Are changes in US employment mostly driven by production technology or trade? A structural decomposition analysis

Topic: Structural Decomposition Analysis
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This paper quantifies how much trade structure changes and changes in production technology contribute to changes in US employment by using input-output (IO) and structural decomposition analysis (SDA). I use SDA to separate changes in employment into the contribution of its drivers (e.g. trade structure changes or changes in production technology). I combine IO tables from the World Input-Output Database (WIOD) with employment data for different skill types for the period 1995-2008 and different occupations for the period 1999-2007 in the empirical specification. First, I find that trade structure changes contribute to a 3.2 million (17.2%) decrease in US manufacturing employment, and a 2.3 million (2.0%) decrease in US non-manufacturing employment, totaling a 5.5 million (4.1%) decrease in US employment. Second, I find that changes in production technology contribute to a substantially larger 8.0 million (43.0%) decrease in US manufacturing employment, and a 26.8 million (23.2%) decrease in US non-manufacturing employment, totaling a 34.8 million (26.0%) decrease in US employment. Third, I provide renewed evidence for the skill- and routine-biased technological change hypotheses. That is, changes in production technology contribute to larger decreases in low-skilled and medium-skilled or routine employment compared to high-skilled or non-routine employment. These results are consistent with most of the literature which exploits econometric techniques and they suggest that policymakers should take the heterogeneous impact of trade structure changes and changes in production technology on US employment into account when developing policies that aim to curb the redistributive consequences of these changes.