Discussion

Pierre Duguay

Compared with Andrew, who has spent the better part of his working life studying the productivity conundrum, I am an amateur.

My interest in productivity comes from the perspective of the Bank's responsibility for monetary policy. And that means primarily from the fact that trend growth in productivity anchors the growth of potential output and secondarily from the effect of productivity growth on unit costs. Like Ragan (1998), I never put much stock in our ability to extract measurable benefits of low inflation from productivity numbers.

My interest was heightened about 10 years ago by the proposition that we kept hearing from businesses and a number of economists who should have known better that Canada's weak productivity performance relative to the United States—which has since largely been revised away—was the result of the depreciation of the Canadian dollar. I did not object so much to that blunt statement as to the explanation advanced for it—the lazy manufacturer hypothesis—and the implications that were drawn for monetary policy.

You won't be surprised to learn that when David Dodge became Governor, the Bank's interest in productivity broadened. David became concerned about the measurement of productivity in the finance, insurance, and real estate (FIRE) sector and its implications for aggregate productivity when he noted a surprisingly large gap from U.S. productivity in that sector. This being a sector where productivity measurement is particularly problematic, he encouraged further research in this area. It will be interesting to see what statisticians and future researchers make of the large productivity increase recorded over the past decade in the U.S. financial sector when the losses associated with the current financial crisis come to light. David also drew attention to the effect of large resource reallocation on aggregate productivity growth.

I must say that the more we looked at the data, the less we seemed to understand. And Andrew Sharpe's paper is no exception. That is not meant as a criticism, by the way. Few people have examined productivity numbers more thoroughly than Andrew, and the findings that he presents here, negative as they may seem—and sensitive as they may be to the level of disaggregation and to future data revisions—are very important and very sobering.

I am particularly grateful for the decomposition of aggregate labour productivity into "within-sector effects" and "reallocation effects." Andrew's results indicate that the lacklustre productivity performance of Canadian businesses since 2000 cannot be attributed to a single factor or blamed on churning. It involves both a decline—that's an absolute

decline—in aggregate total factor productivity and a deceleration in growth of capital services (coming primarily from information and communication technology), notwithstanding the favourable effect that the currency appreciation since 2003 has had on the cost of imported capital.

Andrew does find that the movement of labour out of manufacturing and into other services did indeed constitute a drag on aggregate productivity growth, but that this drag was more than offset by the shift of labour to the extractive industries and to finance.

He also reports a significant decline in productivity growth in the extractive industries, consistent with the incentive created by rising commodity prices, but its contribution to the deceleration in aggregate productivity growth from the 1989–2000 to the 2000–07 period (0.4 percentage points) is smaller than that of the unexplainable deceleration in productivity growth in manufacturing (0.6 percentage points).

These are all important results. But they do come with a question mark. The decomposition derived from Andrew's equation (1) holds for Laspeyres indexes of output, but the KLEMS database used by Andrew is built on chain Fisher indexes, where the additivity of sectoral outputs assumed in equation (1) does not hold (Baldwin, Gu, and Yan 2007).[1] So, I am puzzled by the fact that the numbers reported by Andrew do add up, and wonder whether the same broad results would obtain if the decomposition respected the chain-linked Fisher character of the data. In the rest of this commentary, I assume that they would.

The point of Andrew's paper, however, is to add a new dimension to the productivity puzzle: why haven't market deregulation and other business-friendly reforms yielded more dividends? Andrew does a relatively good job documenting the paradox and then proposes two answers to that question: first, that the high ranking of Canada on the market liberalization scale means that the productivity-enhancing effects of further liberalization are probably quite small; and second, that the overall magnitude of economic liberalization on aggregate labour productivity growth in developed-market economies is not particularly large to start with (less than 0.4 percentage points per year based on a study of British economic reforms). This answer squares with an Organisation for Economic Co-operation and Development study (Conway et al. 2008), which tries to measure potential gains from reducing regulation to the lowest level achieved on each dimension. The potential gain over the 1995–2003 period ranges from 0.3 percentage points per annum for the United Kingdom to 1.8 percentage points for Greece, and averages more than 0.75 percentage points for Canada and several European countries.

Now, I would contend that even 0.4 percentage point per annum is not all that small when we are talking trend productivity growth. It is nearly half of Canada's productivity growth in the past seven years. We would undoubtedly have declared success if productivity growth had increased by that amount instead of dropping by 0.7 percentage points from the 1989–2000 to the 2000–07 period.

However, Andrew's focus on the recent drop in productivity growth may be misplaced. The fact is that most of deregulation and market reforms in Canada occurred between 1984 and 1996. When you look closely at his Summary Table 2, you can see that within-sector contribution to productivity growth did increase, from 1.37 per cent in 1973–81 to

1 Growth in aggregate output is a weighted average of growth in sectoral outputs, with the weights equal to the sector share in nominal GDP.

1.53 per cent in 1981–89 and 2.03 per cent in 1989–2000, before falling to 1.13 per cent in 2000–07 when reforms stopped. That means a 0.66 percentage point increase while reforms were going on. This result, which implies that reforms may have been having an effect on the level of productivity rather than on its growth, is consistent with the findings of Conway et al. (2008) that the increased productivity growth from deregulation is generally not permanent. This effect is masked, however, by the end of some reallocation effects that boosted productivity growth in the 1973–81 period but dissipated later. (The biggest boost from the reallocation effect was from the movement of labour out of agriculture and into finance.)

So, while I agree with Andrew's cautionary tale about not overselling productivity gains from economic reforms, I don't think he has provided a definitive answer to the paradox he presented. And the paradox may be less paradoxical than it appeared at first glance. That still leaves us with no satisfactory answer to the recent productivity slowdown, however.

One thought that came to mind when I saw reductions in program spending and government R&D on Andrew's list of market-oriented policies is the need to account for the contribution of public infrastructure spending to high productivity growth in 1961–73 (3.44 per cent) and its subsequent deceleration. Empirical evidence that public infrastructure has relatively high rates of return in Canada was produced by Macdonald (2008).

Andrew has been careful not to dismiss too much the potential benefits of market reforms, in spite of his results. He has been very even-handed in his assessment—a hallmark of his career at the Centre for the Study of Living Standards. However, I feel that he has been selling short the potential benefit of lowering interprovincial trade barriers—almost denying their existence. The effect of increased labour mobility on aggregate productivity goes beyond the churning effect calculated by Grady and Macmillan (2007). It comes from the effect of increased competition on total factor productivity. And given evidence that Canada's low productivity growth and level and low adoption of technology are particularly pronounced among small businesses that typically do not export directly and face their external competitors (Baldwin, Jarmin, and Tang 2004; Baldwin and Sabourin 1995), it strikes me that increased internal competition has lots of potential to increase total factor productivity. Beyond that, I broadly agree with Andrew's conclusions.

In terms of future research, it would be interesting to undertake cross-country analyses to determine whether there are common characteristics among countries where market reforms have led to higher productivity growth (the United Kingdom, Australia, Ireland, and the Netherlands) and those where they have not (New Zealand). For instance, the work of Davis and Ewing (2005) on the productivity performances of Australia and New Zealand could be extended.

References

Baldwin, J. R., W. Gu, and B. Yan. 2007. "User Guide for Statistics Canada's Annual Multifactor Productivity Program." *The Canadian Productivity Review*. Statistics Canada Cat. No. 15–206–XIE – No. 14.

Baldwin, J. R., R. S. Jarmin, and J. Tang. 2004. "Small North American Producers Give Ground in the 1990s." *Small Business Economics* 23 (4): 349–61.

Baldwin, J. R. and D. Sabourin. 1995. "Technology Adoption in Canadian Manufacturing." Statistics Canada Cat. No. 88-512-XPB.

Conway, P., D. de Rosa, G. Nicoletti, and F. Steiner. 2008. "Regulation, Competition and Productivity Convergence." Organisation for Economic Co-operation and Development Economics Department Working Paper No. 509.

Davis, G. and R. Ewing. 2005. "Why Has Australia Done Better Than New Zealand? Good Luck or Good Management?" Australian Treasury Working Paper No. 2005-1.

Grady, P. and K. Macmillan. 2007. "Inter-Provincial Barriers to Internal Trade in Goods, Services and Flows of Capital: Policy, Knowledge Gaps and Research Issues." Industry Canada Working Paper No. 2007-10.

Macdonald, R. 2008. "An Examination of Public Capital's Role in Production." Statistics Canada Economic Analysis Research Paper Series Cat. No. 11F0027M – No. 050.

Ragan, C. 1998. "On the Believable Benefits of Low Inflation." Bank of Canada Working Paper No. 98-15.