6000 Iona Drive
Vancouver, BC Canada V6T 1L4

January 25, 2023

Dear committee members,

Greetings! I am a fourth-year PhD candidate at the Vancouver School of Economics (University of British Columbia), specializing in international trade and innovation. My committee members are Giovanni Gallipoli, Keith Head, and Jesse Perla. I would like to express my interest in participating to the second Innovation Research Boot Camp (IRBC) organized by NBER in Cambridge, MA in July 2023.

The economics of innovation field is constantly evolving and is rarely taught as a separate course in graduate school. As such, I believe it is essential to keep ourselves up to date with the research frontier and exchange ideas with peers. For myself, I could not think of a better environment than this boot camp to do so. I've had an opportunity to view seminars involving most of the faculty attending the IRBC and I would greatly be enriched by the chance to discuss research with them as well as with the student participants working on these topics at the best research institutions, the future experts in the field.

My recommendation letter writer for the IRBC is Jesse Perla. He can be contacted either by email at jesse.perla@ubc.ca or via phone at +1 (604) 822 5721.

I look forward to hearing from you. Please feel free to contact me via email or on my phone number in the signature below.

Thank you very much for considering my application.

Sincerely,
Giulia Lo Forte
giulia.loforte@ubc.ca
+1 (778) 223 7192

GIULIA LO FORTE

CONTACT INFORMATION

Vancouver School of Economics
6000 Iona Drive, V6T 1L4, Vancouver BC, Canada

Email: giulia.loforte@ubc.ca

EDUCATION

Vancouver School of Economics (University of British Columbia) **Vancouver BC, Canada**
• PhD in Economics 2025 (expected)

Bocconi University **Milan, Italy**
• MSc in Economics and Social Sciences 2018
• BSc in Economics and Social Sciences 2015

RESEARCH INTERESTS

International Trade, Innovation, Spatial Economics

COMMITTEE

Giovanni Gallipoli (Co-chair)
Vancouver School of Economics (UBC)
Email: giovanni.gallipoli@ubc.ca

Keith Head (Co-chair)
Sauder School of Business (UBC)
Email: keith.head@sauder.ubc.ca

Jesse Perla
Vancouver School of Economics (UBC)
Email: jesse.perla@ubc.ca

WORK IN PROGRESS

Dynamics of Varieties in the US: a New Measure using Trademarks

The number of varieties available to consumers is considered a critical channel for welfare in both the international trade and the macro-growth literature. Yet, existing measures of varieties are not suitable for aggregate time-series analysis: they do not account for services and inflate the relevance of country of origin or differences in packaging. I propose a new measure of varieties that overcomes existing limitations by relying on the universe of trademarks registered at the United States Patents and Trademarks Office between 1982 and 2014. I use this new measure to document three novel stylized facts: i) varieties have been increasing over time, but at a decreasing pace; ii) foreign new varieties have been growing relative to domestic, during the time period considered; iii) incumbent firms account for 25 to 40 percent of the overall entry rate of new varieties.

Human Capital Spillovers Across Cities (with Pablo Valenzuela)

> We combine administrative data from Spain with real-estate data to investigate whether Spanish municipialities benefit or lose from local migration in the period 2006-2020. High housing prices limit the number of workers who settle in highly productive cities. We theorize that destination cities benefit from the arrival of migrant workers on two margins. First, the arrival of productive workers boosts the average productivity of the receiving cities. Second, incumbent workers benefit by learning from recently arrived workers, thus additionally increasing the average productivity of cities. We expect that receiving cities gain from local migration by increasing their average productivity.

The Composition of Intangible Capital Adoption

> This project uses country-level data on royalties paid by or to the United States for the use of different Intellectual Property types in the period 2006-2019. Preliminary evidence documents heterogeneity in the foreign adoption of patents, trademarks, and computer softwares, which seems to be driven by distance from the United States, strength of Intellectual Property protection, and GDP per capita.

RESEARCH EXPERIENCE

University of British Columbia **Vancouver BC, Canada**

- Research Assistant for Professor Giovanni Gallipoli 2020-today

Bocconi University **Milan, Italy**

- Research Assistant for Professor Gianmarco Ottaviano 2018-2019
- Research Assistant for Professor Carlo Altomonte 2018-2019

TEACHING EXPERIENCE

University of British Columbia **Vancouver BC, Canada**

- ECON 326, Methods of Empirical Research in Economics (undergraduate) — TA 2023
- ECON 555, International Trade (graduate) — TA 2022-2023
- ECON 516, Special Topics in Macroeconomics (PhD) — Guest lecturer 2021-2022
- ECON 355, International Trade (undergraduate) — TA 2020-2022

Bocconi University **Milan, Italy**

- Macroeconomic Trends (graduate) — TA 2019
- Economics of European Integration (graduate) — TA 2019
- International Macroeconomics (undergraduate) — TA 2019
- European Economic Policy (undergraduate) — TA 2019

HONORS AND AWARDS

University of British Columbia **Vancouver BC, Canada**

- Agustín Beltrán Award for Student Teaching Excellence 2022

- President's Academic Excellence Initiative PhD Award 2020-today
- Doctoral Fellowship (Four Year Fellowship) 2020-today
- International Tuition Award 2019-today
- Faculty of Arts Graduate Award 2019
- Special UBC Graduate Scholarship – CIDER Award 2019

GRANTS

Center for Innovative Data in Economics Research (UBC) **Vancouver BC, Canada**

- 8th round Grant ($25,000) | joint with V. Couture, G. Gallipoli, and P. Valenzuela 2022

SKILLS

Softwares

- Stata, Julia, Python, Fortran, MATLAB, R, LaTeX

Languages

- Italian (native), English (fluent), Spanish (fluent), French (basic)

THE UNIVERSITY OF BRITISH COLUMBIA

TRANSCRIPT OF ACADEMIC RECORD

ENROLMENT SERVICES
2016 - 1874 East Mall
Vancouver, BC Canada V6T 1Z1

Surname: LO FORTE
Given Names: GIULIA
Student Number: 99975765
Date of Birth: February 3

Date Printed: November 23, 2022

Issued To:
LO FORTE, GIULIA
giulialoforte@gmail.com

REGISTRAR

Note: Transcript valid only if bearing the registrar's signature. This transcript is printed on secure paper on a blue background.

UBC Credentials

None to date

Transfer Credits

None to date

Winter Session 2019 - 2020

As of 16 March 2020, the COVID-19 pandemic disrupted regular academic activities. Modes of instruction and assessment were shifted to on-line activities mid-term, including changes to exam practices and weighting in some cases. Deadlines to withdraw or change to Credit/D/Fail or Pass/Fail grading were extended by some programs.

Doctor of Philosophy (UBC Vancouver)

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Class Avg
1	ECON 600	(3.0)	Microeconomics I	88	A	3.0				19	77
1	ECON 602	(3.0)	Macroeconomics I	85	A	3.0				14	85
1	ECON 626	(3.0)	Econometric Theory I	83	A-	3.0				17	86
2	ECON 601	(3.0)	Microeconomics II	77	B+	3.0				17	83
2	ECON 603	(3.0)	Macroeconomics II	87	A	3.0				13	85
2	ECON 627	(3.0)	Econometric Theory II	88	A	3.0				16	87

UBC Academic Awards
Faculty of Arts Graduate Award
Special UBC Graduate Scholarship-CIDER Award

Summer Session 2020

Doctor of Philosophy (UBC Vancouver), Registration Continuing

Winter Session 2020 - 2021

Doctor of Philosophy (UBC Vancouver)

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Class Avg
1	ECON 516	(3.0)	Special Topics in Macroeconomics	91	A+	3.0				5	91
1	ECON 560	(3.0)	Economics of Labour				AUD				
1	ECON 565	(3.0)	Market Structure and Business Behaviour	95	A+	3.0				11	95
1	ECON 622	(3.0)	Computational Economics with Data Science Applications	90	A+	3.0				8	90
1	ECON 628	(3.0)	Topics in Applied Econometrics I	92	A+	3.0				14	92
2	COMM 548	(3.0)	Directed Study in Business Administration	90	A+	3.0					
2	ECON 555	(3.0)	International Trade	98	A+	3.0				13	81
2	ECON 567	(3.0)	Organization Theory and Non-market Allocation	95	A+	3.0				7	93

UBC Academic Awards
Four Year Fellowships (4YF) For PhD Students

Summer Session 2021

Doctor of Philosophy (UBC Vancouver), Registration Continuing

UBC Academic Awards
Four Year Fellowships (4YF) For PhD Students

Winter Session 2021 - 2022

Doctor of Philosophy (UBC Vancouver)

THE UNIVERSITY OF BRITISH COLUMBIA

TRANSCRIPT OF ACADEMIC RECORD

ENROLMENT SERVICES
2016 - 1874 East Mall
Vancouver, BC Canada V6T 1Z1

Surname: LO FORTE
Given Names: GIULIA
Student Number: 99975765
Date of Birth: February 3

Date Printed: November 23, 2022

Winter Session 2021 - 2022 continued...

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Class Avg
1-2	ECON 640	(3.0)	Ph.D. Research Seminar	Mark	Missing						
1-2	ECON 690C	(6.0)	Workshops in Economics			6.0	P				

UBC Academic Awards
Four Year Fellowships (4YF) For PhD Students

Summer Session 2022

Doctor of Philosophy (UBC Vancouver), Registration Continuing
Admitted to Candidacy on August 3, 2022

UBC Academic Awards
Four Year Fellowships (4YF) For PhD Students

Winter Session 2022 - 2023

Doctor of Philosophy (UBC Vancouver)

Term	Course	Credit Value	Course Title	% Grade	Letter Grade	Credit Rec'd	Stdg	Withdraw Date	Complete Date	Class Size	Class Avg
1-2	ECON 699	(0.0)	Doctoral Dissertation				CIP				
2	COMM 696	(3.0)	Applied Research in Policy Analysis and Strategy								

UBC Academic Awards
Faculty of Arts Graduate Award
Four Year Fellowships (4YF) For PhD Students

********** End of Record **********

THE UNIVERSITY OF BRITISH COLUMBIA

The University of British Columbia was established by an Act of the Provincial Legislature in 1908 and opened in 1915. The University is a member of the Universities Canada. UBC Okanagan was established as a campus of The University of British Columbia in April 2005. UBC Okanagan assumed responsibility for several Okanagan University College degree programs and all continuing students in those programs on July 1, 2005. Okanagan University College ceased its educational operations as of August 31, 2005.

EXPLANATION OF STUDENT ACADEMIC RECORD

Academic terms

The University operates on a year system. The academic year is divided into two sessions. Winter Session is divided into two terms, Term 1 from September to December and Term 2 from January to April. Summer Session starts in May and ends in August and is comprised of Term 1 (May and June) and Term 2 (July and August). Courses may span a single term (Term 1 or 2) or a full session (Term 1 and 2) for either session.

Distance Education and Technology (DET) courses begin on one of two starting dates during Winter Session, designated in the Term column as A,B,C or D. During the Summer Session, DET courses have only one starting date and are designated with an A or B in the Term column.

Academic Awards

All academic awards (Fellowships, Scholarships, Prizes and Medals) administered by the University and issued subsequent to April 1975, are noted on the transcript of academic record.

Course Numbering

Courses numbered 100 to 199 are primarily for the first year students. Similarly, courses numbered 200 to 299 are primarily for second year students, courses numbered 300 to 399 are for third year students, and courses numbered 400 to 499 are for fourth year students. Courses numbered 500 to 699 are considered graduate-level. Courses numbered 700 and above are residency courses.

Class Size and Class Average Grades

Effective February 1999, class size and class average grades are shown for most courses. In courses with more than one section, the class size and average are reported for the student's section.

Grading and Course Weight

In May of 1991, The University of British Columbia adopted a percentage grading and credit weighting system. Course weight is expressed in "credits". In general 1 credit represents 1 hour of instruction or 2 to 3 hours of laboratory work per week throughout one term of the Winter Session. A 1-unit course became a 2-credit course. Courses are normally graded on a percentage basis with a corresponding letter grade derived as shown.

Degree Standings and Averages

Standings are expressed as Class 1 (80% or over), Class 2 (65 to 79%), Class P (50 to 64%) or Honours; not used by all faculties. Effective Winter Session 1996/97, the calculation of the standing and average is based on the average percentage grade of all upper-level (300 or higher) courses used to satisfy the degree requirements (excluding courses graded as Pass/Fail); not used by all faculties. This is not applicable to programs in the Faculty of Graduate Studies and Postdoctoral Studies.

Undergraduate Grading Scale

Percent	Letter Grade	Percent	Letter Grade
90–100	A+	64–67*	C+
85–89	A	60–63*	C
80–84	A-	55–59*	C-
76–79	B+	50–54*	D
72–75	B	0–49	F* (Fail)
68–71	B-		

Graduate Grading Scale

Masters Grading Scale		Doctoral Grading Scale	
Percent	Letter Grade	Percent	Letter Grade
90-100	A+	90-100	A+
85–89	A	85–89	A
80–84	A-	80-84	A-
76–79	B+	76-79	B+
72–75	B	72-78	B
68–71	B-	68-71	B-
64–67	C+	0-67	F* (Fail)
60–63	C		
0-59	F* (Fail)		

*Some programs may require highter passing grades; failing grades are assigned a letter grade of "F"

The following standings also apply:

- AEG - aegrotat standing: indicates that the student is granted credit although unable to complete because of illness. A letter grade will also be recorded and that grade converted to a minimum percentage grade for that category for the calculation of averages.
- AUD - audit
- CH - challenge credit
- CIP - course in progress
- CR/D/F - (introduced in 2010/11) excluded from calculation in all averages; granted where a grade is assigned by an instructor but not included on the student's official transcript; grade is converted to CR, D or F standing. CR– credit, satisfactory completion of the requirements of the subject; D– marginal pass (50% – 54%), and not available for those programs or courses that define a passing grade as higher than 50%; F – fail
- EX - exempt
- J - see "A" standing as defined in gradeing scale prior to May 1991
- P or F - no grade assigned, excluded from calculation in all averages; P– pass, requirements of subject completed satisfactorily, credit granted where applicable; F – fail
- H - (introduced 1999/00 session) no grade assigned, excluded from calculation in all averages; H – honours, exceeds course require ments, credit granted where applicable
- PLA - credit assigned based on prior learning in subject area.
- S - see "S" standing as defined in grading scale prior to May 1991
- SD - standing deferred; excluded from calculation in all averages
- T - thesis in progress; graduating essay not submitted; course continuing
- W - official withdrawal

PRIOR TO MAY 1991

Course Weight and Hours

Course weight was expressed in "units". In general, 1 unit represented 1 lecture hour per week (or a laboratory period of approximately 2 to 3 hours each week) throughout both terms of the Winter Session. Some faculties did not assign an unit value to some courses. The maximum mark possible (max) indicated the weight of a course. A 3-unit course (3 hours of lectures per week throughout the Winter Session) was graded out of a total of 150 marks. This course approximated a 6 semester-hour or a 9 quarter-hour course.

Grading classifications

- Class 1 - 80% or better (i.e., 120 or more on a maximum of 150)
- Class 2 - 65% – 79% (i.e., 98 to 119 out of 150)
- Class P - 50% – 64% (i.e., 75 to 97 out of 150) except Dentistry, Graduate Studies, Librarianship, Medicine, Nursing and Rehabilitation Medicine where the range is 60% – 64%
- Class F - failure, no credit granted: below 50% except Dentistry, Graduate Studies, Librarianship, Medi cine, Nursing and Rehabilitation Medicine: below 60%

The following standings also apply:

- A - adjudicated pass: indicates that credit is granted and the course need not be repeated although it may not normally qualify as a prerequisite for further work. The grade as signed by the instructor is used in calculation of averages
- AEG - aegrotat standing: granted to a student who has been successful in studies but unable to write the final exam because of illness or other extenuating circumstances
- AUD - audit
- C - requirements of subject completed satisfactorily; no grade assigned; unit value granted where applicable; excluded from calculation in all averages
- D - standing deferred; excluded from calculation in all averages
- E - exempt
- N - no credit granted; did not write examination or otherwise complete requirements of the course (discontinued begin ning 1985– 86 session)
- S - supplemental privilege granted; failure; no credit granted; supplementals are not permitted in all faculties
- T - thesis in progress; graduating essay not submitted; course continuing
- W - (introduced in 1988/89 session) official withdrawal
- X - time expired; student did not complete course

Year Standing

In most Faculties each "year" was graded as Class 1, Class 2, Class P, Fail or carried a descriptive clause indicating action taken by the Adjudication Committee.

Degree Standing

Expressed as Class 1, Class 2, Class P, or with Honours; not used by all faculties. In some faculties the calculation of standing was based on the studies of the final two years, in others on the final year only.

THIS DOCUMENT CONTAINS SECURITY FEATURES. HOLD AT AN ANGLE TO VERIFY A WATERMARK BASKET WEAVE DESIGN

Current and future research and reason for applying

The main chapter of my dissertation studies the growth of varieties available to consumers in the United States. While being a critical channel for welfare gains, varieties have not been measured in a suitable way for time-series analysis. The difficulties start with finding a meaningful definition of variety. In this project, I define a variety as any good or service of a firm that is distinguishable for consumers from the goods or services provided by its competitors. A popular measure of varieties defines them as unique combinations of country of origin and Harmonized Tariff System (HS) codes. This measure assigns great relevance to the country of origin and groups together products on the basis of physical characteristics and tariff values. As such, it is affected by the activity of multinational enterprises and recording. Another measure relies on the uniqueness of barcodes attached to products (UPC). Changes in available varieties captured through UPC data may reflect a change in packaging, rather than the creation of goods with distinctive features. I propose a new measure based on trademarks, a type of Intellectual Property protecting any word, name, or symbol distinguishing the good or service of a firm from those of competitors. In practice, trademarks meet several of the ideal requirements for a mesure of varieties. First, they explicitly protect a product's identity in the eyes of consumers. Second, they are registered for services and goods beyond consumer product goods, thus spanning the broad economy. I use data on the universe of trademarks registered between 1982 and 2014 at the United States Patents and Trademarks Office to create a many-to-one mapping from trademarks to varieties, covering both goods and services, domestic and foreign. This measurement is instrumental to present three novel empirical facts. First, I show that the growth rate of varieties has been decreasing over time, mainly due to fewer firms introducing new varieties each year, and such decrease is twice as large in absolute value as in the literature. Second, I show that the decrease in the varieties entry rate is the result of two trends. One is the reduction in domestic firms introducing new varieties over time; the other is the increase in the varieties entry rate by foreign firms after trade liberalizations, in line with the predictions of the New Trade Theory. Lastly, I show that incumbent firms contribute 25 to 40 percent of the overall varieties entry rate, in sharp contrast with previous findings suggesting their null contribution new varieties in the US market in the same period.

Another solo-authored chapter investigates the drivers and composition of international technology adoption by employing country-level data on royalties paid by or to the United States for the use of different Intellectual Property types in the period 2006-2019. I document heterogeneity in the foreign adoption of patents, trademarks, and computer softwares, which seems to be driven by geographical distance, strength of Intellectual Property protection, and GDP per capita.
Finally, a joint project with Pablo Valenzuela (UBC), combines Spanish administrative and real estate data to investigate whether human capital is affected by local migration across municipalities in the period 2006-2020. We theorize that destination cities can benefit from the arrival of workers on two margins: a direct effect on the average productivity of the city due to an additional worker, and an indirect effect due to incumbent workers learning from the incoming worker.

Despite my research interests intersecting economic geography and innovation, I've never attended a course solely focused on innovation. I could not think of a better opportunity than this to do so. I've had the chance to view seminars involving most of the faculty attending the IRBC and I would greatly be enriched by the possibility to discuss research with them as well as with the other participants.

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Vancouver School of Economics

6000 Iona Drive
Vancouver, BC V6T 1L4 Canada
Tel: 604-822-2876
Fax: 604-822-5915
economics.ubc.ca

February 1, 2023

Dear NBER organizing committee,

I am writing this letter in **strong support** of Giulia Lo Forte who is applying for the NBER boot camp on innovation. I am one of her advisors (along with Keith Head and Giovanni Gallipoli) and have known her for several years while she has been building on her research.

Giulia is a great student with stellar ideas and is working on a number of projects related to growth and innovation. Her main project is using trademark data to show how it can provide insights on both the growth of varieties in a country and the role of trade in providing new products. While her questions are sometimes closer to those at the aggregate level than models of strategic innovation, I think that she could provide a fresh perspective to complement more industry specific studies. Furthermore, think that she could really benefit from the diversity of innovation scholarship. Sadly, since Nancy Gallini retired students have had limited exposure to a broader types of innovation research so this opportunity would be especially welcome. Giulia is a wonderful researcher, and where the marginal returns from exposure to new ideas could have a profound impact on her ability to succeed.

If you have any questions, please feel free to contact me.

Sincerely,



Jesse Perla
Associate Professor, jesse.perla@ubc.ca