

Frontier Firms, Productivity Dispersion and Aggregate Productivity Growth

Wulong Gu
Economic Analysis Division
Statistics Canada
August 2018

Abstract

This paper examines the causes of the productivity slowdown after 2000 in Canada. A comparison of frontier and non-frontier firms shows that the decline in aggregate labour productivity after 2000 was due to a decline in the contribution of frontier and non-frontier firms, but mainly from that of non-frontier firms. A stochastic frontier analysis shows the decline in aggregate labour productivity was due to a decline in technical change of most efficient firms and a decline in technical efficiency change of average firms after 2000. This can be interpreted as the evidence that the pace of innovation at frontier firms and the rate of diffusion from frontier firms to non-frontier firms both declined after 2000, contributing to aggregate productivity slowdown after 2000. Consistent with OECD (2015), the evidence for Canada shows that a main cause of the productivity slowdown is a slowing of the pace of diffusion from frontier firms to non-frontier firms or a breakdown of the diffusion machine which took place after 2000. Finally, the paper finds that the decline in aggregate labour productivity growth after 2000 was partly due to a decline in the contribution of resource reallocation in that period, which is consistent the evidence on declining business start-ups and its implication for declining productivity growth.