IMFSURVEY

Interview with Roberto Cardarelli

Explaining the labor productivity gap between Canada and the United States

Despite the close integration of the Canadian and U.S. economies, the labor productivity gap—GDP per hour of work—between the two countries has widened over the past two decades. In a recently published IMF Country Report on Canada, Roberto Cardarelli of the IMF's Western Hemisphere Department explores the extent to which this gap reflects differences in the industrial structure of the two countries; Christine Ebrahim-zadeh of the IMF Survey *spoke with him.*

IMF Survey: **How has the Canadian economy fared relative to that of the United States in recent years? Why the special interest in the labor productivity gap?**

Cardarelli: In recent years, Canada's growth has exceeded that of most other industrial countries—including the United States—by substantial margins. From 1998 to 2003, the Canadian economy grew by an average 3.5 percent, which compares with 2.4 percent for all industrial countries and 2.8 percent for the United States. In fact, 2003 was the first year since 1999 that Canada's real GDP grew less than that of the United States. Still, given the unusual sequence of adverse shocks that occurred last year—such as the SARS [Severe Acute Respiratory Syndrome] outbreak, the discovery of "mad cow disease" [bovine spongiform encephalopathy] in Alberta, and especially the sharp appreciation of the Canadian dollar—one can only appreciate the resilience of Canada's economy. The country's strong performance owes much to its macroeconomic stability, based on disciplined and effective fiscal and monetary policies and structural reforms, including the implementation of a free trade agreement with the United States, which took place over most of the 1990s.

Although the Canadian economy has been reaping the benefits of structural reforms implemented during the 1990s, one area where the gap with the United States has widened rather than narrowed has been labor productivity growth. Canadian labor productivity grew by an average annual 0.3 percentage point less than in the United States from 1981 to 2000, but the gap widened to an average 0.5 percentage point in the post-1995 period. This has attracted a lot of attention in academic and policy circles.

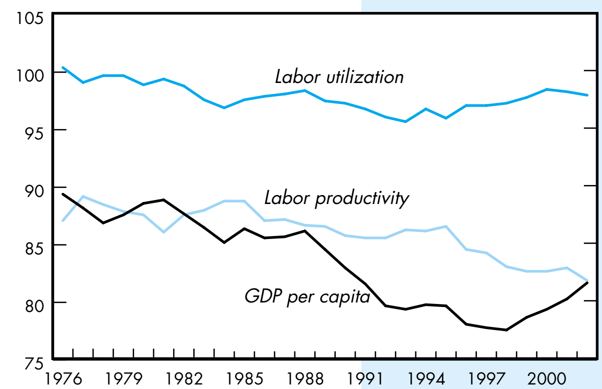
IMF Survey: **Given that the gap in per capita income between the two countries has been narrowing since the mid-1990s, why does the labor productivity gap matter?**

Cardarelli: Indeed, Canada's GDP per capita—a good indicator of the standard of living—has improved significantly since 1997, and the gap with the United States narrowed from about 22 percent in 1996 to about 17 percent in 2002. Canada ranked second among the Group of Seven countries in terms of per capita income in 2002, while it was fourth in 1996.

There are two ways to raise GDP per capita. One is by increasing productivity—GDP per worker. The other is by increasing the share of the population that is working—that is, the employment-to-population ratio. The narrowing of the gap in GDP per capita was entirely due to this second channel because the share of employed people has increased sharply in Canada since 1997 and is now above the U.S. level. While labor productivity growth has also accelerated since 1997, it has remained below the exceptional U.S. pace (on average about 1 percentage point of difference between the two countries for the business sector), and the gap has increased. Given that it is hard to envisage any significant further increase in the employment ratio in future decades—and that it actually may decline because of the aging population—narrowing the labor productivity gap is the only way Canada can increase its standard of living and possibly catch up with the United States.

The gap in per capita income between Canada and the United States has narrowed but the labor productivity gap has widened

(United States = 100)



Note: Labor productivity=GDP in millions of 1999 US dollars (converted at EKS PPPs) per hour worked. Labor utilization=hours worked per person.
Data: OECD

IMF Survey: **What explains the variation in labor productivity?**

Cardarelli: On an aggregate basis, it appears that most of the difference in labor productivity growth after 1995 came from the smaller contribution of capital deepening in Canada, in particular in the areas of information and communication technology [ICT]. Total factor productivity growth—output growth not accounted for by changes in capital and labor—

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> **—Roberto Cardarelli**

has been very similar in these two countries, and Canada had a small relative advantage in terms of the contribution from changes in the quality of labor.

But there is more to it than that. Looking at industry data, I found that it is the difference in industrial structure that explains most of the productivity growth gap over the second half of the 1990s. In the post-1995 period, the labor productivity gap between the two countries widened not only in the ICT-producing sector but also in sectors that use ICT capital intensively. Canada's manufacturing industries that do not produce ICT, such as transportation equipment, appear to have performed well, if not better than their U.S. counterparts. However, a gap emerged in sectors that most intensively use new technologies, most notably the trade, finance, insurance, and real estate sectors, which account for a much larger share of the U.S. economy. This does not imply that the manufacturing sector, in particular the ICT-producing industries, has not contributed to the gap, but it has done so no more than in the previous period.

In other words, rather than having become less productive than the United States, Canada has been less successful in directing resources toward high-productivity sectors, in particular in the service industry.

IMF Survey: Why has the contribution from capital accumulation in ICT in Canada been more muted than in the United States?

Cardarelli: Several theories have been advanced to explain this difference. One is that small firms, which account for a larger share of the manufacturing sector in Canada than in the United States, tend to be slower to adopt new technologies than large firms. Another explanation is that capital has been more expensive relative to labor in Canada than in the United States. In particular, while the relatively higher unemployment rate and more generous public health care and pension system have helped labor costs in Canada to grow at a slower pace than in the United States over the 1990s, the cost of capital has increased faster in Canada over this period, partly because of the higher interest rates and the depreciation of the Canadian dollar. Based on this explanation, the corporate tax reductions introduced since 2000 and the recent appreciation of the Canadian dollar lay the foundation for stronger investment in ICT.

There is, however, another—albeit partial—explanation. The more muted contribution of ICT capital accumulation to productivity growth in Canada may reflect the fact that Canadian firms started investing in ICT later than their U.S. counterparts. Recent research has shown that the payoff from ICT investments in terms of measured output can be delayed considerably, given the time and resources required to reorganize production after investing in ICT capital. Our report provides evidence of relatively longer lags (around 10 years) between ICT capital accumulation and total factor productivity growth in

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Canada, suggesting that Canadian firms might benefit more from ICT investment in the near future.

IMF Survey: In recent years, trade linkages between the two countries have deepened. Has this had any impact on the gap in labor productivity growth or in narrowing the gap in per capita income?

Cardarelli: The lack of labor productivity convergence has surprised and disappointed many of those who believed Canada could take advantage of the increased trade integration of the two economies. However, I found that, on average, total factor productivity growth is positively related to the degree of vertical specialization (the extent to which these industries' trade is accounted for by inputs that are imported and embodied in exports) and trade exposure of Canadian sectors, and that this relationship has strengthened since the inception of the free trade agreement with the United States.

IMF Survey: How can Canada best close the gap?

Cardarelli: This is the most delicate and difficult question of all, of course. My results suggest that Canada's economy must continue to adjust to changing circumstances by moving resources toward high-productivity activities within the economy. To this end, the Canadian authorities should ensure that their economic policies encourage flexibility and do not hinder innovation in the public and private sectors. In particular, they should maintain sound macroeconomic policies that will help keep interest rates low and reduce uncertainty in the economy, thereby encouraging investment in human and physical capital. Removing remaining barriers to competition and distortions that prevent the most efficient allocation of resources and hinder entrepreneurship, risk taking, and innovation would also enhance Canada's long-term growth potential.

While the government has already taken important steps in this direction over the past 10 years, further action could be taken in three main areas: the financial sector (by achieving greater harmonization of securities market regulation and legislation across provinces); the labor market (by reducing the distortionary subsidization across industries and regions involved in the Employment Insurance Program); and the trade sector (while Canada's trade system remains among the most open and transparent in the world, there are regulatory barriers to foreign direct investment, especially in some areas such as communications. Further lowering barriers to interprovincial trade would also help). ■

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FATF=Financial Action Task Force
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PRSP=Poverty Reduction Strategy Paper
ROSC=Report on the Observance of Standards and Codes

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