The past four decades have witnessed dramatic changes in the structure of employment. In particular, the rapid increase in computational power has lead to large scale reductions in employment in jobs that can be described as intensive in routine tasks which have been shown to be concentrated in middle skill occupations. Using an administrative panel data set for Germany we follow workers over an extended period of time and provide evidence of both the short-term adjustment process and long-run effects of routine task intensive job loss at an individual level. Our findings suggest that employment stability is much lower in jobs dominated by routine tasks; furthermore, re-employment probabilities of routine workers have deteriorated strongly since the mid-1990s. Even five years after a transition to nonemployment, there are still significant differences in employment probabilities between workers having previously worked in different task categories. Job-upgrading to nonroutine cognitive jobs is uncommon. Together this paints a picture of a process of structural change that causes acute welfare losses for a specific group of individuals in the labour market.