentiated products. I estimate the model through a nested fixed-point algorithm using administrative records on hospital characteristics, posted out-of-pocket prices, and individual consumer choices for hospitals between 2009 and 2013. The estimates point out the importance of the switching cost, which represents 40% of the average health care expenditure per year in Uruguay. I use counterfactual exercises to determine the cost of the dynamic lock-in for consumers based on consumer welfare computations. I find that although consumer welfare would increase with reductions of the lock-in length, large gains are only obtained when lock-in reductions are combined with reductions in switching costs.

(1.d) ***"Reclassification Risk in the Small Group Health Insurance Market"***

In this joint work with Gautam Gowrisankaran and Anthony Lo Sasso, we examine the effect of health shocks and implicit long-term contracts on consumer welfare. Health insurance with annual contracts does not provide complete risk protection since enrollees with persistent adverse health shocks will be faced with higher future premiums, which is called reclassification risk. In this paper, we seek to understand the extent of reclassification risk in the small group health insurance market. We make use of data from a large U.S. health insurer, with premium information on over 9,000 employers and claims data for all the enrollees at these employers. In particular, we assess the extent to which the average health risk at an employer is passed through to the employer in the form of higher premiums. We find that the pass through from average health risk to premiums is 39%. This compares with 100% pass through for a perfectly competitive market. There is little evidence that factors other than health risk affect changes in premiums for an employer. Using our pass-through measures, we examine the value of community rating regulations as will occur in this market due to the Affordable Care Act. We find that community rating would have reduced the mean standard deviation of 2014 health spending by an average of $252, resulting in an average welfare gain of $200. Full experience rating would result in much more reclassification risk, with a welfare loss equivalent to $772 relative to the environment reflected in our data. The welfare effects from reclassification risk are much larger for the subsegment of employers in the small group market with twelve or fewer employees.

(3.a) ***"Forbearance by Contract: Building and Loan Mortgage Contracts in the 1930s"***

In this paper, joint with Price Fishback and Kenneth Snowden (*revise and resubmit at Journal of Financial Intermediation*), we study the dynamic incentives for default and liquidation of risk sharing contracts in credit markets. The housing sector was rocked by a major mortgage crisis during the Great Depression of the 1930s, as decreases in income and housing values caused unprecedented numbers of defaults and foreclosures. The institutional features of Building and Loans (B&Ls), the leading home mortgage lenders at the time, helped mitigate the crisis, in part because borrowers had more impact on a B&L's decisions. B&Ls were mutual organizations in which both borrowing and non-borrowing members had ownership claims. To dissolve a B&L required a two-thirds majority vote of the members and each member had one vote no matter how many shares he owned. Using a newly constructed panel dataset from New

Jersey between 1930 and 1940, we estimate that the probability that a B&L would close was increased by 37% when the share of non-borrowing members rose above the two-thirds mark. This voting rule appears to have slowed down the timing of dissolution by about one year on average. The delay in liquidation provided B&L borrowers with forbearance that enabled one-fourth of the borrowers in the troubled B&Ls to pay off their loans and three percent to avoid foreclosure. The delay came at the expense of the remaining members, who suffered further decreases in the liquidation value of their shares and earned lower returns than they could have gained by shifting their B&L investments into other assets. We estimate a net loss of roughly 0.67% of the value of all New Jersey B&L assets in the mid-1930s.

Research Agenda

In the future, I will extend my work on health care and on credit and housing markets. In particular, I plan to work on the following three projects.

(2.a) ***"Narrow Network Health Plans: Effects on Access, Cost, Quality and Selection"***

In an ongoing project, joint with Gautam Gowrisankaran and Anthony LoSasso, we exploit a quasi-experimental setting to examine the impact of narrow network plans on access, cost, quality, and selection in the employer-sponsored group insurance market. Starting in 2014, a large health insurance company introduced a set of narrow network products in major markets throughout the country. The specific way in which the products were rolled out allows us to group consumers in three groups: those who were offered only narrow network plans (treatment 1), those who were offered both narrow and non-narrow network plans (treatment 2), and those who were offered only non-narrow network plans (control). By separately estimating the effects of these two treatments, we can shed light not only on the effects of offering the choice of a narrow network plan, which have been discussed in previous literature, but also on the average treatment effect of forcing all individuals into narrow network plans. Additionally, this unique setting allows us to study which types of individuals self-select away from narrow network plans when broad plans are also offered, and what are the implications of this selection in terms of access, quality and cost. Our data are national in scope, include linked claims, enrollment and demographic information, detailed health plan characteristics, and will span a six-year period (2012-2017) starting two years before the initial introduction of the narrow network products. This project has received a three-year AHRQ grant number 1R01HS024850-01.

(2.b) ***"Preferred Pharmacy Networks in Medicare Part D"***

In a second project, joint with Gautam Gowrisankaran and Robert Town, we aim to analyze the welfare equilibrium effects of the introduction of preferred pharmacy networks (PPNs) in Medicare Part D. The rapid adoption of preferred networks by insurer companies has called the attention of the regulator (the Center for Medicare and Medicaid Services), which is currently monitoring the market and evaluating further regulation. However, there is very little evidence on the impacts of PPNs on prices and access, and there are no previous academic studies analyzing their welfare effects. The main goal of our project is to evaluate whether the introduction of preferred pharmacy networks in Medicare Part D plans increases the welfare of consumers and firms. We will estimate an equilibrium model for the decisions of consumers

and firms (demand and supply), including the bargaining stage between insurers and pharmacies. We can then use the estimated parameters of this model to simulate the outcomes of different alternative policies regarding competition in pharmacy markets, vertical integration between plans and pharmacies, and drug pricing in preferred pharmacies. This will allow us to assess the potential welfare impacts of alternative regulations of this market, including potential regulations regarding network configurations and pricing policies.

(3.b) ***"Bank Overhang and the Supply of Mortgage Credit during the 1930s"***

Finally, I have another project with Price Fishback and Kenneth Snowden that studies dynamic incentives in credit markets and their impacts on the real sector. When credit firms foresee future losses due to the quality of their assets, they can limit their lending activity. In turn, these credit restrictions can have negative impacts on building activity and housing markets. The extent and implications of this type of behavior have been extensively debated, both in the context of the Great Depression and currently after the Great Recession. In this project, we will collect and use detailed annual balance sheet data and new lending activity for Building & Loan firms (B&L) operating in several states during the 1930s, and discuss whether B&Ls behaved dynamically and considered the possibility of future balance sheet losses in their decisions of lending to new customers. In particular, we will examine the impact that real estate on the balance sheet (REO) had on new lending activity within the B&L industry. B&Ls were the nation's most important institutional home mortgage lender in 1930. As foreclosure rates rose during the 1930s, REO increased to unprecedented levels as a share of B&L assets, potentially limiting the capacity of these home mortgage lending specialists to offer new loans. If these restrictions on B&L lending due to REO are verified, we will study their impacts on new building activity, housing prices and economic activity at the city and county levels.

THE UNIVERSITY OF ARIZONA

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October 19, 2016

To whom it may concern:

I write this letter in support of Sebastian Fleitas' application for a faculty position. I am Sebastian's main advisor. In my opinion, Sebastian is the strongest PhD student that I have had the pleasure of advising. I highly recommend that all schools consider Sebastian for a position, including the very best economics departments and other institutions.

I would like to first highlight what I see as Sebastian's main strengths and then give more specifics on some of his papers. Sebastian is researching at the intersection of IO and health economics.[1] This requires several different skills, i.e., the technical ability to implement complicated IO models, the ability to create models that are feasible but also capture important institutional features, the knack to understand relevant questions and data sources in health economics, and the intuition to figure out when one should use complex models and when one should consider more data-driven approaches, such as treatment effects models. Remarkably, in my opinion, Sebastian is at least tied for the best student I have advised in each of these areas (and the best overall). Moreover, while Sebastian certainly does not lack technical sophistication, I believe that his best skill is his economic intuition. His ability to understand what policy questions are important and addressable and what are the best data and methods to address each question is impressive for a scholar at his stage. It's also worth noting that, being from Uruguay, Sebastian knew little about the U.S. healthcare system when he started graduate school here. Yet, through diligence and skill, he was able to acquire this knowledge, which is of course critical for doing good work in the area.

Overall, health/IO is a difficult field for graduate students because it's hard to master all the necessary skills in such a short time. Yet, because well-done research on the topic is so important, students who do master all the skills tend to add substantial value. I believe that Sebastian is comparable to the best students working in health/IO who come out of a top program and hence that he will produce very valuable research.

Another impressive attribute of Sebastian's candidacy is that he already has a substantial portfolio of high quality research. Sebastian's portfolio includes two dynamic structural papers. His job market paper evaluates the equilibrium effects of policies to limit dynamic pricing for Medicare Part D. Another paper concerns the optimal length of health insurance contracts in

[1] Sebastian also has researched on economic history, which my colleague Price Fishback will write more about.

Uruguay in the presence of consumer inertia. A third paper considers how health reform in Uruguay led to changes in compensation and hours for physicians based on their historical medical entrance exam scores. All three papers are impressive and high quality. I believe that all of them have a decent shot at publication in a top five journal and would think that, if they didn't make it there, they would end up at a journal one level below (e.g., RAND, AEJ: Policy) with high probability.

Besides these papers, Sebastian and I have a number of joint papers and projects under way. First, together with Anthony Lo Sasso from the University of Illinois, Chicago, we have written a draft paper, "Reclassification Risk in the Small Group Health Insurance Market." I believe that this is one of my best current projects. As evidence of this, I've presented it a number of times recently, including at seminars at Princeton, UBC, and Ohio State. Using the small group market, this paper provides one of the first looks at how adverse health shocks translate into higher premiums and welfare loss from long-run risk in the real world. In addition, also with Tony Lo Sasso, we received, and recently started researching on, a million-dollar-plus R01 grant from the Agency for Healthcare Research and Quality on narrow network health plans. These papers all make use of unique data that we were able to obtain from one of the largest national health insurers.

For my joint research with Sebastian, I should stress that Sebastian has been a full (and terrific) co-author and not a research assistant. Although he could not serve as a co-PI of the grant because he is a graduate student, Tony and I consider him to be a full equal on our projects. I have consistently been impressed by Sebastian's maturity of thinking in our joint research and I don't think that we could have produced nearly as good a grant application or draft papers without his input. We are frankly relying on Sebastian to continue his excellent work on these projects. With his input, I believe that this research agenda is likely to produce a number of high-quality papers over the next three to five years.

It is probably also worth noting that Sebastian's work uses an impressive variety of research methods. Though Sebastian's job market paper is a dynamic oligopoly estimation paper, it would by no means be accurate to view Sebastian to be a scholar who only writes complex, dynamic papers. Indeed, much of Sebastian's other work would fit more into an applied micro genre, using excellent data in relatively transparent ways to address questions of importance. For instance, in our narrow network studies, we will use a treatment effects approach to understand heterogeneity in the outcomes resulting from narrow network plans. The insurer with which we are working offered narrow network health plans across many states, with some employers not taking up these plans, other employers taking up the plans as add-ons, and a third set of employers taking up the plans as replacement for existing plans, allowing us to identify selection and outcome effects in this framework. Our joint work on reclassification risk specifies a simple two-period model of risk and then estimates the underlying pass through parameters that feed into this model with fixed effects regressions. The counterfactuals then impose the model to obtain welfare estimates. Among Sebastian's three sole authored papers, one is a dynamic oligopoly model, a second is a single-agent dynamic estimation, and a third involves a treatment effects approach motivated by theory. In further work on narrow networks, we plan to estimate bargaining models. Importantly, it's not just that Sebastian understands these methods, it's that

he has a deep enough understanding and overall sense of economics to be able to evaluate which approaches work best in which contexts.

Let me now briefly touch on four of Sebastian's papers, starting with his job market paper.

1) Dynamic Competition and Price Regulation When Consumers Have Inertia: Evidence from Medicare Part D

Sebastian's job market paper considers Medicare Part D. Medicare Part D is the federally subsidized program that provides drug coverage for the elderly through private plans. It has been documented that the Medicare Part D market is characterized by inertia, where enrollees don't switch plans very often, even when they could seemingly benefit from switching. It has also been documented that firms "game" the inertia: new entrants to a market invest in customers by offering low premiums, and then these firms gradually raise premiums or lower benefits over time. This has led to a debate on the best solutions to the problem of inertia. One proposal has been to ban firms from raising premiums on existing plans, relative to some overall market benchmark.

Sebastian's contribution to this literature is to evaluate the *equilibrium* effects of different policies. This is a hugely important and fundamentally empirical question. A government policy that banned Part D plans from raising their premiums over time would help consumers, all else equal. But, such a policy might yield less entry than the current environment and hence overall higher prices. Thus, in order to understand the equilibrium effects of dynamic pricing restrictions here, one would have to evaluate the trade-off between having fewer plans available against the potential benefits of lower premiums increases over time. In order to evaluate this trade-off, Sebastian develops a dynamic oligopoly model of Medicare Part D, estimates the model, and evaluates the equilibrium implications of counterfactual policies that restrict pricing changes.

This paper has several necessary parts to it. First, Sebastian documents that there is in fact, plan inertia, whereby previous plan choice is hugely predictive of current plan choice. He also shows that firms do choose invest-harvest strategies; i.e., new plans tend to enter with low prices and high benefits, and then they decrease benefits and increase prices over time, exactly as one would predict.

Having shown this reduced-form evidence, Sebastian estimates demand for plans, using a discrete-choice framework with random coefficients, as in Berry, Levinsohn and Pakes (1995), employing a random coefficient over price sensitivity. He then estimates a dynamic oligopoly model, following Bajari, Benkard, and Levin (2007)'s approach. The key parameters that he seeks to estimate in his dynamic oligopoly model are per-beneficiary marginal costs, as well as the costs of entry and exit per plan. Marginal costs cannot be estimated from static behavior alone, since prices have a dynamic component here: a low price increases demand, which also increases future demand. Using the Bajari et al. approach, estimation of these parameters depends on estimating policy functions, which in Sebastian's case specify entry, exit, and pricing behavior as a function of the competitive environment. Using these policy functions, Sebastian performs a forward simulation exercise to solve for different components of firm values under

different policies. Finally, he uses the forward simulations for different policies to solve for the Bajari et al. estimator, which is the parameter value that makes the predictions of actual policies maximize firm value relative to other policies. Sebastian finds credible estimates for the structural parameters. For instance, he finds that mean entry costs of a plan are about $2.5 million and that the mean exit costs are not significantly different from zero.

Using his estimates, Sebastian then seeks to evaluate what would occur if the government regulated prices in this market but allowed firms to enter and exit at will. This is not an easy task. He needs to solve for the Markov-Perfect Equilibrium of the game, in order to understand equilibrium entry and exit behavior under different policies. In the presence of consumer inertia, the lagged market share of each firm by consumer random coefficient type is a state variable. With dynamic pricing policies, lagged pricing decisions form additional state variables.

To make his counterfactual analysis tractable, Sebastian employs a number of simplifications. First, he limits the analysis by limiting markets to have five firms maximum, each with one plan. I believe that this is a reasonable approximation for a counterfactual here because the four largest firms have a 60 percent national market share. Second, he considers counterfactual policies where the government sets a fixed markup above marginal costs, similar to the "medical loss ratio" restriction in the 2010 Affordable Care Act (aka, "Obamacare"). Third, he assumes that firms pricing behavior is based only on their mean lagged market share, and not on the variation in lagged market share by consumer random coefficient type.

Sebastian's principal findings are that, with these counterfactual policies, entry would drop significantly, reducing markets from having a mode of three firms to a mode of two firms. Thus, the gain to consumer surplus from this type of dynamic pricing restrictions is very limited. In contrast, without consumer inertia, this policy would significantly increase consumer welfare.

I believe that this research has substantially advanced the equilibrium modeling of the Medicare Part D market relative to previous research. For instance, unlike Sebastian's paper, the previous research on this area, including two recent job market papers from students at MIT and Minnesota, was not able to solve for counterfactuals that are consistent with equilibrium optimization under counterfactual policy environments, thereby limiting their applicability. Overall, I believe that one of the impressive things about this paper is that the modeling captures enough of the institutional details to capture the important features of the Medicare Part D market, but not so much that it is not tractable or well identified.

2) The Costs of Lock-In in Health Care Markets: Evidence from Hospital Choice in Uruguay

In this paper, Sebastian seeks to understand the extent to which consumer lock-in of health plan choice lowers consumer welfare. In the U.S., most private and public health plans (e.g., Medicare Advantage) lock in consumers to a health plan choice for a one-year period. This is not always the case in other countries. Moreover, the choice of lock-in period will affect value. A longer health plan lock-in period will mean that consumers are stuck in plans over a longer

horizon. Plans may in turn change their attributes over time away from the consumer's preferred plan, thereby leading to a loss in utility.

The overarching idea of this work is to estimate a dynamic model of consumer choices for health plans, and use the model to predict consumer choices and welfare with counterfactual plan lock-in lengths. In his model, Sebastian allows both for lock-in and for plan inertia. He considers demand side counterfactuals, which hold constant firm attributes and prices. He interprets the inertia as switching costs, whereby enrollees of one plan bear an actual cost from switching to a different plan.

Sebastian evaluates the case of health plan lock-in using data from a public health care program in Uruguay, called FONASA, which currently covers two thirds of the Uruguayan population. In Uruguay and much of South America, health plans are vertically integrated organizations with exclusive sets of physicians, clinics, and hospitals. Following the 2000 financial crisis—which affected Uruguay and Argentina—FONASA froze health plan choices. As the Uruguayan economy started to recover, the government gradually expanded access to FONASA, starting in 2007. Specifically, different sectors of the economy were incorporated into FONASA in different years. The sectors that were added in each year were not preannounced, in order to prevent gaming. Sebastian assumes that the timing of the FONASA expansion was exogenous, which I think is reasonable given this policy goal.

Along with the expansion, FONASA also liberalized health plan choices, starting in 2009, which helps Sebastian in identifying switching costs. Specifically, enrollees who joined FONASA in 2009 or after could switch plans after three years with the same plan. But, their time in the health plan prior to joining FONASA counted towards this window. Thus, if an enrollee in sector A privately purchased a plan in 2008 and then was added to FONASA in 2009, she would be able to pick a new plan in 2011 if she chose the same plan in 2009 as she had in 2008, implying a two-year lock-in. If an enrollee in sector B privately purchased the same plan in 2008 and then was added to FONASA in 2010, she would have only a one-year lock-in if she picked the same plan.

Given the presence of switching costs and the nature of the counterfactual (reductions of lock-in lengths), demand in this model is dynamic. Sebastian estimates a model of dynamic demand where the main parameters are fixed effects for health plans, price disutility, and switching costs. In the model, enrollees of a plan observe price and quality characteristics of each plan and form rational expectations about the evolution of these characteristics. Like in his job market paper, plan characteristics will likely evolve to become worse over time, as insurers seek to "harvest" profits on their existing customer base. Sebastian estimates a simplified version of the dynamic durable goods model that I developed with Marc Rysman, and which is published in the *JPE* in 2012. The difference from my paper is that, instead of modeling unobserved product quality in a GMM framework, he assumes that insurer fixed effects are sufficient here, and hence estimates a maximum likelihood specification. Because Sebastian considers only demand-side counterfactuals, he does not need to solve for the dynamic oligopoly solution here; instead, he assumes that consumers have rational expectations over the invest-harvest strategy observed in the data.

A key parameter to identify here is switching costs. If there were no switching costs, individuals with different lock-in lengths would prefer the attributes over their contract period. With switching costs, individuals know that they will be at least partially locked-in beyond their contract period and will care about expected future characteristics over a longer horizon. Thus, the extent to which attributes beyond the lock-in period affect choice can identify switching costs. A central value-added of this study is that there is a credible source of quasi-experimental variation in lock-in period, stemming from the variation in lock-in length noted above, based on different sectoral entry years into FONASA.

Sebastian finds that there are substantial switching costs across plans and that plan attributes change over time. In the absence of switching costs, a shorter lock-in length would allow consumers to reoptimize plans and hence increase welfare substantially. However, the presence of switching costs limits the possibility of switching plans and hence the gain from a shorter lock-in length is relatively small.

Overall, I believe that this paper contributes significantly to the literature on health plan choice. This paper is probably closest to the job market paper of Juan Pablo Atal, a 2015 Berkeley PhD who is now an Assistant Professor at Penn, and who analyzes a similar question using Chilean data. Sebastian's work builds on Juan Pablo's, by modeling demand dynamically and accounting for switching costs, and by considering a slightly different research question. As noted above, Sebastian is able to identify switching costs based on the variation across individuals in lock-in periods, which I think is a novel and credible source of identification.

3) Who Benefits When Lock-In Is Reduced? Competition, Quality, and Returns to Skill in the Health Care Market

This paper seeks to understand what happens to the labor supply market when inertia is reduced. Here, Sebastian makes use of roughly the same quasi-experiment as in his second paper, which is the liberalization of healthcare plan choices in Uruguay, that occurred starting in 2009.

However, this paper examines a substantially different issue regarding this reform. Here, he would like to understand what happened to the returns to physician skill following the reform, which essentially makes consumer demand for quality more elastic. Sebastian develops a simple theoretical framework that identifies two ways in which a different elasticity of demand with respect to quality might affect the returns to skill. First, on the intensive margin, high quality physicians might earn more money. Second, on the extensive margin, they might adjust their number of hours worked.

In my opinion, the most interesting thing about this study is that Sebastian is able to link outcomes following the reform with a plausible measure of skills. His measure of skills is the specialist physician's test score on their graduate medical school entrance exam. Here, he has data on the cohorts of specialists who took the graduate medical exam between 1996 and 2010. The exams are far enough before the reform and before the physicians start working that one would not worry about endogeneity issues, e.g., that physicians are responding to the liberalization in their test score.

Sebastian finds what I believe are very interesting results here. A one grade increase in test score for specialist physicians raises wages 3.5% and hours 2.4%. He also splits the effects by physician specialty and finds the largest impacts in primary care specialties, such as pediatrics, and in anesthesiology.

In my opinion, this paper will be very influential in this literature. I am not aware of other studies that can identify physician labor market effects using such a clean quasi-experiment. Moreover, there is a substantial debate on the impact of quality on competition and, the findings on changes in hours worked based on physician skill will contribute substantially to evaluating this impact.

4) Reclassification Risk in the Small Group Health Insurance Market (with me and Anthony Lo Sasso)

One of the important questions in healthcare policy is how decentralized markets for health insurance function. For health insurance markets to be efficient, they need to provide risk protection, and in particular, risk protection over time. In the absence of long-run contracts, even competitive markets that price at cost will not provide protection from the risk that a persistent health shock will lead to higher future premiums, also called reclassification risk. The possibility of reclassification risk from competitive markets has long been recognized in the health economics literature.

The goal of this paper is to examine the extent of reclassification risk in the market that insures individuals at small employers. Individuals at small employers may be particularly affected by reclassification risk because risk pools are small in this market. One of the central goals of the Affordable Care Act is to eliminate reclassification risk. Accordingly, the ACA is phasing in requirements whereby insurers must charge the same per-person premiums within a local area in this market.

A substantial recent literature has considered reclassification risk for health insurance. However, in most cases, the papers have not considered the risk that comes from the ability of insurers to charge higher premiums in response to health shocks, called experience rating, but rather looked at more indirect sources of experience rating. In other studies, experience rating has been a counterfactual that the authors examine, rather than coming from their underlying data.

We contribute to this literature by evaluating the extent of experience rating for health insurance in the real world. We use unique proprietary data from a large insurer over 10 states that provides a panel of premiums, plan benefits, and claims experience across the 9,000+ employers served by this insurer in these states. We use the claims data to calculate different measures of future expected health expenditures. We estimate the extent of actual experience rating for this insurer by evaluating the extent to which a change in expected health expenditures translates into higher premiums, controlling for employer fixed effects. Using published risk aversion coefficients, we then examine how much risk sharing the insurer was providing in the pre-ACA world and how much added value would result from the upcoming ACA regulations.

Our main (preliminary) findings are that the insurer passes through 39% of extra health risk in the form of additional premiums in the small group market. This compares to the competitive benchmark of 100% and the ACA mandate of 0%. This results in individuals in our market being faced with a standard deviation of future annual premiums of $387 compared to $990 under the competitive benchmark. This effective risk sharing by the insurer increases their certainty equivalent annual income by about $700 relative to the competitive benchmark. The ACA mandate would further increase certainty equivalent income by $200. We are waiting for new data from the insurer with more years and will add to the results at that point.

Overall, my hope is that this joint work will prove influential in helping understand the performance of the small group insurance market and how the ACA has affected performance in this sector. We are particularly excited to combine these unique data with simple economic theory and empirical work. Sebastian has played an invaluable role in developing the underlying theory, the set of economic questions to address and the methods to best address them. He's also been the person who has done most of the nuts-and-bolts of estimation with the large datasets that we use in this study and has been great on this dimension as well—a skilled programmer and more importantly, someone with the maturity to be careful with data and document choices so that the analyses are reproducible. Hopefully, this lends credibility to my statement that his role on this project has not been as a research assistant.

Having discussed some of Sebastian's work, let me conclude by briefly discussing his Sebastian's candidacy more generally. Sebastian is among the hardest working students that I have met and also the one who works the most productively. I never see Sebastian make the same mistake twice. Moreover, when Sebastian knows he has a weakness, his attitude is to work twice as hard to address that weakness. For instance, Sebastian's English was relatively weak when he started at Arizona five years ago. Knowing this was a weakness, he worked really hard at it and now his oral and written English are both excellent. My colleagues in other fields have commented to me that one of Sebastian's strong assets is that he is willing to engage in meaningful discussions with scholars in other fields of Economics; this of course shows up in the diversity and breadth of thought in his own work, which is rare for a graduate student. Let me also mention that Sebastian is very outgoing and has a lot of interests other than Economics, e.g., soccer, the guitar, and politics, and would a fun colleague for this reason. Having discussed his strengths, it's probably also mentioning what are his relative weaknesses. Sebastian is a skilled presenter. For instance, he has taught four classes as the sole instructor at the University of Arizona and obtained stellar evaluations, ranging from a mean of 4.0 to 4.8 on a five-point scale. Nonetheless, I feel that he needs additional polish for his presentations to be equivalent to those of the top students at top schools; of course, this is something that he is working on.

I also have always really appreciated Sebastian's attitude to research and life. Professionally, more than anything else, he simply loves doing economic research, and doing the best research possible. Sebastian always pushes himself to do his best. I've also only heard good things about him from other graduate students and faculty members in the department. As a co-author, Sebastian is always extremely polite and respectful, but at the same time, he is not overly deferential: when he has a point to make, he will make it (and more often than not, he is right).

Given this attitude, I have no doubt that Sebastian will succeed wherever he ends up, although I think that he will add the most value at a top research institution.

In sum, I strongly urge you to consider Sebastian Fleitas further. Please feel free to contact me should you have further questions.

Sincerely yours,



Gautam Gowrisankaran

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November 15, 2016

Letter of Recommendation for Sebastian Fleitas

To whom it may concern:

I am writing to strongly recommend Sebastian Fleitas for a position in your institution. Sebastian is an economics Ph.D. candidate at the University of Arizona, working in the intersection of empirical industrial organization and health economics. I think that Sebastian is an outstanding candidate for any economics department or other institutions.

I met Sebastian right after he started our program, and later I taught him empirical industrial organization when he was a 2nd year Ph.D. student. Since then, I have discussed Sebastian's research with him from time to time and became one of his dissertation committee members. What's notable about Sebastian is that he started our Ph.D. program with the mentality of a researcher instead of just a student. He is passionate about economic research and strives diligently to make his own contribution to the intersection of IO and health. He has the best attitude about learning and takes nutrition from different sub-fields of microeconomics. He is extremely hard working and willing to sink time into any problem he is facing. That's probably why both Prof. Gautam Gowrisankaran and Prof. Price Fishback, two prominent scholars in very different fields (both faculty members of my department), are willing to work with Sebastian and rave about him as a collaborator.

Sebastian's job market paper uses structural econometric methods to analyze "harvest pricing," a firm strategy to offer lower introductory prices to attract consumers in, and then increase prices after consumers are locked in. This is a notable problem in health care market, as consumers are documented to have high degree of inertia. Sebastian investigates this dynamic pricing problem in the Medicare Part D market, the federally subsidized program that provides drug coverage for the elderly through private plans. This is a complicated problem, as providers not only choose prices, but also choose entry and exit of new plans. A policy that limits providers' ability in dynamic pricing will change the industry in many dimensions, leading to an ambiguously effect on consumer welfare. Sebastian takes on this challenging problem, developing a tractable model which makes necessary simplifications but still captures important institutional features and estimating key parameters such as marginal costs per beneficiary and entry/exit cost per plan. With his estimated model, Sebastian then performs counterfactual simulations to show that fixing firms' markup is welfare enhancing, but the gain is partially offset by a reduction of new plan into the market. Policies that limit dynamic pricing are more likely to work if consumers

have low level of inertia, although firms will have less incentive to practice dynamic pricing in this situation.

This paper is an excellent example of why policies that aim to protect consumers do not often achieve goals as intended. A close example I can think of is Greg Crawford and Ali Yurukogulu's paper about unbundling cable television channels. They show that consumers not necessarily benefit if they could purchase channels a la carte, because channels prices would be higher on average if they were offered individually as cable television providers have to renegotiate prices with content providers. Sebastian's finding is economics at work --- we would need Sebastian's model to capture the equilibrium effects of policy changes. This is also one of Sebastian's main strengths: he is equipped with frontier IO methods and techniques so he can analyze healthcare market (or any market he's interested in) with a game-theoretic, dynamic perspective. Any institution that hires Sebastian would benefit from his expertise on this front.

Since Sebastian's main advisor, Gautam Gowrisankaran, will describe his dissertation (and their joint work) in detail, my letter will discuss the salient features of Sebastian's research and evaluate his prospects to develop a productive research career. In my opinion, Sebastian's dissertation, which combines frontier Industrial Organization methods with important questions in health economics, clearly demonstrates his productivity, intelligence, economic intuition, and ability to handle complex econometric models.

First, Sebastian is well versed in both empirical Industrial Organization methodologies and the institutional idiosyncrasies of health care markets, both requiring significant investment of time and energy. Health care is a very important market yet difficult one to analyze, complicated by the intertwining of consumers, providers, insurers, and governments as well as the intricacies of information asymmetry, adverse selection and risks. A policy change may cause a chain reaction from all evolved parties, making a straightforward evaluation impossible. Such strategic, often dynamic effects call for IO economists who are able to develop models to evaluate the tradeoffs of policies. I am confident to say that Sebastian has acquired crucial technical ability and institution knowledge to conduct high-quality research on this topic and make substantial contribution in the years to come.

Second, Sebastian is super productive. This is not just to say that he writes many papers. Yes he does but in Sebastian's case his papers are all quite different, each aiming at an angle making unique contribution to our understanding of an important question. His papers span from Uruguay to U.S.A., from health care to mortgage contracts, from contemporary times to 1930's economics crisis. Any single paper in his research portfolio can probably serve as his job market paper, which reflects how productive Sebastian has been in his years at U of A. Sebastian is truly prolific. I have no doubt he will continue to discover new and interesting problems and data sets and write papers of high caliber on them in the future.

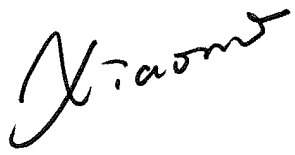
Third and last, Sebastian has broad interests. He can talk across fields, such as IO, health, economic history, applied econometrics, which is a talent rare to find among graduate students. He will have high levels of synergy with his future colleagues. His future students will benefit from his well-balanced perspective.

On the personal side I can vouch for Sebastian. He always has a warm smile on his face and can develop a conversation with anyone. He is a very humble person but holds up himself very well as an equal in presentations and conversations about research. He is universally appreciated and

loved in my department: everyone has great things to say about him. He will make a fantastic colleague.

In closing, I believe that Sebastian will make a superb hire for your position. He already has an excellent research portfolio of high quality research under way, which will likely bear fruits in the first few years of his career. He will build a successful career in academia or any research-oriented environment. He will become an established scholar in health economics and industrial organization. Please let me know if I can provide any additional information.

Sincerely,



Mo Xiao

The University of
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October 31, 2016

RECOMMENDATION FOR SEBASTIAN FLEITAS:

I give Sebastian Fleitas my highest recommendation for a position with your University. He is one of the top two Ph.D. students from Arizona in the 27 years that I have been here. This includes students who were placed as assistant professors at UC San Diego and Michigan and as post-doctoral scholars at Harvard, Yale, Cal Tech, and Columbia who then went on to major research universities as assistant professors.

Sebastian is a superb applied microeconomist who works in industrial organization, health care, and the study of financial institutions. His skills are wide ranging. He is adept at estimating structural IO models and developing counterfactuals. He also has excellent economic intuition in developing reduced-form econometric analyses. His research is also informed by a deep understanding of the institutional background and careful study of the quality of the data.

I first learned about Sebastian from Luis Bertola, one of South America's leading economic historians, at the Executive Committee meetings for the International Economic History Association. Luis told me that Sebastian was a brilliant student and the best student in Uruguay; therefore, we recruited him heavily to come to the University of Arizona. He excelled from the moment he arrived. He earned high grades in all of the coursework and delivered excellent second-year and third-year papers. Throughout this period he was helping other students in the program with advice on their research. In addition, every summer he was teaching short courses in econometrics in South America to masters and Ph.D. students there. We had Sebastian meet with numerous visiting faculty and many mentioned that he had provided valuable comments on their research.

Sebastian is writing his dissertation on the industrial organization of health care under the direction of Gautam Gowrisankaran. The three papers are all excellent and have strong probabilities of appearing in the leading journals in economics. His job market paper examines dynamic oligopoly pricing and entry in the market for Medicare Part D prescription drug insurance. Prior work has shown that consumers tend not to change plans once they have selected one, and that firms may be taking advantage of this fact by offering low prices initially and then raising them over time. Some policy makers have

called for price controls in these markets to try to stop the price rise. The problem with the analyses to date is that they have not taken into account the longer run dynamics of the insurers' decisions to enter or exit the market. When these effects are taken into account, the price controls look less promising because they likely will lead to a reduction in entry by competing insurers and thus lead to less competition and ultimately higher prices or restrictions on access to the insurance. Sebastian's analysis is a tour de force. Using reduced-form methods he documents the pricing behavior that others have found. He then builds a dynamic oligopoly model with entry and exit. Using techniques from Berry, Levinsohn, and Pakes (1995) he estimates demand for the insurance using random coefficients to capture heterogeneity in the price sensitivity of insurance buyers. Using the demand parameters he estimates a dynamic oligopoly model using methods developed by Bajari, Benkard, and Levin (2007). In the course of the estimation Sebastian develops policy functions that show how firm's choose price, exit and entry as the degree of competition in the market changes. From the policy functions Sebastian develops counterfactual simulations for Markov Perfect Nash Equilibria that show how the firms react to shifts in demand and marginal costs in an unregulated market. He then compares these situations to settings where various regulatory proposals are put in place.

For his second and third chapters, Sebastian uses the same types of skills to examine issues related to "lock-in" in health care markets in Uruguay. In Uruguay as in many South American markets the health plans are vertically integrated and are composed of exclusive collections of doctors, hospitals, and clinics. In addition, plan participants are locked into their contracts for much longer periods of time. This can be problematic because the quality and mix of doctors, hospital, and clinics in the vertically integrated health plans can change over time in ways that deviate from the plans for which consumers signed up. Sebastian uses his combination of structural and reduced form skills to address two different issues. The first is to estimate the size of switching costs. He can identify switching costs from a process in which the public option FONASA began expanding in 2007 and then began allowing people to switch after only three years in 2009. Once he has identified the importance of switching costs in this second chapter, Sebastian then turns to estimating the impact of reducing switching costs on the earnings of physicians of different quality in the various plans. The expectation is that lower switching costs will lead consumers to put more effective pressure on the health plans to upgrade the quality of physicians In turn, competition for higher quality doctors would increase, leading to higher earnings for doctors of higher quality. The measure of doctor quality is based on their specialist physician test scores whey they took the graduate medical exam, so there is no ability for the quality measure to respond to the later changes. Using this clean identification Sebastian finds that opening of the markets leads to increases in wages and hours worked by better physicians. Doctor quality and compensation issues are important world-wide and Sebastian's analysis has clean identification of the effects. Thus, it seems likely to be a highly influential paper. For more detail on all parts of the dissertation as well as the joint work that Sebastian is doing with him, see Gautam Gowrisankaran's letter.

In addition to his work on health care, Sebastian has been co-authoring research with Ken Snowden and me on a substantially different research agenda: the boom and bust in

mortgage markets in the 1920s and 1930s. This was a real estate boom and bust that rivalled the most recent fluctuations in housing markets in the 2000s. The primary financial institution making loans at the time was the building and loan association (B&L) , which had many features of a cooperative because the borrowers became owners of the institutions while they repaid the loans. The National Science Foundation funded our collection of asset balance sheets from thousands of building and loans in over 25 states for the period 1920 to 1940. In his second year in graduate school Sebastian joined forces with Ken and me to begin to write a series of papers about this era. Sebastian is the lead author of a paper in which we examine the reasons why B&Ls were so slow to close during the 1930s. While commercial banks, which typically did not make mortgage loans, were closing right left, B&Ls stayed open even as they saw large drops in the assets on their balance sheets, and the share of foreclosed real estate on their balance sheets rose. They did not begin closing down in large numbers until the second half of the 1930s, which helped lengthen the Depression.

The work Sebastian is doing with us shows his commitment to careful study of the institutions and the data. Sebastian played a major role in setting up the panel data sets, insuring that variable definitions matched across time, and cleaning the data. Ken and Jonathan Rose are the leading experts on the institutional features of B&Ls and Sebastian is not too far behind them because he immersed himself in their writings and in the sources they rely upon. He then played a lead role in designing the hazard models that we estimate for B&L closures. The key institutional features that delayed the closure of B&Ls were the ownership stakes held by borrowers and the rules that required at least two-thirds of the owners to vote for closure. Borrowers had every incentive to keep the B&L open because if they could pay off the loan before closure, they owned their house free and clear and avoided a substantial loss because they were no longer B&L members. While controlling for changes in the structure of assets and liabilities and the starting situation for each of the B&Ls, Sebastian estimated an array of different hazard models and other approaches that showed the impact of the changing share of borrowers among owners in a robust fashion. The results show that once the borrower share of owners dropped below one-third, the odds of closure rose 40 percent. We then determined that this led to an average delay of about one year in the closure. Using data on the asset positions of borrowers and nonborrowers, we found that the nonborrowers lost about three times as much as the borrowers gained from the delay. Such difference in the losses and gains contributed to a shift away from B&Ls to the savings and loan model that dominated mortgage lending for the next 60 years. Sebastian was the lead presenter of the paper at the World Congress of Cliometrics in 2012, at the Economic History Association meetings in 2015 and at the NBER Summer Institute in 2015. We recently received a very positive offer to revise and resubmit the paper from the *Journal of Financial Intermediation*. This is just a first of the series. Sebastian has already performed the initial estimations of a study in which we examine the impact of the foreclosure overhang and mortgage lending during the late 1930s. The same issue became a serious problem in the modern era.

After reading Sebastian's letters, you will see that he is going to publish at least six very high quality papers from the work that he has done in graduate school. They are all in

good shape, and I anticipate that they will come out relatively quickly. These include three that he developed on his own as well as three co-authored with advisors. You will love having him as a colleague. He enjoys the research process and loves talking about economics and economic research.

Sebastian is very good teacher. John Drabicki's letter speaks to the quality of his lectures and his strong teaching evaluations. One reason that he is such a good teacher is that he is cheerful and one of the most helpful people that you can meet. Not only has he been a resource for fellow Ph.D. students, he is a key resource for faculty and for other students. Last year he took a few hours and taught a group of MBA students with whom I was working how to estimate hazard models for breakdowns in parts at a nuclear power plant. They loved working with him and thanked him profusely because his help made them look like geniuses to the plant manager. He is also a great friend. He and I share a love of music, sports, and movies and we have had a great time while we have been working together.

Sebastian has clearly demonstrated that he is on the path to becoming a truly great scholar. He has all of the skills and the drive to be a success as an economist, and you will thoroughly enjoy having him as a colleague. I give him my highest recommendation.

Sincerely,



Price V. Fishback
Thomas R. Brown Professor of Economics
Executive Director of the Economic History Association
Research Associate of the National Bureau of Economic Research

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October 31st, 2016

To whom it may concern:

I write this letter of recommendation in support of Sebastian Fleitas' application for a faculty position. Sebastian is a sixth year Ph.D. student at the University of Arizona and is on the job market this year. I have known him since 2011 when I moved to the University of Arizona. Sebastian took my advanced PhD class in econometrics and did very well. He also served as my teaching assistant for a second year graduate econometrics course. Sebastian's primary fields are industrial organization and health economics. His primary advisor is Gautam Gowrisankaran and I am on Sebastian's committee.

In my opinion, Sebastian is a very strong candidate for a faculty position at a top research university. I recommend him very strongly to all departments. I believe that any department that is looking to hire an industrial economist or a health economics should consider Sebastian. My very best previous students have taken tenure-track positions at the economics departments at New York University, University of Mannheim, and at the School of Medicine at Washington University (as an assistant professor in data analytics). I believe that Sebastian's research and ability put him at the very top of this group of students. I am also writing a letter for another University of Arizona student, Wesley Blundell. He is also excellent. Sebastian and Wes are the best students at the University of Arizona since I arrived here and, together with the three alluded to above, are the best in my career. My letter for Wesley also contains this paragraph, mutatis mutandis.

Let me briefly focus on Sebastian' paper "Dynamic Competition and Price Regulation When Consumers Have Inertia: Evidence from Medicare Part". Inertia of consumers can be caused by inattention and switching costs. This inertia is important in many markets, including health care markets. A classical strategy of firms when faced with inertia is to use dynamic pricing: First have an investment phase with low prices and then have a harvesting phase with high prices. Recent papers in health economics found evidence consistent with firms exploiting this inertia in Medicare Part D. See for example Nosal, 2012; Handel, 2013; Polyakova, 2015; Ho et al., 2015; and Fleitas, 2016. One possible reaction to investing-harvesting behavior by firms is to introduce regulations to cap price changes. However, the welfare implications of dynamic pricing regulations are not well understood. For example, the relatively high prices during the harvesting phase may be needed for profitability and entry might go down if the price changes are regulated and this low entry harms consumers. Sebastian research question is how would policies that limit dynamic pricing affect entry, exit and welfare in Medicare Part D? He documents the prevalence

of dynamic prices and analyzes the welfare impacts of dynamic competition in Medicare Part D while *allowing for endogenous entry and exit.* In order to do this Sebastian develops a dynamic model of demand and supply. He models the demand side as myopic and heterogeneous consumers with inertia. When modelling the supply side Sebastian allows for endogenous entry and exit with dynamic pricing decisions. He then computes counterfactuals to assess the effect of *not* allowing for dynamic pricing on entry, exit and welfare. He finds that requiring the firms to have fixed markups yields modest welfare gains for consumers with inertia. He also finds that the welfare gains would be much larger if this inertia would somewhat disappear (inertia can be reduced by advertising campaigns or incentives).

Let me now describe Sebastian's approach in more detail. He has data on the 34 geographic markets defined in Medicare Part D. The demand side of his model is as follows. Consumers face switching costs and are myopic. The utility of these consumers is such that it implies a conditional logit model. On the supply side Sebastian specifies value functions for incumbent plans and value functions for entrant plans. He then assumes that the same equilibrium exists in all markets and estimates his model through GMM. The consumer switching costs are identified by the entry of new consumers and the exit of consumers from plans. The plan characteristics vary by times and region so that Sebastian can use BLP and Hausman-Type instruments to allow for potential endogeneity of premiums. The supply model can be estimated using a two-step procedure by Bajari, Benkard and Levin (2007): Sebastian first estimates the parameters of the policy functions and, in a second step recovers the structural parameters (about cost, entry and exit). These policy functions are identified using the observed characteristics and fixed effects by market and the unobserved quality is estimated from the demand side. In particular, the marginal costs of the firms are identified by the firms pricing decisions in different markets while the entry and exist costs are identified by entry and exit decisions of firms and their duration in markets. Sebastian finds that the consumer price elasticity is -5.24, which is similar to what Lucarelli, 2012 and Decarolis et al., 2015 find. Also, Sebastian estimates the markup rate to be 13% while the average total cost is $1079. The real advantages of a structural model like this are of course the counterfactuals. The first counterfactual assumes that regulation removes dynamic pricing. This causes consumer welfare to be higher through lower prices. However, fewer firms enter the market in this case which partially offsets the direct effect. In a second counterfactual estimation Sebastian considers what would happen if, in addition to removing dynamic pricing, the inertia of the consumers disappears. Without inertia the policy of removing dynamic pricing becomes a lot more effective.

I strongly believe that Sebastian's paper will make an important contribution to our understanding of dynamic pricing and how to regulate prices of programs like Medicare Part D. For these reasons, I believe that his job market paper has a very good chance of being published in a top five journal. This paper shows that Sebastian is very creative and able to construct a credible model. Sebastian has written several other papers, including co-authored papers with Gautam Gowrisankaran and other co-authored papers with Price Fishback. Gautam and Price are also writing letters for Sebastian and I will leave it to them to summarize these papers.

Let me also take the opportunity to mention some of Sebastian Fleitas' other attributes. Sebastian has always been a very friendly and very engaging student. From the time that he took my Ph.D. class, I recognized that he approaches problems with keen economic insight. He is technically very good but does not lose track of the big picture. Such qualities are rare in students and are usually only developed over time. Sebastian was my TA for a graduate econometrics course. He is an excellent teacher and it is always a pleasure to work with Sebastian. Moreover Sebastian has a strong drive and motivation, which is demonstrated by him writing so many papers of very

high quality. For these reasons, I believe that he will continue to do innovative research that extends our understanding of important economic issues. Finally, Sebastian has broad research interests and I expect him to regularly provide valuable feedback on projects by other scholars. In fact I would love to hire him here at the University of Arizona if I could. I believe that his strong communication skills and his excellent research skills make him a very strong candidate for a faculty position at a strong research school.

Please email or call me if you would like any further information about Sebastian.

Sincerely yours,



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