

Essays in Economic History and Public Health

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The success of public health interventions depends significantly on institutional structures—religious, political, and economic—and physical infrastructure through which they are implemented, not merely on medical knowledge and administrative capacity. This dissertation investigates three critical dimensions that shaped the outcomes of smallpox vaccination in colonial India between 1868-1928: the role of religious beliefs in influencing vaccine hesitancy, the impact of political violence on institutional trust and vaccine acceptance, and the effects of railway infrastructure on disease transmission. By leveraging novel historical data and employing rigorous causal identification strategies, this dissertation demonstrates how these social, institutional, and infrastructural factors determined both the immediate effectiveness of vaccination efforts and their longterm consequences for population health and economic development.

The first essay examines how religious composition influences the acceptance of state-sponsored medical interventions, exploiting historical Hindu temple desecration sites as an instrument for Hindu population shares. Using detailed district-level data from 1868-1878, the analysis investigates differential acceptance of smallpox vaccination across districts with varying Hindu population shares in colonial India. The persistence of these effects is examined through demographic outcomes in subsequent decades, particularly through marriage market outcomes and widowhood rates from the 1891 census. The findings provide evidence on how religious demography shaped responses to state public health initiatives and their long-term demographic consequences.

The second essay examines how exposure to colonial violence affects the acceptance of state

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public health initiatives through institutional trust. Exploiting variation in exposure to the Great Revolt of 1857, the analysis combines transport network data with linguistic distance measures to create spatial and cultural proximity measures to sites of colonial violence. Using vaccination records from 1868-1928, the study investigates how geographic and linguistic proximity to areas affected by the Revolt influenced subsequent vaccination acceptance patterns. The findings contribute to our understanding of how historical events shape institutional trust and its persistent effects on public health intervention outcomes.

The third essay examines how transportation infrastructure affects mortality patterns through disease transmission channels. Exploiting variation in the expansion of colonial India's railway network from 1853-1919, the analysis uses a new measure of network density that accounts for both station proximity and connectivity. Using town-level mortality records from colonial administrative data, the study investigates how railway network exposure influenced death rates, particularly from communicable diseases. The findings contribute to our understanding of infrastructure development's health externalities, complementing existing evidence on railways' economic benefits in colonial India.