Washington University in St. Louis

Washington University in St. Louis
Campus Box 1208
1 Brookings Drive
St. Louis, MO 63139-4899

April 3, 2012

Dear NBER Entrepreneurship Working Group,

I am applying for the position of the NBER Entrepreneurship Working Group. I am interested in pursuing my further research in this area.

Included with my application, please find a copy of my curriculum vitae together with my completed PhD courses, and my application essay to attend the boot camp. Letter of recommendation from my Ph.D. advisor, Ping Wang will be provided separately. (pingwang@wustl.edu, +1-314-935-4236).

I will be available for 5th Entrepreneurship Research Boot Camp (ERBC). Please feel free to contact me via email at jffl1803@gmail.com or by phone at +1-314-255-4416.

Thank you for your consideration.

Sincerely,

Wen-Chieh Lee

Washington University in St. Louis

Department of Economics
Phone: (314) 935-5632; Fax: (314) 935-4156

Confidential

March 31, 2012

To whom it may concern:

It is my great pleasure to recommend my advisee, Mr. Wen-Chieh (Jeff) Lee, as a strong candidate for participating in the NBER Entrepreneurship Research Boot Camp.

Jeff is a highly motivated applied Ph.D. student with both depth and breadth, undertaking applied theoretical and empirical research in industrial organization, entrepreneurial theory and development economics. After several years working experience in economic analysis and marketing management teams, Jeff decided to pursue a Ph.D. degree in economics by giving up his high salaries. Thus, not only he is better motivated but has better sense about how to integrate theory with reality. This is reflected in his dissertation, which contains three original works, focusing on (i) developing a span of control theory for quantitatively evaluating inefficiency from misallocation in Korean and Taiwan IT industries, (ii) assessing different degrees of vertical integration in successive oligopolistic entry games to fit Korean and Taiwanese experiences, and (iii) understanding the role of venture capital networks in the performance of IT entrepreneurs. In addition to the dissertation, he has a book chapter in a volume in honor the Father of Science and Technology in Taiwan, Dr. KT Lee, as well as two other research works in progress studying venture capital financing.

To be brief, let me focus on just two of Jeff's research papers. The essay 1 of his dissertation tackles on the recent literature of production misallocation led by Hsieh and Klenow (2009). Two important shortcomings of previous studies are: (i) the omission of heterogeneous industrial structures/firm organizations and (ii) the absence of price data. Jeff rectifies both problems by hand-collecting detailed data from IT industries in Korea and Taiwan (DRAM, TFT-LCD and LED) with detailed price and quantity pairs of over 500 products. While Korea and Taiwan are the two IT giants whose production shares in these 3 industries are from 50 to 90% of the entire world production, their industrial structures are very different. Korea is known with a few large conglomerates (chaebols), whereas Taiwan is populated with a spectrum of firms of various sizes. As a result, their returns to organizational capital and measures of span of control are very different. By taking into account such differences and taking advantage of data superiority, Jeff quantifies production misallocation and inefficiency in these industries. Since DRAM production is most standardized and LED is most customized, Jeff finds that Korea is much more efficient in DRAM whereas Taiwan is better in LED production. Moreover, by decomposition, most of the misallocation inefficiency in both economies arises from output rather than capital distortions. By conducting a series of counterfactual experiments, Jeff identifies large production gains if the Taiwanese DRAM firms become more vertically integrated. Jeff's paper is perhaps the most comprehensive one that is

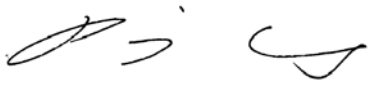
capable of quantifying misallocation inefficiency in a precise manner. In my assessment, this paper should have a good chance to land at a top general-interest journal.

Jeff's third essay (in progress) is designed to studying the role of venture capital networks in the performance of entrepreneurs in the Taiwanese IT industry. Similar to the first essay, this is another original work containing hand-collected detailed data in economic networks together with an array of venture financing and entrepreneurial performance data. Jeff focuses on networks by ways of education and field-specific job experience, from both the venture capitalist and the entrepreneur sides. The outcome variables are the success in IPO and the achievement in R&D (patents in USPTO). By controlling the levels of education and job experience, Jeff can identify the contribution of networks on the performance of the high-tech ventures. It thus offers a clean estimate of the network externality and information spillover effects. Going beyond, Jeff also plan to conduct further study of the effect of venture capital syndications with political networks on the success of ventures.

Jeff is a solid applied economist who is never afraid of getting his hands dirty in collecting valuable data beyond others' dream. He is well-trained in theoretical, quantitative and econometric tools and ready to apply such tools to many topics in industrial organization, entrepreneurial theory and development economics. Jeff is smart and polite, endowed with good leadership as it is evident from his positive role played in our graduate student community.

In conclusion, Mr. Wen-Chieh (Jeff) Lee is a strong researcher, whose participation in the boot camp would allow him to further strengthen his knowledge in entrepreneurship research to better his dissertation and his work in progress in the area of venture capital. Moreover, by joining the camp, he would be value to other participants not only in intellectual discussion but in future research collaboration. I thus recommend Jeff to you without any reservation. Should you have any questions, please feel free to contact me via e-mail, pingwang@wustl.edu.

Best regards,



Ping Wang
Seigle Family Distinguished Professor &
NBER Research Associate

Wen-Chieh Lee

Curriculum Vitae

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Email1: wen-chieh.lee@go.wustl.edu
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Web: http://www.jefflee1978.idv.tw/
Citizenship: Taiwan (F-1 Visa Status)

Education

Ph.D. in Economics, Washington University in St. Louis	Expected May 2012
Thesis Advisor: Prof. Ping Wang	
M.A. in Economics, Washington University in St. Louis	2009
M.B.A. in International Trade, National Chengchi University	2004
B.B.A. in International Business, National Taiwan University	2000

Fields of Research Interest

Primary: Entrepreneurial Economics, Growth and Development, Industrial Organization
Secondary: Coporate Finance, Microeconomic Theory, International Economics

Completed Ph.D. courses

Theory Courses: Microeconomics I&II, Macroeconomic I&II, Topics in Advanced Theory I&II
Quantitative Methods in Economics I&II, Advanced Macro Theory, Economic Growth
Econometrics: Introduction to Econometrics, Applied Econometrics, Structural Microeconometrics
Math: Real Analysis, Lebesque Integration, Toplogy.

Research

Publications

"Taiwan Economic Development–From the Past to the Future," (with Ping Wang), in *The Economic Development Policies in the Post ECFA Era of Taiwan* (edited by Lee, Joseph S.), National Central University Press (Forthcoming).

Working Papers

Span of Control and Production Efficiency: Evidence from Korean and Taiwanese IT firms
(Job Market Paper)

Endogenous Vertical Industrial Structure in Successive Oligopolistic Entry Game

Venture Capital and Business Milestones: a Study of IT Entrepreneurship in Taiwan with Ping Wang (Washington University in St. Louis) and Amitay Alter (Washington University in St. Louis)

Work in Progress

"History Matters: An Equilibrium Analysis of Vertical Value Chain," with Wei-jen Wen (National Chengchi University)

"Social Network Ties and Venture Capitalism," with Scott Hsu (University of Wisconsin-Milwaukee) and Tse-Chun Lin (The University of Hong Kong)

Professional Activities

Research Experience

RA to Prof. Wei-Yu Kuo, National Chengchi University	May 2007–July 2007
RA to Prof. Wei-jen Wen, National Chengchi University	February 2004–July 2004

Teaching Experience

Washington University in St.Louis

Teaching Assistant:

Introduction to Microeconomics	Fall 2009, Spring 2010
Introduction to Macroeconomics	Spring 2011
Intermediate Microeconomic Theory	Fall 2008
Labor and the Economy	Spring 2009, Fall 2010

National Chengchi University

Teaching Assistant:

The Theory of International Trade	Fall 2002, Spring 2003
Advanced Microeconomic Theory (1^{st} year core)	Fall 2003

Past Work Experience

Unilever Co. Ltd.

Trade Marketing Manager, Taiwan and Hong Kong	Dec2006–May2007
Expatriate Young Talented Manager – Brazil, Tailand, Japan, China	Jun2005–Dec2006
Management Trainee – Customer Development Division	Jun2004–May2005

McKinsey & Company

Summer Project in Seoul, Korea Branch	May2003–Sep2003
Business Analyst in Taipei and Hong Kong office	May2000–Oct2000

Ministry of Defense, Taiwan (R.O.C.)

Platoon Leader, Special Force, R.O.C. Airborne	Oct2000–Jun2002

Procter & Gamble

Summer Intern – Customer Business Development Department	Jun1999–Sep1999

Referee

Economics Bulletin*3

Member

Econometric Society, American Economic Association, Midwest Economics Association

Presentations

"Endogenous Vertical Industrial Structure in Successive Oligopolistic Entry Game"

Spring 2011 Midwest Economic Theory Meeting, University of Notre Dame Apr2011

"Span of Control and Production Efficiency: Evidence from Korean and Taiwanese IT firms"

2011 Midwest Macroeconomic Meetings, Vanderbilt University May2011

2011 North American Summer Meeting of the Econometric Society Jun2011

2011 Asian Meeting of the Econometric Society August 2011

The 11th Annual Missouri Economics Assosciation and Washington University's 6th Annual Graduate Student Conference, Washington University in St.Louis Oct2011

Fellowship, Honors, and Awards

John Stuart Mill Fellowship, Washington University in St. Louis 2007–2011

Competitive Summer Research Grant, Washington University in St. Louis 2009–2011

Dissertation Fellowship, Washington University in St. Louis 2011–2012

Graduate Fellowship, Ministry of Education, Taiwan 2007–2009

First-class Graduate Fellowship, National Chengchi University 2002–2004

Skills and Languages

MATLAB, MATHEMATICA, GAUSS, STATA, LATEX.

Mandarin (Native), English (Proficient).

References

Professor Ping Wang (Chair)
Department of Economics
Washington University
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1-314-935-4236

Professor Juan Pantano
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Professor Yongseok Shin
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NBER Entrepreneurship Research Boot Camp

Wen-Chieh Lee

After years of studying and working in the fields of entrepreneurship economics, I decided to pursue my further research in this area. Thus, I am applying to the NBER Entrepreneurship Working Group meeting.

The main theme of my current research is to explore why economies with similar endownments would exhibit different patterns of industrialization.

In particular, my research work consists of three studies on the development of information technology (IT) industry in Korea and Taiwan. Using industry-level data from those countries, I would like to investigate why similar economies would take different paths toward their entrepreneurial patterns. Few studies have addressed the differences between the paths of industrialization taken by the two countries. As indicated by Feenstra (1997) and others, the industrialization process of Korea was accompanied by the rise of several big business gropus (Chaebols), but in contrast, the industrialization process of Taiwan was featured by many small and medium-sized enterprieses (SMEs). The IT manufacturing is a noteworthy example. Both Korea and Taiwan have developed strong IT manufacturing industries, which in turns have accounted for a significant share of the GDPs of the two countries. Yet, it seems that they took different paths to reach that achievement as indicated by Feenstra. Thus, I choose the IT manufacturing industries in Korea and Taiwan as my reseach objects and conduct the following three studies on related issues.

(1) I am extremely interested in the analysis of the relationship between start-up entrepreneurial performance in the IT industry and venture capital investment. Using a hand-collected sample of Taiwanese venture capital deals, I can back out the educational network of start-up entrepreneurs and venture capitalists. The importance of educational network ties and accumulated human capital is approved by testing the effects of venture capital participation on entrepreneurs business milestones in terms of exit (IPO), and R&D results (patents in USPTO). This provides new insights on how the social network interactions between start-up entrepreneurs and venture capitalists fuel the development miracles of the IT manufacturing industries in Taiwan.

(2) The second study is on the formation of vertically-related IT industrial structure in Korea and Taiwan. The empirical evidence suggests that the two countries have different vertically-related IT industrial structure. In this study, I show that the differences may be caused by the controls on firm entry which results in the different entrepreneurial successes between Korea and Taiwan. This result may be explained by using the successive oligopolistic model. The Nash equilibria in successive oligopolistic models reveal that vertical integration (separation) tends to arise when there are

more upstream (downstream) licensed firms from the outset. When the numbers of upstream and downstream licensed firms are "close", both the maximum number of integrations and no integration at all can be Nash equilibrium outcomes. This study also identifies conditions for "partial vertical integration" where integrated and non-integrated licensed firms coexist in a Nash equilibrium. In contrast to the political economy perspectives, the results of this study provide strategic explanations for the determination of industry structure in this type of vertically-related market.

(3) The third topic is to investigate the relationship between industrial structure and production efficiency within an IT manufacturing sector. To explore this question, I propose an industry-wide measure of total factor productivity (TFP) with which the measured industrial productivity is positively correlated with industrial span-ofcontrol setup governing the firm-level returns to scale. I construct a dataset with relevant variables in three IT manufacturing sub-industries: DRAM, LED and TFT-LCD. My computed production efficiency using a suggested profile of industrial span-of-control setup reveals that Korean business groups (Chaebols) are much more efficient in the standardized DRAM industry than those of their Taiwanese rivals, whereas Taiwanese small and medium-sized firms dominate the customized LED business and are tied with Korean Chaebols in the TFT-LCD industry. In addition, potential DRAM integration in Taiwan could enhance productivity by 126%-183% in 2005, 31%-44% in 2006, 13%-14% in 2007, 15%-16% in 2008 and 17%-20% in 2009 based on three different integration scenarios. Counterfactual exercises on the decomposition of production inefficiency into output distortions and capital distortions shows that the distortion on the capital margin created by the uniform government policies does not generate much interfirm disparity in capital user costs within a sub-industry. The output distortion in terms of pricing restrictions in product markets, imposed product tax or product subsidies thereby becomes the dominant source in deriving production inefficiency in the IT manufacturing industries in Korea and Taiwan.

In the future, I would like to continue my works on IT developmental issues in other newly-industrialized economies that connect with broader fields of knowledge in the social science.

The first extension is to study the effect of the VC syndications with local political network and international successful experience on modern sector development in developing countries. To illustrate, my current research framework can be applied to the development of various sectors in Mainland China. My current dataset of venture capital deals shows an increasing number of syndication projects owned by Taiwanese venture capitalists and domestic venture capitalists in mainland China. This kind of FDI by venture capital firms in Taiwan may serve as a positive spillover effect to domestic venture capitalist in mainland China. This is an interesting research topic since the domestic venture capitalist is believed to have good political connections as argued by the Mckinsey Global Institute (2009) and Joseph Fan (2007). The joint effect of local political network in China and Taiwanese successful experience on modern sector development is yet to be investigated.