

**The Wheels of Change:
Human Capital, Millwrights, and Industrialization in Eighteenth-Century England**

Joel Mokyr, Northwestern University
Assaf Sarid, University of Haifa
Karine van der Beek, Ben-Gurion University

Measures of human capital correlate strongly with technological change and economic growth across areas. In the context of the British industrial revolution recent studies suggest that England's relative advantage in high quality mechanical workmen was the main force behind its leadership (Mokyr, 2009, Meisenzahl & Mokyr, 2011; Feldman & van der Beek, 2017). In this paper we test the endogenous relationship of mechanical skills and mechanization by using the spatial distribution of historical watermills from the Domesday Book (1086) across Britain, as an instrument for their availability more than 600 years later, in 1710-50. We focus on a specific group of workmen who specialized in watermills, and show that its availability created a relative advantage for the mechanization of other industries such as textile and iron-works, which adopted the watermill to their production processes (e.g. fulling-, blowing-, and forging-mills). This connection works primarily through the technological complementarity between the technology of the early watermills, designed for grain grinding, its adoption to industrial uses since the thirteenth century and further technological changes, mainly in textile machinery, in the eighteenth century, on the eve of the Industrial Revolution.