Curriculum Vitae

Hyeongjun Bang

Contact Information

Michigan State University
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Education

Ph.D.	Economics	Michigan State University, East Lansing, MI	May 2017, (expected)
M.A.	Economics	Seoul National University, Seoul, Korea	Feb. 2011
B.A.	Economics and Physics	Seoul National University, Seoul, Korea	Aug. 2008

Research Interests

Development, Labor Economics

Working Papers

"Corruption Traps and Economic Growth" **(Job Market Paper)**

"The Impact of WWII on Female Employment in the U.S."

Work in Progress

"Corruption Trap with Endogenous Bureaucracy Size"

Teaching Experiences

Instructor of Record:

Michigan State University

EC310: Economics of Developing Countries — Summer 2015

Teaching Assistant:

Michigan State University

EC410: Issues in the Economics of Developing Countries — Spring 2015-current

EC201: Introduction to Microeconomics — Fall 2016

EC485: Economics of Education — Fall 2015, Spring 2016

Seoul National University

Microeconomics, Game Theory, Advanced Microeconomics — 2008-2010

Research Experiences

Research Assistant, Michigan Department of Education, Lansing, MI — 2014-2015

Presentations

86th Southern Economic Association Annual Conference, Washington D.C.	Nov. 2016
42nd Eastern Economic Association Annual Conference, Washington D.C.	Feb. 2016
52nd Annual Meeting of the Missouri Valley Economic Association, Kansas City, MO	Oct. 2015
Economic Theory seminar, East Lansing, Michigan	May 2015
Midwest Economics Annual Meeting, Minneapolis, Minnesota	Mar. 2015
Development Brown Bag Seminar, East Lansing, Michigan	Oct. 2014

Fellowships and Grants

Summer Research Fellowship, Michigan State University	2014, 2016
Graduate Office Fellowship, Michigan State University	2012
BK (Brain Korea) 21 Scholarship, Brain Korea 21 Foundation	2008-2010
Undergraduate Student Scholarship, Korea Foundation for Advanced Studies	2004-2006

References

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Research Statement

Hyeongjun Bang

My job-market paper *Corruption Traps and Economic Growth* studies why corruption and poverty appear together in many low-income countries. It proposes a neoclassical growth model based on Matsuyama (2007) that features a dual causality between corruption and poverty. Bureaucrats extract more bribes from entrepreneurs due to poverty in less developed countries, and corruption undermines growth by distorting investment. The result is that poverty traps based on corruption can arise, in which low income exacerbates corruption, and corruption, in turn, induces a misallocation of resources and slows growth. An implication of the model is that corruption can be tackled directly by anti-corruption programs, or indirectly through various development programs. Conversely, growth can be spurred through anti-corruption efforts, in some cases, but also through standard development approaches that reduce corruption as a byproduct. The model also points to some unintended consequences that partial anti-corruption programs or development strategies may have. This paper has been presented at several conferences as listed in my Curriculum Vitae.

In my second chapter, I examine the effects of World War II on female labor force participation in the United States. Although the impact of the mobilization is significant in Acemoglu, Autor, and Lyle (2004), I cannot observe their results when child-care costs and occupation-level female employment structure in 1940 are taken into consideration. In most occupations, the female employment rates and working hours showed similarities in 1940 and 1950, proving that Rosie the Riveter did not prevail and women did not substitute male workers' vacancies during WWII. This is because governments engaged in World War I learned that women could not completely substitute male workers, suffering from drops in industrial production, and tried not to mobilize working males during WWII.

In the final chapter of my dissertation, I analyze corruption on two levels; the size of bureaucracy that is endogenously determined by an occupational choice and the bribe rates that are the outcome of bureaucrats' optimization. Each young agent chooses between being a worker and being a bureaucrat, and each old agent chooses between being a bureaucrat and a lender. In a framework of the Diamond overlapping generation model with two-period lives, the size of bureaucracy depends on the capital per capita, which determines wages for workers. Therefore, low-income economies suffer from severe bribery and relatively large bureaucracy size. Corruption distorts the optimal allocation of resources and old agents' occupational choice, in turn reduces growth rates. This model can explain why some low-income countries are engaged in civil wars and high level of corruption.

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November 29, 2016

Dear Colleagues:

I am writing to enthusiastically recommend **Hyeongjun Bang** for a position in your department. Hyeongjun is a microeconomist with expertise in both development and labor economics. I first met him 3 years ago when he was a student in my doctoral course in labor economics. He was one of the top students in the class; over the course of the next year, he asked me to be on his dissertation committee, and I was happy to do so.

Hyeongjun's job market paper presents a model motivated by the cross-national correlation between corruption and poverty. Specifically, Hyeongjun shows that (endogenous) government corruption and firm behavior can create an equilibrium in which a country becomes trapped in a high-corruption, low-income steady state. What is really novel about this work is that, besides modeling the direct effect of corruption on firms' decisions, he also models the decision of government officials to extort from successful firms. Intuitively, in a world of decreasing returns to capital, the returns to extortion are high when available capital is low. As a result, in an economy with low initial capital levels, government officials devote a great deal of effort to extorting successful firms. This reduces the incentive for businesses to become successful, i.e., to accumulate capital and pursue technological advances.

This paper shows a great deal of both creativity and modeling skill. Moreover, its results are intuitively appealing – economies can get stuck in poverty traps directly because of bureaucratic corruption. He is currently working on an extension to the central model by endogenizing the size of the bureaucracy itself, which in turn depends on the potential returns to corruption. This extension further highlights the fact that initial conditions play a crucial role in the existence of corruption-driven poverty traps.

Hyeongjun's second dissertation chapter highlights a unique quality of his – he is talented as both an empiricist and a theorist. Unlike his main job market paper, this second paper, "The Impact of World War II on Female Employment in the U.S.", is largely empirical, focusing on the effects of World War II mobilization on female labor supply in the postwar U.S. A seminal paper by Acemoglu, Autor, and Lyle, published in 2004 in the *JPE*, showed a strong positive cross-state correlation between the male war mobilization rate and postwar increases in female labor supply. The implication is that the mobilization permanently shifted many women into the workforce.

Hyeongjun shows that the entire effect found by Acemoglu, Autor, and Lyle disappears once one carefully controls for the "femaleness" of an occupation before WWII started. In other words, women *did* enter the labor market in large numbers during and following the war, but this shift was solely driven by the growth of occupations that

disproportionately included women before the war. Women made no significant inroads into "male-dominated" occupations at all. The implication is that the well-known "Rosie the Riveter" explanation for rising postwar female labor supply does not hold much water. This surprising and stark result sheds entirely new light on an interesting question, so it has the potential to land at a strong journal and be well-cited in the future.

In sum, Hyeongjun Bang is an exceptionally creative and talented applied theorist. Moreover, he is skilled in identifying interesting empirical questions and performing credible, convincing empirical work. He largely shaped his own research agenda and showed a lot of creativity and diligence in attacking it. Finally, he is one of the most kind and pleasant people with whom I have ever interacted – he will surely be a huge positive externality to his colleagues in the future. I urge you to meet with him at the ASSA meetings. Please feel free to contact me if you have any questions about Hyeongjun – I would be delighted to discuss him further.

Sincerely,



Todd E. Elder
Associate Professor of Economics

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November 27, 2016

Dear Colleagues:

I am pleased to be writing a recommendation for Hyeongjun Bang. Hyeongjun works generally in the field of development economics with a focus on issues related to corruption and labor economics. We first met in Spring 2013 when Hyeongjun took my Ph.D. course in development economics. He was a great student in that class, working hard to understand the concepts and master the material.

I have served on Hyeongjun's doctoral dissertation committee for the past three and a half years. His doctoral research focuses on two important topics within the broader theme of economic development: corruption and female labor force participation. His work is both empirical and theoretical, showcasing his breadth of talent as a researcher.

Hyeongjun's job market paper, "Corruption Traps and Economic Growth," reexamines the crucial link between corruption and poverty in a simple yet insightful theoretical model. The model highlights the notion that causality flows in both directions between corruption and poverty; that is, poverty leads to corruption and vice versa. The key mechanisms in his model are that bureaucrats choose bribe rates endogenously (i) with respect to the profitability of each sector/technology and (ii) with respect to the level of capital in the economy. The first mechanism leads to a classic result that higher productivity sectors/technologies face higher bribe rates and thus can be less profitable overall (net of bribes paid) than lower productivity sectors/technologies. This distortion is one way in which corruption lowers economic growth, as entrepreneurs allocate resources away from the most productive sectors in the presence of corruption. The second mechanism suggests that corrupt bureaucrats recognize that when capital is scarce, the return to capital is high and thus the return to extracting bribes from entrepreneurs is high. Thus, all else equal, low capital (poor) countries will face higher bribe rates than high capital (rich) countries. Hyeongjun's model illustrates that corruption traps – in which low capital (poor) countries face high bribe rates and thus continue to invest in low productivity technologies and therefore lower the rate of capital accumulation in a cycle that repeats itself – are possible for some initial capital levels.

Finally, Hyeongjun investigates some of the policy implications of his model. The most interesting implications of his model have to do with the somewhat surprising consequences of anticorruption efforts. In particular, he shows that the success of an anticorruption policy depends on the sector targeted by the policy. Policies targeted towards high productivity technologies are successful in increasing growth and reducing future corruption, potentially shifting a country onto a new growth trajectory and lifting it out of a corruption-induced poverty trap. On the other hand, anticorruption policies aimed to reduce bribe rates in low technology industries actually reduce growth as they

increase the distortion between high and low productivity sectors and reinforce the misallocation of investment towards low-return sectors. Perhaps most interestingly, a uniform policy that targets bribery reduction equally across sectors also leads to worse outcomes for a poor country, as after-bribe profitability rises by more in the low productivity sector relative to the high productivity sector. Thus, the consequences of such a uniform policy for an economy are very similar to those of a policy that targets only low productivity technologies. Though his model is very simple, the implications that it yields are important from both policy and academic perspectives.

In the second chapter of his dissertation, "The Impact of WWII on Female Employment in the U.S.," Hyeongjun revisits an important finding from Acemoglu, Autor and Lyle (2004, *The Journal of Political Economy*). In particular, he investigates whether one of their main findings – that World War II acted as an exogenous increase in demand for female labor, leading to a positive correlation between state-level wartime mobilization rates and female employment in 1950 – is robust to the inclusion of a set of potentially important controls. The additional controls he considers capture the pre-war occupational patterns of working women, state-level variation in the business cycle, and individual factors relating to childcare costs. Though his results are very preliminary, they suggest that once these additional factors are added to the model, state-level mobilization rates are no longer predictive of female employment in 1950; the magnitude of the "mobilization effect" falls to almost zero and is not statistically significant. These results may indicate that other labor market factors beyond mobilization rates may explain some of the results in Acemoglu, Author and Lyle (2004).

To complement his research background, Hyeongjun has also gained experience in teaching. He has taught a summer course in undergraduate development economics and has served as a teaching assistant throughout his time at Michigan State. Though I have not had the pleasure of working with Hyeongjun as a teaching assistant, my colleagues speak positively of him in this capacity.

Overall, Hyeongjun Bang has proven himself to be a very independent and thoughtful researcher that would be an asset to many departments or programs. His work clearly addresses policy-relevant issues using the technical expertise that he has gained during his Ph.D. I think that he would be great fit for your position and so I encourage you to consider him. Please contact me if you feel I can provide more information.

Sincerely,



Leah K. Lakdawala

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November 29, 2016

Dear Recruiting Committee:

I am writing this letter to express my strong support for Hyeongjun Bang's application for employment. I have taught Hyeongjun and also chaired his dissertation committee.

Hyeongjun is a creative and conscientious researcher. He has worked mainly on theoretical topics, primarily in the field of economic development, but he also has empirical skills and a significant paper in labor economics. He came to economics via an undergraduate degree in physics, and this is evident in the skills he brings to his theoretical work. He would often approach a proof or theoretical analysis in a way I would not have thought of, e.g. using an indirect or more general method rather than brute force, and in some cases significantly simplifying the analysis. As a result, he was able to push further in some areas of the theoretical analysis than I might have done myself.

Hyeongjun is also a motivated and dedicated teacher. He clearly cares about students, spending as much time with them as needed or requested. He takes pride in clearly communicating economic concepts. I have had Hyeongjun as my TA about five times, and he has been outstanding; in general, he is an in-demand TA here. While English is not his first language, I have found his command of English to be excellent. Overall, I am confident Hyeongjun is growing into an effective teacher.

Overall, I believe Hyeongjun is well-equipped for a job requiring good-quality economics research and excellent teaching, i.e. a typical academic setting. He is also an extremely strong candidate for a research institute or policy research organization, given his strong conceptual grasp of economics, his data skills, and his experience with empirical work. I recommend him highly for positions such as these.

Hyeongjun has taken on an ambitious dissertation project. The first chapter is an overlapping-generations model of economic growth that endogenously determines the effort put into illegal extortion, the extent of corruption, and entrepreneurial technology choice. In some ways, it is a very simple model, reducing to a standard Solow growth model in certain limit cases. But Hyeongjun introduces just enough complexity, inspired by work of Matsuyama (AER 2006), to model corruption in this context, in an interesting and non-trivial way. The result is the **first model**, to my knowledge, that establishes theoretically the potential existence **of a corruption-based poverty trap**, in which a poor country gets stuck in a high-corruption, low-income steady state, while a richer country enjoys a path to both low corruption and high income. The poverty trap can arise from a number of different assumptions, including that the better technology is also more vulnerable to official extortion, or that it simply requires a larger scale of operation.

The foundation for this corruption trap model is a two-way causal interaction between the level of income (capital) in an economy and the level of corruption. It is quite common to model a one-way causal link between corruption and income, namely that higher corruption lowers growth and thus income. This link is also modeled here, and the intuition for it is as follows. Entrepreneurs' technological choice is motivated by efficiency but also by avoiding extortion. When corruption is higher, the extortion-avoidance motivation becomes more salient, and entrepreneurs may choose less-efficient but more corruption-proof technology – staying "small" to avoid attention of bureaucrats. This happens under the assumption that the larger project is

also the more efficient one, and it is in line with empirical evidence on firm size and corruption. Of course, when entrepreneurs routinely choose less efficient technology, growth and income levels suffer.

The opposite causal link is rarely modeled; by contrast, Hyeongjun's model features it. The idea is that the more costly effort officials exert, the greater the fees they can extort from firms. They are mainly extorting profits, i.e. capital income, and the return to capital declines for standard reasons where capital is more abundant. Thus, effort spent on extortion becomes less attractive in a capital-abundant economies, as the time of would-be extorters is better spent elsewhere. As a result, corruption effort is lower in (capital-)richer economies.

Putting the two links together gives a very tractable, augmented Solow model (a la Matsuyama, 2006) that can exhibit a poverty trap. The intuition is that economies with low initial capital levels have bureaucrats that put great effort into corruption; so, avoiding corruption becomes the dominant aspect of entrepreneurs' technological choice, and the resulting small-scale, inefficient firms do not allow for significant capital accumulation. The economy stays poor. Conversely, in economies with high initial capital levels, bureaucrats are less focused on extorting bribes, so entrepreneurs choose the more efficient technology even though it is a greater target for corruption; the economy experiences significant capital accumulation.

Theoretically, this is an interesting model because it shows how economies can get stuck in poverty through a corruption channel, in a way that fits with empirical observation. There are quite a few multiple equilibrium models of corruption; this model differs from these in exhibiting a unique equilibrium, but one that may depend on the initial condition.

There are interesting, at times counterintuitive, policy implications from the model. One counterintuitive implication is that making corruption harder to engage in can actually make the poverty trap more likely to exist. The key is how an anti-corruption policy affects the ease of corruption across technologies, and if it disproportionately lowers bribes on the less efficient technology, it can make the overall technological distortion worse and a poverty trap more likely. The key, then, is to make corruption more difficult to engage in against firms of efficient scale and technology. Perhaps the most general implication of the model is that combating corruption can be done directly, through anti-corruption policies, or indirectly, through general development strategies (e.g. increasing capital accumulation or total factor productivity) that increase income, lowering incentives for corruption and potentially springing an economy from a poverty trap. Conversely, promoting growth can be done through standard means, but also through reducing corruption, at least as it impacts efficient technologies.

Hyeongjun's second paper is in labor economics. My comments will be briefer, since it is more significantly supervised by a professor in that field. My sense is that it is a potentially exciting contribution toward our understanding of the twentieth-century increase in women's labor force participation, and in particular, the role played by the temporary mobilization of women into the workforce during World War II. Hyeongjun shows that after taking into account pre-existing differences in state growth rates, and looking carefully at the particular occupations in which women's labor force participation remained high after WWII, the special role of WWII mobilization diminishes – the picture is closer to one of gradual change than one of significant disruption. This has the potential to be a strong contribution on a much-researched topic, and to be cited for years to come.

Hyeongjun's third paper is also well underway, and it builds on the first one. In the first paper, the identity and size of the bureaucracy engaging in corruption is exogenously set. In this third paper, he endogenizes selection into the bureaucracy and thus the size of the bureaucracy, which also varies with development and affects the potential existence of a poverty trap. This model is more complex and has required months of work to analyze the model. The payoff promises to be an understanding of the existence of the corruption-based poverty trap that is both

richer – e.g. mapping the evolution of the size of the bureaucracy in tandem with corruption and economic growth – and more robust to endogenous selection into corruption.

In short, I believe Hyeongjun is a skilled and accomplished economist, who brings a keen mind to solving theoretical issues and a useful toolkit for approaching empirical problems. I believe he will have a fruitful career, whichever direction it takes. In short, I give him my strong recommendation. I welcome any further inquiry about him. (Contact information is on page 1.)

Sincerely,



Christian R. Ahlin, Associate Professor