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‘Who pays for iceberg transport costs? The effect of seasonal natural barriers on trade and regional inequality’

We explore the North Atlantic iceberg drift as a natural experiment for time varying transport costs. Tracing nineteenth and twentieth century cotton trade from farmers in the United States to textile manufacturers in the United Kingdom, we examine how the effect of seasonally fluctuating transport costs unfolds along the supply chain. We quantify the resulting trade effects and investigate the repercussions of drifting icebergs along the supply chain from farmers in the Southern United States to textile manufacturers in the United Kingdom, exploring a century of transatlantic cotton trade between 1850 and 1949. By exploiting the exogenous and seasonally variant influence of icebergs on transport networks, we add new insights to the gravity-based market access literature that is so far plagued by the endogeneity of man-made transport networks. In our setting, cotton represents a particularly suitable and relevant application due to its vast geographic reach and status as one of the most traded commodities during the first wave of globalization.

Using data on the seasonal Atlantic iceberg drift and millions of ship locations, we observe exogenous variation in maritime transport routes between North America and Europe. From February to August, the southward iceberg drift forces vessels on more southern, and thus longer shipping routes. We employ a gravity-style model to capture the effect of time-varying trade distances caused by the iceberg drift on British cotton prices. To model the iceberg drift, we combine iceberg locations near the Great Banks of Newfoundland collected by the International Ice Patrol with reconstructed shipping routes based on historic logbooks from the ICOADS database. The respective cotton prices are monthly quotations published by the "The Economist".

First results show that the iceberg drift raises the price of British raw cotton imports which is, however, not paid by the importers. The effect is largest in earlier years and gradually fades out with technological progress. As cotton transport costs primarily depend on weight and volume, the relative response in the price of low-quality cotton is more pronounced than it is in the price of high-quality cotton. We rely on cotton prices for different cotton types across various qualities from cotton-producing US-States to explore potential price setting heterogeneity.

So far, we observe that buyers pass the price for additional transportation costs down to the producer. To further investigate the welfare implications of our findings on regional inequality, we follow an instrumental variable approach, by instrumenting destination prices with the average latitude from the iceberg drift. In that, we rely on state-level monthly cotton data from the United States Department of Agriculture, as well as monthly cotton prices and quantities from the New York cotton exchange. By the time of the conference, the respective results are going to be available for discussion.