

Editor's Overview

THIS 28TH ISSUE OF THE *International Productivity Monitor* features articles on the following topics: the measurement of industry contributions to labour productivity growth; the benefits of closing the Aboriginal education gap; the impact of public policies on bargaining power and the pay/productivity linkage; the relationship between employment and productivity growth; and the contribution of ICT diffusion and investment to labour productivity growth.

Industry contributions to aggregate labour productivity growth are sensitive to the choice of decomposition methodology. In the lead article, **Marshall Reinsdorf** from the International Monetary Fund provides a detailed assessment of three of these methodologies. He points out that the methodologies can lead to very different conclusions regarding which sectors are driving productivity growth. For example, in the Generalized Exactly Additive Decomposition (GEAD) manufacturing makes a negative contribution to aggregate productivity growth in Canada in the 2000-2010 period despite its above average productivity growth because of the falling relative price of manufacturing goods. In contrast, mining and oil and gas extraction makes a positive contribution despite its negative productivity growth because of the rising price of output in the mining and oil and gas sector. The CSLS methodology reaches opposite conclusions. Reinsdorf argues that the GEAD mixes price effects with true productivity gains and consequently its estimates of industry productivity contributions are less economically meaningful than the CSLS methodology.

Reinsdorf subsequently develops the Fisher Exactly Additive Decomposition (FEAD) which allows one to derive additive decompositions using the traditional and CSLS decomposition formulas for chained Fisher productivity series, resulting in more useful economic interpretations of industry contributions to productivity change.

The human capital of Aboriginal Canadians is less developed than that of their non-Aboriginal counterparts. The closing of this education gap would generate important economic benefits both for the Aboriginal community and for the overall Canadian economy. In the second article, **Matthew Calver** from the Centre for the Study of Living Standards develops a simulation model to provide estimates of the effects of closing the gap by 2031 for employment, labour productivity, and GDP.

Calver finds that the closing of the education gap would result in an additional 90 thousand jobs for Aboriginal Canadians by 2031. Equally, more education translates into higher individual productivity and income. He estimates that average Aboriginal employment income would increase by \$11,236 (2010 dollars) per worker if the education gap closed. This would raise labour productivity growth 0.03 percentage points from an average annual rate of 1.38 per cent to 1.41 per cent over the 2011-2031 period. The combined effect on employment and labour productivity would raise GDP growth by 0.07 percentage points and produce cumulative gains to Canadian GDP of \$261 billion (2010 dollars). These results suggest that investment in Aboriginal education will have a high individual and social payoff.

Economists argue that average wages should rise in tandem with labour productivity. Yet despite the importance of productivity for wages and living standards, the productivity agenda

does not appear particularly popular with Canadians. In the third article, **Mathieu Dufour** from City University of New York and **Ellen Russell** from Wilfrid Laurier University argue that this lack of enthusiasm for the P word reflects the failure of the gains from productivity to be widely shared with workers. This disjuncture in the pay/productivity linkage in turn is caused by the declining relative bargaining power of workers, in part due to public policies.

Using an econometric analysis, the authors find evidence that the introduction of NAFTA, and changes in EI system, minimum wages, the unemployment rate, and unionization rates have negatively affected the ability of workers to reap the rewards of productivity gains. They point out that policies intended to boost productivity growth would be more popular, and likely more effective, if they were designed to enable the fruits of productivity growth to be more broadly shared.

It is often argued that there is a trade-off between employment growth and productivity growth, with faster employment growth reducing productivity growth. In the fourth article, **Jianmin Tang** from Industry Canada explores this issue through a comprehensive econometric analysis of the drivers of labour productivity growth in OECD countries. He finds that at the aggregate economy level employment growth can have a negative effect on labour productivity through the channels of increased capital intensity and labour quality. More rapid labour supply and employment growth reduces the price of labour and gives employers less incentive to substitute capital for labour, slowing the pace of capital intensity growth, and hence labour productivity growth. Large increases in labour supply and employment can also reduce the rate of growth in labour quality through negative composition effects.

Tang argues however that this negative correlation between employment growth and labour

productivity growth should not be viewed as a trade-off between production efficiency and employment. Labour productivity is a partial measure of production efficiency and is affected by changes in capital intensity and labour quality caused by fluctuations in labour supply and employment. Once these two factors are controlled for, however, he finds that employment growth is not negatively correlated with multi-factor productivity, a broader measure of production efficiency.

Investment in information and communications technologies (ICT) has been identified as a key driver of productivity advance. In the fifth article, **Gilbert Cette** from the Banque de France, **Christian Clerc** from Université Aix-Marseille and **Lea Bresson** from the Centre National de la Recherche Scientifique and École des Hautes Études en Sciences Sociales examine the contribution of ICT diffusion to labour productivity growth in the United States, Canada, the Euro Zone and the United Kingdom. A key finding is that the contribution of ICT investment to productivity growth, which increased in the 1994-2004 period, has decreased significantly since 2004. This development reflects the fall-off in the rate of growth in the ICT capital stock in volume terms, caused by the slower pace of ICT price decreases due to the slower pace of technological advancement in semi-conductor chips.

The authors identify an ICT diffusion lag from which Canada, the Eurozone, and the United Kingdom suffer in comparison with the United States. They conclude that, at least for the Eurozone, the lower share of workers with post-secondary education, anticompetitive regulations, and labour and product market rigidities explain the lag. They argue that ambitious structural reforms would allow the Eurozone to benefit more from advances in productivity arising from ICT diffusion.