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EDUCATION

Ph.D. in Economics, Stanford University, 2009-
Expected Completion: June 2015

M.Sc. in Economics, Università Bocconi, 2006-2008 (Summa cum Laude)
B.A. in Business, Università Bocconi, 2003-2006 (Summa cum Laude).

DISSERTATION COMMITTEE

Prof. Caroline M. Hoxby **(primary)**
Economics Department
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RESEARCH AND TEACHING FIELDS

Primary Fields: Public Economics, Economics of Education, Labor Economics
Secondary Fields: Economic History

TEACHING EXPERIENCE

2013-14 Teaching Assistant for Prof. P. Dupas, Stanford University, Econ 118 (Development Economics)
2012-13 Teaching Assistant for Prof. P. Dupas, Stanford University, Econ 118 (Development Economics)
2011-12 Teaching Assistant for Prof. C. Landais, Stanford University, Econ 101 (Economic Policy Analysis).

RELEVANT POSITIONS

2010-12 Research Assistant for Prof. P. Moser, Stanford University.
2008-09 Research Assistant for Prof. V. Galasso, Università Bocconi.
2007-08 Research Assistant for Prof. P. Muliere, Università Bocconi.

SCHOLARSHIPS, HONORS AND AWARDS

2014-15 Graduate Student Grant, The Europe Center at Stanford University ($5,000)
2014-15 Haley-Shaw Scholarship, Stanford Institute for Economic Policy Research
2013-14 Outstanding Teaching Assistant Award, Department of Economics, Stanford University (Econ 118)
2013-14 George P. Shultz Grant, Stanford Institute for Economic Policy Research ($15,000)
2012-13 George P. Shultz Scholarship, Stanford Institute for Economic Policy Research
2012-13 Graduate Research Opportunity (GRO) Award, School of Humanities and Sciences, Stanford University ($4,500)
2009-11 Economics Department Fellowship, Stanford University.
2006-08 Bocconi Merit Award, Università Bocconi.

PROFESSIONAL ACTIVITIES

Referee: *American Economic Review.*
Seminar presenter: UC Berkeley Economic History Lunch, 2014 All-UC Graduate Workshop in Economic History, UC Davis.

RESEARCH PAPERS

The General Equilibrium Effects of Educational Expansion (**Job market paper**)
In an effort to raise skills or promote equality, states sometimes engage in sweeping reforms that rapidly increase access to education for a significant share of their population. Such reforms are hard to evaluate because they may alter more than the outcomes of marginal students induced to enroll. They may change returns to skill, school quality, peer effects, and the educational choices of apparently inframarginal students (those who would have enrolled in the absence of the reform). I identify such general equilibrium effects by examining a dramatic 1961 Italian reform that increased university enrollment in science, technology, engineering, and math (STEM) fields by more than 200 percent in a few years. The peculiar features of the reform allow me to identify students who were unaffected, directly affected, and indirectly affected. They also allow me to identify key channels through which the effects ran. Using data I collected from tax returns and hand-written transcripts on more than 27,000 students, I show that the direct effects of the reform were as intended: many more students enrolled and many more obtained degrees. However, I also find that those induced to enroll earned no more than students in earlier cohorts who were denied access to university. I reconcile these surprising results by showing that the education expansion reduced returns to skill and lowered university learning through congestion and peer effects. I also demonstrate that apparently inframarginal students were significantly affected: the

most able of them abandoned STEM majors rather than accept lower returns and lower human capital.

*Patents, Competition, and Innovation – Evidence from Compulsory Licensing during WWI (*joint with Joerg Baten and Petra Moser)
Compulsory licensing allows governments to license a patented technology without the consent of the patent owner. In recent years, many developing countries have used compulsory licensing to access patented drugs to fight public health emergencies. However, compulsory licensing is a clear violation of intellectual property and might decrease the incentives to innovate by increasing the risk of expropriation. In this paper, we exploit the 1918 US decision to violate enemy-owned patents to investigate the effects of this policy on German invention. We collected and digitized almost 80,000 German patents in chemical fields with application dates from 1900 to 1930. We find evidence that after 1918 German inventors produced more innovation in chemical fields with licensing. Controls for patent quality suggest that only a small share of this increase was due to lower quality, strategic patents. Firm-level analyses of patent data also reveal a significant increase in the number of research-active firms in fields with licensing. In the same fields, firms whose patents had been licensed began to patent more. These results indicate that compulsory licensing can promote innovation by encouraging competitors to enter fields with licensing.

RESEARCH IN PROGRESS

The Promotion of STEM Education and Its Effect on Innovation (with Michela Giorcelli)
Many recent policies are designed to increase enrollment into university STEM (science, technology, engineering, and math) fields with the intended goal to foster innovation. The effects of these policies, however, are ex-ante ambiguous. For example, the students induced to enroll in STEM majors might have low ability and not produce any innovation. Moreover, the entry of low-ability students might convince the best STEM talents to move elsewhere, resulting in a net decrease of innovation. In this project, we use a 1961 Italian reform that increased enrollment in university STEM programs by more than 200 percent in only a few years. The students allowed in 1961 to enroll in STEM majors were studying STEM-related disciplines in high school but were previously denied access to university. Therefore, the reform replaced high school-educated STEM workers with college-educated STEM workers. We intend to isolate the effects of the policy on invention using a variety of techniques. At the individual level, we link the school and income data of students that were in school just before and after 1961 with information on each Italian patent that they owned or developed. At the national level, we intend to exploit differential increases of STEM skills by geographical location and by field of study.

The Intergenerational Effects of Educational Expansion (with Massimo Anelli and Giovanni Peri)
Acquiring more education can have positive returns that extend to the next generation. If children of more educated parents are more likely to attend college, policies that aim at expanding access to higher education might increase social mobility across generations and raise children's expected income. However, identifying the effect of parents' education on their children's achievements is complicated by a wide array of confounding factors. For instance, education is positively correlated with parental income. Comparing the outcomes of children of more and less educated parents would thus not disentangle the influence of parental education

and parental wealth. In this paper, we exploit a 1961 Italian reform that dramatically expanded college enrollment as a positive shock to the education level of one generation. We link school and income of more than 27,000 Italians that were in school just before and after the policy implementation with information on schooling and income of their children. We are able to isolate the role of parental education on the outcomes of the next generation because the reform increased parents' education with no effects on their income (Bianchi 2014). Preliminary results show that the children of the individuals that acquired more education through the reform were more likely to choose a high-paying field (business and engineering) in university.

The Transmission of Innovation Across Countries and Firms (with Michela Giorcelli)
In this project, we exploit a historical international policy to examine whether learning to innovate can be transferred across firms and countries. Starting in 1952, the US government promoted the transmission of technical information from US firms at the technological forefront to European firms recovering from World War II. In practice, this program organized consulting sessions of US experts in Europe and study trips of European technicians to the US. We collected data on 6,035 Italian firms located in 32 provinces spanning from 1930 to 1970. All these firms would have been ex-ante eligible for the program (they had less than 500 employees and compiled a balance sheet). Due to restricted funding, however, only firms located in 5 provinces (902 firms) were deemed eligible. In addition, we collected information on all patents issued by the Italian Patent Office from 1940 to 2013. To examine the effects of this policy on Italian innovation, we will compare how patenting changed after 1952 among participating (or eligible) firms, relative to similar firms in ineligible provinces.