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**“Taking Technology to Task: The Skill Content of Technological Change in Early Twentieth Century United States”**

**Abstract**

This paper uses new data and a new approach to answer the question of how technological change in the first half of the twentieth century affected the American labor force. The main technological change of interest is the electrification of the factory. The paper presents a new and unique dataset which describes the tasks performed within each occupation—this includes information on the extent to which raw strength, numerical skills and people skills are used in a particular job. I assume that there are three broad types of tasks which can be performed in the economy—manual tasks (which are performed by low-skilled blue collar workers); dexterity tasks (which are performed by high-skilled blue collar workers) and managerial/clerical tasks (which are performed by white collar workers). The tasks dataset is combined with information on individuals from the 1880-1940 population censuses and information on electricity usage in the manufacturing sector from the manufacturing censuses 1900-1940. The combined dataset is used to investigate the effect of electrification on the demand for white collar workers relative to both types of blue collar workers combined, as well as the demand for high-skilled blue collar workers relative to low-skilled blue collar workers. The provisional findings reveal that early twentieth century technological change favored white collar workers overall, but that, on the factory floor where only blue-collar types worked, technological change was unskilled-biased, meaning that manual workers saw their demand increase relative to that for higher-skilled dexterity-task specialists. These findings are in fact similar to those identified by researchers looking at the United States in the period 1960-2000 and has been described as a “hollowing out” of the labor force, indicating that those in the middle of the skill distribution lose out to workers at the extremes as a result of technological change. Previous analyses of the historical period have failed to capture the nuances of technological change, relying on education as the sole measure of skill and identifying only the overall education-bias of technological change. The analysis was also done separately for men and women and the results were broadly similar. The loss in employment for people performing the high-skilled blue collar tasks was greater for men than for women and the movement towards white collar jobs was stronger for women than men. This is in line with recent research using modern German data which found that computerization affected women’s employment more than that of men, in part because women are new entrants to paid employment. Future drafts of the paper will introduce an instrumental variable for electrification, based on exogenous geographic differences in generating costs, and use this to establish the causal effect of electrification on labor market outcomes.