Yulia Zhestkova

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Recommendation Letter Writer:
Professor Ufuk Akcigit
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THE UNIVERSITY OF CHICAGO

Name: Yulia Zhestkova
Student ID: 12143485

Degrees Awarded

Degree: Master of Arts
Confer Date: 06/09/2018
M.A. in Economics

Academic Program History

Program: Social Sciences Division
Start Quarter: Autumn 2016
Current Status: Active in Program
Ph.D. in Economics

External Education

National Research University Higher School of Economics
Moscow, Russian Federation
BA 2016

Beginning of Graduate Record

Autumn 2016

Course		Description	Attempted	Earned	Grade
ECON	30100	Price Theory-1	100	100	B+
ECON	30400	Intro: Mathematical Methods In Economics	0	0	NGR
ECON	31000	Empirical Analysis-1	100	100	B+
ECON	33000	Theory of Income-1	100	100	A-

Winter 2017

Course		Description	Attempted	Earned	Grade
ECON	30200	Price Theory 2	100	100	B
ECON	31100	Empirical Analysis II	100	100	A
ECON	33100	Theory of Income II	100	100	A-

Spring 2017

Course		Description	Attempted	Earned	Grade
ECON	30300	Price Theory-3	100	100	B+
ECON	31200	Empirical Analysis-3	100	100	A-
ECON	33200	Theory of Income-3	100	100	A-

Summer 2017

Course		Description	Attempted	Earned	Grade

CORE EXAM: ECONOMICS-PHD LEVEL PASS

Graduate

Autumn 2017

Course		Description	Attempted	Earned	Grade
ECON	34430	Topics in Labor Markets: Earnings and Employment	100	100	A
ECON	34701	Labor Market Dynamics	100	100	B+
ECON	37601	Topics in Economic Growth	100	100	A-
ECON	38301	Applied Macroeconomics II	100	100	A

Winter 2018

Course		Description	Attempted	Earned	Grade
ECON	33530	Firm Dynamics and Economic Growth	100	100	A
ECON	36000	Public Finance I	100	100	A
ECON	38001	Applied Macroeconomics: Micro Data for Macro Models	100	100	A

Spring 2018

Course		Description	Attempted	Earned	Grade
ECON	34901	Social Interactions and Inequality	100	100	A
ECON	38102	Applied Macroeconomics: Heterogeneity and Macro	100	100	A-
ECON	70000	Advanced Study: Economics	100	100	S

Summer 2018

Course		Description	Attempted	Earned	Grade

Specialized Field: Economic Growth and Human Capital Accumulation - GPA Pass
Specialized Field: Macroeconomics - Ph.D. Pass

Autumn 2018

Course		Description	Attempted	Earned	Grade
ECON	33820	Advanced Macro Reading Group	100	0	
ECON	49700	Research Seminar	100	0	
ECON	70000	Advanced Study: Economics	100	100	S

End of Graduate

UNOFFICIAL TRANSCRIPT

It has been almost three years since I started a PhD program at the University of Chicago Department of Economics, and over this time in graduate school I had an opportunity to work on various research questions. By the end of my second year I chose Economics of Innovations and Entrepreneurship as my main field of interest. The specializations that I chose in the second year were Macroeconomics and Economic Growth. Two courses that had the crucial impact on forming my research interests and motivated me to study Innovation and Entrepreneurship were Topics in Economic Growth taught by Nancy Stokey and Firm Dynamics and Economic Growth taught by my current advisor Ufuk Akcigit. Professor Stokey's course explored different factors that lead to aggregate growth in developed and developing countries. I got especially interested in the analysis of the joint dynamics of technological progress, human capital accumulation and returns to education. In my research paper for this class, I am building a simple OLG model with intergenerational altruism that shows how an increase in parents' income leads to human capital growth of their children through an increase in education spending. At the same time, we know that technological progress in the last decades has benefitted high-skilled workers much more than low-skilled. I also incorporated this idea in my model: while low-skilled workers and capital are perfect substitutes in the production, this is not the case for high-skilled workers. As technology improves and capital accumulation grows, more low-skilled workers face a risk of being replaced by machines. This becomes another source of high-skilled wages growth relative to low-skilled wages and also affects the decision about investing in education. Thus, as time goes, average income is growing, and the share of high-skilled workers is increasing together with skill premium.

My general interest in the questions of human capital accumulation lead me to think about human capital of inventors -- what makes a good inventor outstanding. In my second-year field paper, I focus on the role of specialization and sorting in different fields for inventors' innovation productivity. In particular, I am addressing the following questions: Do inventors become better at innovating over their tenure? Are there any returns from specialization to inventor's productivity in terms of patent quality and quantity? What is the role of sorting into patent classes and the uncertainty about inventor's comparative advantage in the beginning of their career? Using USPTO data on inventors and their patents, I show that both quality and quantity of patents increase with tenure, while the diversity of patent classes in inventor's portfolio goes down. Moreover, inventors with higher quality of the first patent are less likely to switch from this patent's class and are almost twice more likely to innovate in the same patent class again in the future. I claim that at the beginning of their careers, inventors try to innovate in many different patent classes to find the field where they have a comparative advantage. Those inventors who managed to find their 'best' field and specialize in it later on show higher productivity both in terms of number of patents and in terms of their patents' quality. I build a theoretical model of internal sorting into specializations with inventors' heterogeneity and type uncertainty that captures the stylized facts from the data and show the role of the internal sorting in innovation growth. As inventors learn about their skill level and the patent classes that they are good at, they focus on innovating only in the latter. However, even after the full revelation of inventors' type and skill specialization uncertainty, the economy is not able to achieve the same level of technological development as it would have under full information conditions. Thus, the losses from sorting in terms of economic growth appear to be irreversible.

If in my second-year paper I was considering inventors from the perspective of labor market and human capital accumulation, my current research takes a different perspective and looks at inventors

as entrepreneurs. In particular, I focus on independent inventors who launch their own startups and thus become entrepreneurs. The main issues that startup inventors are dealing with are lack of financing and lack of guidance and experience. Interaction with big corporations through CVC investments opens a door for more financial resources and knowledge sharing through collaboration. However, by providing an access to their patent activity, startups also have to face higher risks of business stealing from their CVC inventors. My third-year paper explores whether beginner independent inventors actually benefit from the interaction with corporation through CVC units. I use most recent data from USPTO on patenting activity and VentureXpert data on VC transactions to create a unique merged dataset that will connect each VC-funded startup to its patents and to inventors working at these startups. I found that Inventors from CVC-backed startups intensify patenting activity after the investment event. This growth in quantity of patents is accompanied by a decline in their quality though. In particular, a 10 pp growth in number of patents submitted by CVC leads to a 5 pp growth in the number of patents submitted by inventors who work in their portfolio startups. It also generates a 9.6 pp decrease in the quality of patents submitted by the startup's inventors. However, these effects are strong and significant only for inventors who stayed in their startups and only for patents submitted within a home startup. I also show that business stealing threat is justifiable: startups who do not intensify patenting are more likely to end up getting acquired or go bankrupt.

I am also working on a couple of collaborative projects. The first, co-authored with Ufuk Akcigit, Josh Lerner and Richard Townsend, studies the spillover effect of foreign direct investments (FDI) on innovation activity. Previous studies of FDI spillover effect usually focus on how foreign investments affect domestic firms. Here we are going to focus on a "reverse" spillover channel. FDI open a door to learning about technologies and innovations from the frontier US companies. Potential financial benefits are far from being the only motivation for Corporate Venture Capitalists when choosing portfolio companies to invest in. Equity stakes allow corporations to monitor activity of their startups and engage in technological sharing with them. This can be a powerful channel of a catchup growth in the foreign-based companies from the countries that are further away from the technological frontier. In another work with Erik Hurst, Greg Kaplan and Gianluca Violante, we use proprietary paycheck-level data to build a statistical model of individual wage dynamics at a much higher frequency than has been possible with other data sets. Since very little is currently known about the determinants of wage growth within a firm, we also plan to investigate the role of firms in generating individual earnings growth over the lifecycle.

I am looking forward to new exciting research projects on innovation, entrepreneurship and firm dynamics, and the NBER Entrepreneurship Research Boot Camp will be a fantastic opportunity for me to get a new perspective. I am especially interested in studying entrepreneurship-generated growth and relevant policy implications. This area requires a special attention in the context of the recent slowdown in business dynamism. I strongly believe that it is crucial to clearly understand the role of every part of the system on a micro level to get a full picture and distill the main mechanisms from the second-order ones. The nature of the NBER Entrepreneurship Research Boot Camp provides a unique opportunity to study various questions of entrepreneurship on different levels and from various angles. Thus, my career would benefit a lot from the lectures of the leading scholars and fruitful discussions with fellow researchers in this field. I believe this opportunity would generate a long-term impulse response in my future research. Thank you for your consideration, I appreciate it.



THE UNIVERSITY OF
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March 24, 2019

Re: Letter of Recommendation for Ms. Yulia Zhestkova

Dear Committee Members,

I am writing this letter to support Ms. Yulia Zhestkova's application for the *12th Entrepreneurship Research Boot Camp (ERBC)*. Yulia is a Ph.D. student (finishing her 3rd year) in the Economics Department of the University of Chicago working on entrepreneurship and innovation. Yulia has worked under my supervision. Yulia is **crème de la crème** student, certainly among the **very best** and **strongest** students that I have seen over the years at University of Chicago. If admitted, Yulia would be a very valuable asset to the ERBC community. In this letter, I will describe the details of my assessment.

Yulia is a star student in the Economics Department. She is academically very mature, with a very good knowledge of the literature. She is currently working on a number of ambitious projects.

First, Yulia is working jointly with me, **Josh Lerner** and **Richard Townsend**, on a project which studies the spillover effect of foreign direct investments (FDI) on innovation activity. Previous studies of FDI spillover effect usually focus on how foreign investments affect domestic firms. On the contrary, we are focusing on a "reverse" spillover mechanism. FDI allow foreign investors to learn about technologies and innovations from the frontier US companies. Potential financial benefits are far from being the only motivation for Corporate Venture Capitalists when choosing portfolio companies to invest in. Equity stakes allow corporations to monitor activity of their startups and engage in technological sharing with them. This can be a powerful channel for a catchup growth in the foreign-based companies from the countries that are further away from the technological frontier.

Yulia has a second project, joint with **Erik Hurst**, **Greg Kaplan** and **Gianluca Violante**, where they study high-frequency wage dynamics using some proprietary paycheck-level data.

Yulia has a third "solo" project that asks the following questions: Do inventors become better at innovating over their tenure? Are there any returns from specialization to inventor's productivity

in terms of patent quality and quantity? What is the role of sorting into patent classes and the uncertainty about inventor's comparative advantage at the beginning of their career? Using USPTO data on inventors and their patents, she shows, among many other things, that both quality and quantity of patents increase with tenure, while the diversity of patent classes in an inventor's portfolio goes down. Moreover, inventors with higher quality of the first patent are less likely to switch from this patent's class and are almost twice more likely to innovate in the same patent class again in the future.

Yulia's fourth project is a theoretical one. In that project, Yulia builds an OLG model with intergenerational altruism that shows how an increase in parents' income leads to human capital growth of their children through an increase in education spending. In the model, while low-skilled workers and capital are perfect substitutes in production, this is not the case for high-skilled workers. As technology improves and capital accumulates, more low-skilled workers face a risk of being replaced by machines. This becomes another source of high-skill wage growth relative to low-skill wage and affects agents' decision about investing in education. Thus, average income grows over the time, and the share of high-skilled workers increases together with skill premium.

To summarize, Yulia is an excellent researcher. She has a great personality and is a very active member of the Chicago macro club, where our graduate students present their work-in-progress to get feedback from faculty members and their peers. All of these points lead me to believe that Yulia has the potential to become a **top-notch** researcher in the profession. She is bright, hardworking, and a deep and clear thinker. Yulia has my **strongest** support without any reservations.

Please feel free to contact me if you need any further information.

Best regards,

Ufuk Akcigit

