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DOCTORAL STUDIES Massachusetts Institute of Technology (MIT)
PhD, Economics, Expected completion June 2009
DISSERTATION: "Essays on Innovation Policy and Growth"

DISSERTATION COMMITTEE AND REFERENCES

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PRIOR EDUCATION B.A, magna cum laude Economics Koc University, Istanbul, Turkey 2003

CITIZENSHIP Turkish **GENDER: M** **DATE OF BIRTH** 05.23.1980

LANGUAGES English (fluent), Turkish (fluent), German (intermediate)

RESEARCH & TEACHING FIELDS Primary Fields: Macroeconomics, Economic Growth
Secondary Fields: Industrial Organizations, Computational Economics

TEACHING EXPERIENCE **As Instructor at MIT:**
Mathematics for Economists (1st year PhD Class, MIT course 14.102) Fall 2008
Fall 2007
Fall 2005
Summer Math Camp (Math refresher for the incoming 1st year PhD Students, MIT course 14.00) Summer 2008
Summer 2007
Summer 2006

TEACHING EXPERIENCE (CONTINUED)	As Teaching Assistant at MIT:	
	Advanced Macroeconomics (graduate, MIT course 14.461), Teaching Assistant to Professor Olivier Blanchard and Professor Ricardo Caballero	Spring 2008
	Advanced Macroeconomics (undergraduate, MIT course 14.06), Teaching Assistant to Professor George-Marios Angeletos	Spring 2007
	Mathematics for Economist (graduate, MIT course 14.102), Teaching Assistant to Professor Mikhail Golosov	Fall 2006
	Game Theory (undergraduate, MIT course 14.12), Teaching Assistant to Professor Muhamet Yildiz	Fall 2006 Fall 2005
	As Teaching Assistant at Koc University:	
	Macroeconomics for Managers (MBA, Koc University course MGEC 502), Teaching Assistant to Professor Kamil Yilmaz	Spring 2003
	Applied Macroeconomics (undergraduate, Koc University course ECON 302), Teaching Assistant to Professor Kamil Yilmaz	Spring 2003
	Applied Microeconomics (undergraduate, Koc University course ECON 301), Teaching Assistant to Professor Tayfun Sonmez	Fall 2002
	Game Theory (undergraduate, Koc University course ECON 333), Teaching Assistant to Professor Tayfun Sonmez	Fall 2002
Macroeconomics (undergraduate, Koc University course ECON 202), Teaching Assistant to Professor Cevdet Akcay	Spring 2002 Fall 2001	
Microeconomics (undergraduate, Koc University course ECON 201), Teaching Assistant to Professor Murat Usman	Fall 2001 Fall 2000	
RELEVANT POSITIONS	Summer Dissertation Intern, Board of Governors, DC Research Assistant to Professor Daron Acemoglu	Summer 2007 2004-2006
FELLOWSHIPS, HONORS, AND AWARDS	Nominated for Best Undergraduate Teaching Assistant, 2007 Best Poster Award for "State-Dependent IPR Policy", European Science Days, Steyr, Austria, Summer 2006 Fellow, Institute on Computational Economics, Argonne National Laboratory & University of Chicago, Summer 2006 President's Special Award, Koc University, Istanbul, 2003 DAAD Scholarship, Technical University of Braunschweig, Germany, Summer 2001 Vehbi Koc Fellow, Koc University, 1999-2003	
PROFESSIONAL ACTIVITIES	Referee for: <i>Econometrica</i> <i>European Economic Review</i> <i>Journal of Economic Theory</i> <i>Review of Economics and Statistics</i> <i>The Economics of Transition</i>	
	Presentations: MIT, Macroeconomics Seminar, 2008 NBER Productivity Group, Fall 2008, Spring 2007 Board of Governors, DC, Summer 2007 Conference on the Economics of Technology Policy, Monte Verita, Switzerland, Summer 2007 Koc University, Istanbul, Summer 2006	

PUBLICATIONS **“Background Study on the Labor Market and Employment in Turkey,”**
European Training Foundation, Torino, Italy, 2004. (joint with Insan Tunali,
Hakan Ercan, Cem Baslevant and Orgul Ozturk)

RESEARCH **“Firm Size, Innovation Dynamics and Growth” (Job Market Paper)**
PAPERS

This paper investigates the relationship between the size of the firm and the quality of innovations of the firm. Much of the previous literature on innovation focuses on innovation frequency with an economy-wide uniform innovation quality. In contrast to the previous literature, this paper allows firms to choose not only the stochastic innovation frequency but also the innovation quality and focuses on how this heterogeneity in innovation quality is affected by the size of the firm. This paper has three distinct contributions:

First, using Compustat firms and their patent applications, I document the following three reduced form facts: *i)* Firm sales growth (both short-run and long-run) is negatively related to the firm size. *ii)* Firm R&D intensity, defined as R&D expenses over sales is negatively related to the firm size. *iii)* The quality of innovation, proxied by the number of citations that a patent receives, is negatively related to the firm size.

Second, I build a tractable general equilibrium growth model that is rich enough to investigate these empirical results. I prove the existence of the equilibrium, characterize its properties and show that the predictions of the theoretical model are consistent with the reduced form evidences mentioned above.

Third, I structurally estimate the theoretical model parameters using Simulated Method of Moments on Compustat firms. Finally, I use these estimated parameters to conduct a macro policy experiment to evaluate the effects of a size-dependent R&D subsidy on different sized firms. In conclusion of this analysis, the optimal size-dependent R&D subsidy policy does considerably better than optimal uniform (size-independent) policy. More interestingly, the optimal (welfare-maximizing) policy provides higher subsidies to smaller firms.

“State Dependent Intellectual Property Rights Policy,” *submitted*
(joint with Daron Acemoglu)

What form of intellectual property rights (IPR) policy contributes to economic growth? Should a company with a large technological lead receive the same IPR protection as a company with a more limited advantage? Should technological followers be able to license the products of technological leaders? We develop a general equilibrium framework to investigate these questions. The economy consists of many industries and firms engaged in cumulative (step-by-step) innovation. IPR policy regulates whether followers in an industry can copy the technology of the leader and also how much they have to pay to license past innovations. With full patent protection, followers can catch up to the leader in their industry either by making the same innovation(s) themselves or by making some pre-specified payments to the technological leaders.

We prove the existence of a steady-state equilibrium and characterize some of its properties. We then quantitatively investigate the implications of different types of IPR policy on the equilibrium growth rate and welfare. The two major results of this exercise are as follows. First, the growth rate and welfare in the standard models used in the (growth) literature can be improved significantly by introducing a simple form of licensing. Second and more importantly, full patent protection is not optimal from the viewpoint of maximizing welfare; instead, welfare-maximizing (and growth-maximizing) policy involves state-dependent IPR protection, providing greater protection to technological leaders that are further ahead than those that are close to their followers. This form of the welfare-maximizing policy is a result of the “trickledown” effect, which implies that providing greater protection to firms that are

further ahead of their followers than a certain threshold increases the R&D incentives also for all technological leaders that are less advanced than this threshold.

**RESEARCH IN
PROGRESS** **“Appropriate Finance and Growth”
(joint with Philippe Aghion)**

This paper studies the type of appropriate financial instruments for firms with different technology levels. The contributions of this paper to the Finance and Growth literature is twofold: first, we distinguish between different types of financial instruments, in particular between debt and equity; second, we look at the relationship between the firm’s choice of financial instrument and its level of technological development, with the idea that technological development impacts the nature of the innovation process chosen by the firm.

On the theoretical side, we build a Schumpeterian framework where firms need to generate external funds in order to finance the risky R&D projects that they undertake to improve their current productivity levels. We show the conditions under which equity (debt) financing is the dominant financing choice for firms with different technology levels.

On the empirical side, we obtain reduced form evidences using COMPUSTAT firms. Firms which are more R&D intensive, and firms which are high-tech have a significantly higher probability of issuing new equity. This relation is mostly negative with issuing new debt. The proportion of tangible assets of a firm is positively related to the probability of issuing debt and negatively related to the probability of issuing equity.