

Estimating the contribution of labor reallocation to productivity growth:
a Canada-US comparison

Charles Bérubé (Industry Canada)
Benoit Dostie (HEC Montréal)
Lars Vilhuber (Cornell University)

Extended abstract

Job reallocation within and between sectors is large. Cahuc & Zylberberg (2006) estimate that 15% of jobs disappear every year, and are replaced by new jobs. However, worker movements are much larger, since workers can be fired or quit their job, without the job being destroyed. Although it varies from country to country, worker reallocation is estimated to be two to three times larger than job reallocation.

The contribution of labor reallocation to productivity growth has been less well studied. Most studies find that worker reallocation contributes less than 50% to productivity growth, sometimes substantially less (see the literature review by Clark, Dostie, & Fasih, 2009). Nevertheless, some studies have shown significantly larger contributions (Baldwin & Gu, 2006, and Lentz & Mortensen, 2008). The latter, for Denmark, showed a contribution of more than 70%. Differences in methodology, data sources, and in the definition of productivity all contribute to there not being a consensus as to the magnitude of the contribution of labor reallocation to productivity growth.

Correctly measuring the contribution of labor reallocation to productivity growth is important to the development of policies supporting productivity growth. Understanding the differences across countries contributes to the robustness of the methodology used. Most studies focus on only a single country. It is thus difficult to draw conclusions with respect to any structural differences (e.g. with respect to labor market regulations) across the countries.

This paper contributes to the literature by computing the contribution of labor reallocation to productivity growth for the United States and Canada, using several different decomposition specifications, and applying a consistent approach to data from both countries. We compute the Baily, Hulten & Campbell (1992), Griliches & Regev (1995), Foster, Haltiwanger & Krizan (2001), and Baldwin & Gu (2006) decompositions, for both three-year and five-year time frames. We focus on the manufacturing sector for both countries, and assess the robustness of the conclusions to alternate specifications that the data from one or the other country allow us to do.

The Canadian data stem from the T2-LEAP (Longitudinal Employment Analysis Project). The T2-LEAP is a firm panel created by combining tax records, and contains information on employment as well as sales. For this paper, we use data from the 1990s and 2000s. The American data are obtained by combining information from the Longitudinal Business Database (LBD) on establishment-level employment with information on sales, value-added, and other production-related data from the Annual Survey of Manufactures (ASM) and Census of Manufactures (CM). Firm-level information is available from the Company Organisation Survey (COS). In making the two data sources comparable, certain adjustments need to be made. First, while the employment information is available for all years and all covered entities in both datasets, value-added information is not available for the Canadian data, and we thus concentrate on a sales per worker measure of productivity common to both countries for this

paper. We assess the robustness of this measure for our conclusions by computing equivalent measures for value-added (a more traditional measure of productivity) using the U.S. data only. Conversely, the U.S. data on sales and other productivity measures is only available for a sample of establishments in most years, and thus while five-year measures (using census years) can be computed without issue, measures for shorter time periods require correctly weighting data to reflect the sampling and firm dynamics. Finally, the Canadian data are only available at the firm level, not the establishment level, whereas the U.S. data are sampled in a universe of establishments, which can be aggregated to the firm level using additional information from the COS. We use the U.S. data to assess the importance of this difference for conclusions, which will be important for other international comparisons. For intercensal (shorter) estimates, aggregating samples of establishments into firm-level estimates of productivity growth and its decomposition poses certain challenges, which we will try to address.

This paper thus provides coherent estimates for the contribution of labor reallocation to productivity growth in the U.S. and Canada, and tests the robustness of the results to variations in the productivity metrics used, to variations in the unit of observation, and to variations in the timeframe of observation.