SCIENTIFIC EDUCATION AND INNOVATION: FROM TECHNICAL DIPLOMAS TO UNIVERSITY STEM DEGREES

Nicola Bianchi
Kellogg School of Management, Northwestern University

Michela Giorcelli
University of California - Los Angeles

Abstract
This paper studies the effects of university STEM education on innovation and labor market outcomes by exploiting a change in enrollment requirements in Italian STEM majors. University-level scientific education had two direct effects on the development of patents by students who had acquired a STEM degree. First, the policy changed the direction of their innovation. Second, it allowed these individuals to reach top positions within firms and be more involved in the innovation process. STEM degrees, however, also changed occupational sorting. Some higher-achieving individuals used STEM degrees to enter jobs that required university-level education, but did not focus on patenting. (JEL: I21, I25, I26, I28, J24, O30)

The editor in charge of this paper was Giovanni Peri.

Acknowledgments: We thank the editor Giovanni Peri, four anonymous referees, as well as Ran Abramitzky, Nick Bloom, Leah Boustan, Mary Burke, Annamaria Conti, Dora Costa, Pascaline Dupas, Caroline Hoxby, Ben Jones, Maurizio Mazzocco, Melanie Mortен, Petra Moser, and seminar and conference participants at the ASSA meeting, Barcelona GSE, Collegio Carlo Alberto, EHA meeting, INPS, MEA meeting, Modena, NBER, Northwestern, NUS, Searle Center, Stanford, UCLA, and UC-Riverside for helpful comments. Mohammad Zuhad Hai provided excellent research assistance. We thank Istituto Nazionale Previdenza Sociale (INPS) for making the social security data available through the VisitINPS program. We gratefully acknowledge financial support from the Stanford Europe Center and the Stanford Center for International Development. Bianchi is a Research Fellow at CEPR. Giorcelli is a Research Fellow at NBER.

E-mail: nicola.bianchi@kellogg.northwestern.edu (Bianchi); mgiorcelli@econ.ucla.edu (Giorcelli)

Journal of the European Economic Association
Preprint prepared on 26 July 2019 using jeea.cls v1.0.