

The factory system and the transformation of work: a simple empirical analysis

1. The rise and diffusion of the factory system in American manufacturing in the early 19th century.
 - An institutional innovation centralizing production under “one roof” and organizing workers into a division of labor.
 - Contrast with complementary innovations such as new power sources (coal, steam engines) and mechanized methods of production.
 - Economic-historical question: why did entrepreneurs adopt the factory system?
2. The “classic” Smithian hypothesis.
 - According to Smith, the division of labor simplifies and standardizes the distinct tasks in the production process.
 - In turn, he argues, it should increase average labor productivity (i.e., total output per worker) and decrease the average labor and total costs of production (total costs per worker).
3. An empirical test of Smith’s view based on data from the Springfield armory which adopted a more elaborate division of labor after 1815.
 - Three variables (besides) date: number of workers, total output (in muskets), and the average total cost of producing a musket.
 - For each year, calculate the average labor productivity (total output of muskets/number of workers).
 - Now graph the average labor productivity and average total costs variables over time. Do these data support the Smithian view? Why or why not?
 - Based on your graphical analysis, can you suggest an alternative (though not necessarily contradictory view) on the impact of the factory system?