

Jonathan Chapman (NYU Abu Dhabi)

‘Financing sanitation infrastructure in nineteenth-century England and Wales’

Improved sanitation was a major contributor to mortality decline during the nineteenth and early twentieth centuries. Yet many towns were reluctant to invest in the infrastructure needed to provide clean water supply or effective sewerage, with considerable variation in the timing and extent of spending on these critical public goods. Several studies have identified the importance of local political failures, particularly taxpayer opposition, in delaying infrastructure development. In contrast, the barriers that towns faced in raising the funds for investment—capital market failures—have received relatively little attention. Building infrastructure necessitated borrowing on an unprecedented scale, and so the need for towns to access cheap loans was a central part of contemporary debate. Yet there has been little quantitative assessment of the role of financing costs in determining the extent of sanitation investment.

In this paper I investigate the constraints towns faced in financing expensive infrastructure investments in England and Wales at the end of the nineteenth century—the period when many towns first began providing sanitary public goods. I use an annual dataset of the financial accounts of almost 700 British town councils to identify town-level infrastructure investment, and to estimate the interest rates paid by town councils between 1887 and 1903. All of these councils were able to borrow—from either the government or from private lenders—but faced very different costs of doing so. I then test the relationship between interest rates and the level of investment in sanitation public goods (water supply, sewers, and street improvements), controlling for the size of each town’s tax base and their non-tax revenue sources, as well as demographic and occupational characteristics, and town fixed effects.

The results show that higher interest rates had a large deterrent effect on sanitation investment, and so likely slowed improvements in public health. A one standard deviation increase in the interest rate was associated with a decrease in annual capital investment of between 0.2 and 0.3 standard deviations—a much larger effect than associated with a higher tax base. These estimates imply that had the government been willing to lend to town councils at their own cost of borrowing (the consol rate), then the stock of infrastructure investment in 1903 would have been around 25% higher than in reality. Given the importance of sanitation infrastructure to improved public health, this greater investment could have significantly expedited Britain’s mortality decline.

The paper concludes by discussing avenues for future research into the ways capital market access influenced historical infrastructure investment. Although this paper suggests that restricting access to private markets inhibited investment, some limitations may be required reassure nervous investors and hence decrease borrowing costs. Given the importance of sanitation infrastructure to mortality decline, better understanding of how, where, and why towns were able to finance those investments is sorely needed.