Routine jobs, employment and technological innovation in global value chains

This work addresses the role of global value chains (GVCs), workforce skills, ICT, innovation and industry structure in explaining employment levels of routine and non-routine occupations. The analysis encompasses 28 OECD countries over the period 2000-2011. It relies on a new country-specific measure of routine intensity built using individual-level information from the OECD Programme for the International Assessment of Adult Competencies (PIAAC) survey, as well as on new industry-level Trade in Value Added (TiVA) indicators of offshoring, domestic outsourcing, and the services content of manufacturing. The results suggest that comparatively higher skills are associated with higher employment in non-routine (NR) and low routine-intensive (LR) occupations. Also, employment in all types of occupations, both routine and non-routine ones, shows to positively relate to innovation, as measured by patents. A generally positive relationship also emerges between employment and the ICT intensity of industries, with the notable exception of jobs in high-routine occupations, where ICTs seemingly displace workers. With respect to offshoring patterns, a positive correlation is observed between the offshoring of inputs and domestic outsourcing with more routine-intensive jobs. Conversely, the offshoring of final assembly in manufacturing leads to the shedding of jobs in NR occupations and a relatively higher service content of manufacturing relates negatively with employment in HR occupations. Taken together, the results point to the existence of complex interactions between the routine content of occupations, skills, technology, industry structure and trade, which do not allow for a neat identification of "winners" and "losers" in a GVC context. While the effects appear heterogeneous across quartiles of routine intensity, a persistent and positive role of skills and innovative output for employment is found across all quartiles of routine intensive occupations.
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