Alexander Boca

University of Michigan, Department of Economics, 611 Tappan Avenue, Ann Arbor, MI 48109

734-496-5349

aboca@umich.edu

To: NBER Innovation Research Bootcamp Selection Committee

Dear Selection Committee:

Please accept my application materials for the NBER Innovation Research Boot Camp 2026.

I am a 4th year PhD candidate at the University of Michigan and have successfully completed two years of PhD coursework in Economics, fulfilling the eligibility requirements.

As requested, my application package includes this letter, my curriculum vitae, a list of completed PhD courses (unofficial transcripts), and a one-page essay describing my research interests.

Reference information:
Name: Stephen Terry
Institution: University of Michigan
Email: sjterry@umich.edu, stephenjamesterry@gmail.com

Sincerely,
Alexander Boca

ALEXANDER BOCA

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EDUCATION

Ph.D., Economics, University of Michigan — 2028 (expected)

M.Sc., Economics, University College London (*Distinction*) — 2021

B.A., Economics, Pontificia Universidad Católica del Perú (PUCP) (*Valedictorian*) — 2018

RESEARCH FIELDS

Macroeconomics, Public Finance

WORK IN PROGRESS

Sectoral Aggregation and Misallocation from Variable Markups
Outstanding Third-Year Paper Award, University of Michigan (2025)

RESEARCH AND TEACHING ASSISTANT

University of Michigan — Research Assistant at Research Seminar in Quantitative Economics — 2026-

University of Michigan — Research Assistant to Prof. Pablo Ottonello and Prof. Joel Slemrod — 2023, 2024

University of Michigan — Teaching Assistant, Intermediate Microeconomic Theory — 2023–2025

PUCP — Teaching Assistant, Time Series Econometrics; Macroeconomics — 2018–2021

SCHOLARSHIPS AND AWARDS

Outstanding Third-Year Paper Award - University of Michigan — 2025
Awarded for the research quality of the third-year paper toward completion of the Ph.D. degree.

Graduate Student Fellowship - University of Michigan — 2022, 2023

Presidente de la Republica Scholarship - Ministry of Education of Peru — 2020
Full scholarship to pursue postgraduate studies in economics at University College London.

Academic Excellence Award - PUCP — 2019
Granted to the economics graduating student with the highest GPA.

Dintilhac Scholarship - PUCP — 2012
Full-tuition scholarship plus a monthly stipend during undergraduate studies.

PRE-DOCTORAL WORK

Presidential Approval in Peru: An Empirical Analysis Using a FCVAR — 2022
with Prof. G. Rodriguez
Economic Change and Restructuring 55, 1973–2010 (2022)

Firms, Workers and Informality: Evidence from Peru — 2021
UCL dissertation, supervised by Prof. G. Ulyssea

EMPLOYMENT

Central Reserve Bank of Peru (BCRP)

Senior Analyst May. 2019 - Jul. 2022

I held positions in the economic activity, inflation, and fiscal statistics units, where my responsibilities included conducting and presenting the monthly survey of macroeconomic expectations, preparing comprehensive GDP growth reports with sectoral forecasts, assessing movements in Peru's multilateral real exchange rate and real estate–related inflationary pressures.

PRESENTATIONS

University of Michigan, Macro/ International Lunch	2025
University of Michigan, H2D2 Student Workshop	2024
Central Reserve Bank of Peru, Macroeconomics Seminar	2022

OTHER INFORMATION

Software: Stata, Matlab, R, Python, Eviews, LaTeX.

Languages: English (Fluent), Spanish (Native).

Citizenship: Peru.

THE UNIVERSITY OF MICHIGAN - ANN ARBOR

Unofficial Transcript - Not an Official Transcript

Boca Saravia,Alexander Antonio
UM ID: 61094492 UIC: 4111770081
Uniqname: ABOCA

Boca Saravia,Alexander Antonio (734) 496-5349
1416 Astor Ave
Ann Arbor, MI 48104
United States

University of Michigan Degrees Awarded

School/College: Rackham
Field(s) of Specialization: Economics
Degree: Master of Arts
Awarded: 02-May-2024

Fall 2022		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
ECON	600	Math-Economists	A-	2.00	2.00	2.00	7.40
ECON	601	Microecon Theory I	A+	1.50	1.50	1.50	6.45
ECON	603	Microecon Theory III	A+	1.50	1.50	1.50	6.45
ECON	605	Macroecon Theory I	A+	3.00	3.00	3.00	12.90
ECON	671	Econometric Anlys I	A	3.00	3.00	3.00	12.00
Term Total		**GPA: 4.000**		**11.00**	**11.00**	**11.00**	**45.20**
Cumulative Total		**GPA: 4.000**			**11.00**	**11.00**	**45.20**

Winter 2023		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
ECON	602	Microecon Theory II	B+	1.50	1.50	1.50	4.95
ECON	604	Microecon Theory IV	A	1.50	1.50	1.50	6.00
ECON	607	Macroecon Theory II	A-	3.00	3.00	3.00	11.10
ECON	672	Econometric Anl II	A-	3.00	3.00	3.00	11.10
ECON	899	Responsible Cond Res	S	0.65	0.00	0.65	0.00
ELI	994	Teach: Lang,Cult,Ped	S	2.00	0.00	2.00	0.00
Term Total		**GPA: 3.683**		**11.65**	**9.00**	**11.65**	**33.15**
Cumulative Total		**GPA: 3.917**			**20.00**	**22.65**	**78.35**

Fall 2023		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
ECON	611	Stabilization Pol	A	3.00	3.00	3.00	12.00
ECON	641	Internat Trade	A	3.00	3.00	3.00	12.00
ECON	683	Gov Expenditure	A	3.00	3.00	3.00	12.00
Term Total		**GPA: 4.000**		**9.00**	**9.00**	**9.00**	**36.00**
Cumulative Total		**GPA: 3.943**			**29.00**	**31.65**	**114.35**

Winter 2024		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
ECON	612	Stabilization Pol	A+	3.00	3.00	3.00	12.90
ECON	684	Governmt Revenues	A	3.00	3.00	3.00	12.00
Term Total		**GPA: 4.000**		**6.00**	**6.00**	**6.00**	**24.90**
Cumulative Total		**GPA: 3.978**			**35.00**	**37.65**	**139.25**

Fall 2024		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
ECON	695	Intro Research I	S	3.00	0.00	3.00	0.00
ECON	990	Diss-Precand	S	3.00	0.00	3.00	0.00
Term Total				**6.00**	**0.00**	**6.00**	**0.00**
Cumulative Total		**GPA: 3.978**			**35.00**	**43.65**	**139.25**

Winter 2025		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
ECON	696	Intro Research II	S	3.00	0.00	3.00	0.00
ECON	995	Diss-Cand	S	8.00	0.00	8.00	0.00
Term Total				**11.00**	**0.00**	**11.00**	**0.00**
Cumulative Total		**GPA: 3.978**			**35.00**	**54.65**	**139.25**

Fall 2025		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
ECON	995	Diss-Cand	S	8.00	0.00	8.00	0.00
Term Total				**8.00**	**0.00**	**8.00**	**0.00**
Cumulative Total		**GPA: 3.978**			**35.00**	**62.65**	**139.25**

Winter 2026		**Rackham**	**Grade**	**Hours**	**MSH**	**CTP**	**MHP**
Elections as of: 02/10/2026							
ECON	995	Diss-Cand		8.00	0.00	0.00	0.00
Elected Term Hours				**8.00**			

Academic Statistics for Rackham		**MSH**	**CTP**	**MHP**
Total to Date	**GPA: 3.978**	**35.00**	**62.65**	**139.25**

Program Action History: Economics Doc
04/13/2022 Matriculation
Economics PhD

Program Action History: Economics Mas
05/31/2024 Completion of Program
Economics MA
08/29/2022 Activate
Economics MA

Milestones

08/26/2024 Preliminary Examination

Winter 2025 Advance to Candidacy

Academic Previous Experience

Pontificia Universidad Catolica Del Peru	, Peru
Bachelor of Arts	02/01/2019
University College London	, United Kingdom
Master of Science	12/01/2021

End of Unofficial Transcript

Research Statement: Innovation, Competition and Granularity

My research agenda focuses on the intersection of macroeconomics, innovation, and industrial organization, with a particular interest in how measurement errors in market definitions distort our understanding of competition and growth. I am specifically interested in the consequences of competition policy on innovation in Europe, a topic of renewed urgency following the 2024 Draghi Report on European Competitiveness.

My background in macroeconomics, formed during my MSc at UCL and my doctoral studies at the University of Michigan, has focused on the importance of granular data. My third-year paper, which received the Department of Economics' Outstanding Third-Year Paper Award, examined misallocation arising from variable markups. Using balance sheet data from several European economies to invert and recover the primitives from a model based on Atkeson and Burstein (2008), I demonstrated that relying on broad sector classifications (e.g., "food sector") rather than granular ones (e.g., "meat production") leads to a quantitatively significant underestimation of misallocation inefficiency. This work reinforced my conviction that standard sectoral classifications often mask economic mechanisms at play.

I am currently transitioning this focus on granularity to the economics of innovation. My current work explores the relationship between market structure and "innovation distance". Standard models often define competitors based on product codes, but innovative firms compete for ideas that may span different product markets.

I propose a new definition of market competitiveness based on the "distance" between patents, adapting the methodology of Hidalgo et al. (2007) to the patent space. In my framework, "closer" patents reflect similar underlying knowledge, creating a more realistic measure of competitive pressure than traditional industry codes.

This measure allows me to revisit the classic Schumpeterian vs. Arrow debate through the lens of novelty. As Callander and Matouschek (2022) suggest, competition may foster the novelty of innovation (an Arrow effect), although the prospects of success decrease as innovations become more differentiated. I am formalizing this mechanism in an endogenous growth model where firms choose not just whether to innovate, but how far to jump from existing knowledge. I will calibrate this model using the universe of patents from PATSTAT matched with firm-level data from the Orbis Historical Dataset. My goal is to quantify whether European antitrust policy has inadvertently stifled "bold" innovation by focusing on static price competition rather than dynamic idea competition.

I am applying to the NBER Innovation Research Boot Camp to refine and delimit my research idea based on the priorities of the academic community at the frontier of the innovation literature. I specifically hope to engage with Kevin Bryan's work on the direction of innovation and Chad Jones's insights on measuring economic growth. This knowledge and feedback at this stage would be invaluable in ensuring my measurement of "innovation distance" is robust and methodologically sound.

LSA ECONOMICS
UNIVERSITY OF MICHIGAN

February 2026

Dear Colleague,

I have the pleasure of recommending **Alexander Boca,** a macroeconomics PhD student here at the University of Michigan, for the NBER's summer 2026 Innovation Research Boot Camp. In my view, Alexander's a great fit for your camp for three reasons.

First, he has already produced a strong, related dissertation chapter on misallocation and sectoral aggregation, a micro-empirical plus quantitative macro theory paper that would be very much at home at any of the Summer Institute Economic Growth sessions. Second, Alexander has strongly aligned research interests, with a clear trajectory toward endogenous growth and innovation. Third, Alexander is currently in that liminal stage in which he possesses a very strong toolkit and defined innovation-linked interests but has yet to draft what will be his final job market project. Your camp would broaden his horizons and shape that job market paper in a high-impact way. In the past I have sent students to NBER Boot Camps at similar stages. For example, Nils Lehr, now at the IMF, attended a Boot Camp a few years ago and has since generated two solo-authored Top 5 R&Rs closely related to the camp's themes. Alexander seems poised to similarly capitalize on the opportunity and contribute to the program.

I strongly encourage you to give Alexander serious consideration.

Best,



Stephen Terry
Associate Professor of Economics, University of Michigan
Research Associate, National Bureau of Economic Research
Co-Editor, *Review of Economics and Statistics*