

AN EMPIRE LOST: SPANISH INDUSTRY AND THE EFFECT OF COLONIAL MARKETS AND TRADE ON INNOVATION

DARIO A. ROMERO[†]

JOB MARKET PAPER

This version: October 2021. Latest version [here](#).

ABSTRACT. This paper studies how changes in access to international markets affect the direction of technical change. I use two historical trade shocks that changed markets for the Spanish textile industry at the end of the 19th century, along with newly digitized data on textile patents and production in Spain. First, after Spain effectively forced its colonies to buy manufactured cotton goods in 1891, I document an increase in cotton textile innovation relative to other fabrics. Second, after the Spanish-American war and the unexpected loss of these captive markets, I find innovation in cotton textiles changes towards new weaving patents relative to other parts of the cotton textile production process such as threading. After 1898, cotton industrialists entered and competed in international markets that demanded more sophisticated fabrics. Using novel archive data from a big cotton firm, I provide price and quantity-based evidence of the strength of each type of technical change. After the 1891 shock, I show that cotton textiles experienced an increase and then a decrease in prices, consistent with strong directed technical change and substitutability between cotton and other fibers. I also show that the 1898 shock led to an increase in design-intensive cotton goods and weaver's wages, consistent with weak directed technical change and complementarities between weaving and other cotton textile labor. Finally, I show that these new incentives on innovation translated directly into adopting new mechanized tools in the sector. I find evidence of a rise in industrial technology due to an increase in mechanized cotton looms used in Spain after 1900. Together, these results provide some of the first causal evidence on how international trade shapes technical change direction. Although each shock meant access to new markets to Spanish cotton textiles, their effect on innovation differed because the composition of textile demand was different.

JEL CODES: F15, F63, L16, N73, O24, O32

KEYWORDS: Directed Technical Change, Induce Innovation, Trade

[†]Department of Economics, Columbia University. 1022 International Affairs Building, 420 West 118th Street, New York, NY 10027. E-mail: dr2879@columbia.edu. I owe an enormous debt of gratitude to Suresh Naidu, Réka Juhász, Eric Verhoogen, Michel Best for numerous insightful discussions regarding this work. The paper also benefit from discussions with Silvio Ravaioli, David Rosenkranz, Felipe Netto, Haaris Mateen, Tatyana Avilova, Diego Martin, Teresa Esteban-Casanelles and seminar participants at Columbia Development Colloquium. I owe a special thanks to workers at the Biblioteca Nacional de España, Biblioteca de Catalunya and Arxiu Nacional de Catalunya. All remaining errors are my own.