



TD Economics

Topic Paper

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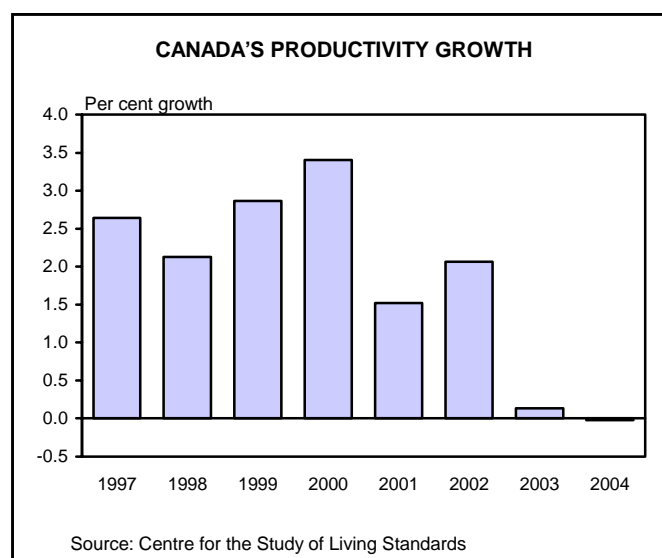
CANADA'S PRODUCTIVITY CHALLENGE

In many ways the Canadian economy has been the envy of the industrial world in recent years. It has posted moderate growth, subdued inflation, and low unemployment. It has enjoyed international trade, current account and federal fiscal surpluses. However, in one critical respect Canada has fared dismally. Expressed both relative to our own historical experience and the results of other countries, Canada has recorded an extremely poor productivity performance. Indeed, productivity growth has slowed dramatically over the past several decades – a development that threatens the well being of Canadians.

In response to this troubling situation, TD Bank Financial Group launched a standard of living forum in 2001 to raise awareness and produce recommendations. TD set the bar extremely high with the proposal that Canada should aim to exceed the U.S. standard of living within 15 years. It is now four years later and the gap between real Canada-U.S. per capita income has narrowed only slightly. The modest improvement made is largely the product of strong job growth in recent years, but a drop in Canada's productivity growth to a virtual standstill in 2003 and 2004 has materially limited the meagre progress. While the rise in the Canadian employment rate to a record high is a welcome development, Canada's miserable productivity performance cannot continue. If the trend is not reversed Canadian income and employment growth will be undermined, and this, in turn, could jeopardize Canada's social system as demographic pressures mount.

Productivity back in the spotlight

The good news is that there is increasing recognition of the productivity problem, with the result that the subject



has grabbed the spotlight once again. The question of how to improve the nation's productivity track record has been an on again, off again subject of attention for years, but with very little progress being made. Since the start of this year, various politicians, associations, journalists and economists have renewed the debate and put pressure on the federal government to take action to alleviate the problem.

While the issue has clearly heated up, it has not gripped the hearts and minds of most Canadians. The reason is that productivity is inherently a very abstract concept. It has several definitions and its relationship to the well being of households is not immediately obvious. This is compounded by the lack of a single silver bullet to solve Canada's productivity woes – to the contrary, it is a cultural change that is required, on the part of corporations, governments, and people.

Indeed, the subject of productivity often carries nega-

tive connotations. For example, popular methods of measuring productivity, such as output per employee, can leave the impression that an improvement could entail job losses or additional hours of toil. The recent U.S. experience has only added to this view, as the media has repeatedly reported that strong productivity growth Stateside has allowed businesses to increase output without adding significantly to payrolls since 2001. Moreover, the argument that strong productivity growth is necessary to be competitive in an increasingly globalized world has engendered perceptions that any improvement could lead to lower wages in order to compete with emerging economies, such as China. All of these views are regrettable, since the reality is almost the dead opposite.

Main driver behind a rising standard of living

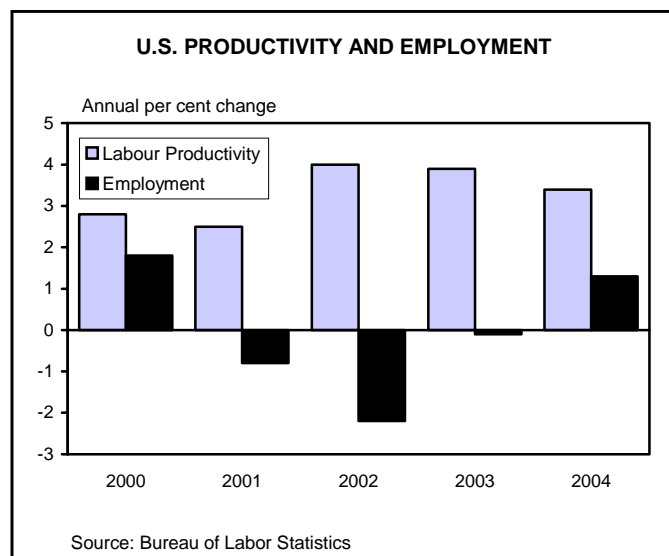
Canadians should care deeply about productivity. At the most basic level, productivity is a key driver behind a rising standard of living over time. Stronger productivity growth allows for faster economic growth without leading to higher inflation. For households, the implication is additional income without loss of purchasing power. For businesses, higher productivity allows stronger profits growth, while governments benefit from additional tax revenues, which in turn supports the social security system, health care, education and other social priorities. In the short run, an acceleration in productivity can allow businesses to ramp up production without hiring additional workers, but this cannot be sustained indefinitely. Over the long run, the faster rate of economic growth supported by higher pro-



ductivity growth will lead to greater business and government activities, fuelling employment growth. As the economy develops more sophisticated ways of producing goods and services, the rising demand for skilled labour should translate into higher wages and salaries. In addition, the more productive workers are, the greater the scope for leisure or other activities. Admittedly, productivity isn't everything. Other factors, like poverty rates, the environment, and life expectancy, also have a bearing on the standard of living of Canadians, but productivity growth does act as a catalyst for improvement in these other areas, and offers a society policy choices that can be afforded.

Productivity becoming more important over time

Looking ahead, demographic trends suggest that productivity will be an increasingly important determinant of economic growth. With an aging population constraining employment growth in the coming years, Canada's economy must either encourage employees to work harder or become more innovative in order to expand. Clearly, the latter option is more desirable. When economists consider the long-term potential pace of growth in the Canadian economy, they tend to use a rough benchmark of about 3 per cent per annum. Leaving hours worked unchanged, this assumes labour force growth contributes slightly more than 1 percentage point to the gain, while productivity provides slightly less than 2 percentage points. However, labour force growth by 2020 is expected to drop to virtually zero. This means that without an increase in hours worked



the potential pace of economic growth would drop to 2 per cent by 2020 if productivity growth does not improve from its average annual performance posted this decade – an outcome that could lead to significantly slower growth in Canada's standard of living.

Federal Government to announce productivity agenda

Given the above, we were heartened by speculation that the federal government might make a renewed commitment in the fall to improving Canada's productivity performance, although it would likely be referred to as a 'growth agenda' in order to avoid the negative public perceptions about productivity.

A speech last June in Halifax by Finance Minister Goodale provided a few hints about what the government's agenda could include. Mr. Goodale suggested that Canada should aim to become a world leader in productivity. He stressed that this did not mean working longer hours, for reduced pay or with fewer employees. Instead, the objective was expressed as being to create satisfying and well-paying jobs for Canadians in a competitive economy. The speech stressed that progress is necessary if Canada is to improve its standard of living and if Canada is to maintain its high quality social services. Competition from foreign nations, such as China, and the pressures of an aging population were also cited as other reasons why greater productivity is required.

In order to accomplish the goal, additional investment in physical capital, human capital and innovation is needed. Mr. Goodale noted that a fair and competitive tax system is required. In addition to citing past progress, he noted the promise in Budget 2005 to cut the corporate income tax rate from 21 per cent to 19 per cent.

The speech highlighted the need for various levels of government to coordinate their policy efforts and the need to reduce domestic and international barriers to capital

flows. A reduction in red tape and the regulatory burden on businesses was called for. Added commitment to infrastructure investment, support for urban centres and education all received some notable mention. The need to better engage Canada's Aboriginals and immigrants was also highlighted. The speech also stressed the government's support for R&D and innovation more broadly.

The government also made a strong case that while they can create a positive policy environment, it is ultimately up to the private sector to deliver stronger productivity growth, particularly through increased investment and research development. Indeed, Mr. Goodale provided a powerful statement in June that "despite having access to one of the most generous tax regimes for research and development, many sectors of our economy clearly are still not investing aggressively in innovation. This needs to change!... This is one of the major gaps between Canada and the U.S. We're ahead on public sector innovation. They are well ahead on private sector innovation... the time for action is now."

So, Finance Minister Goodale appeared to lay the groundwork for a more detailed and broad-based productivity agenda to be outlined in the Fall. However, recent developments on Parliament Hill make us wonder whether the government will deliver as expected. In late September, the government announced that it would not proceed with any corporate tax cuts until after the next federal election. Given that the government's prior commitment was only to reduce the corporate income tax rate in 2008, this does not mean that the promise will be broken. Having said that, it is difficult to see the government introducing a productivity agenda that did not include a pledge to reduce tax burdens to promote saving and investment. The implication is that the launch of the productivity/growth agenda may end up being delayed until early next year and be delivered as part of a platform for the federal election in the Spring of 2006.

Can the Federal efforts succeed?

Regardless of the timing, the real issue is whether the federal government is on the right track and whether progress in the areas outlined in the Halifax speech can succeed. This will be the subject for the remainder of this paper.

In order to assess the likelihood, we need to establish

PRODUCTIVITY DEFINITIONS

Output per Person = Real GDP / Population

Output per Worker = Real GDP / # of Workers

Output per Hour = Real GDP / # of Hours Worked

Total Factor Productivity = Real GDP / F(Capital, Labour)

precisely what we mean by productivity. As already mentioned, there are several definitions and we need to identify the criteria by which we will measure any future improvement. Next, we require an appreciation of how Canada has been doing, both in absolute terms and in relation to other countries. There has been considerable debate over the reasons for Canada's poor productivity performance in the past and we need to understand the facts before investigating what lessons can be drawn. Then, and only then, can we ponder what might be done to boost productivity.

Defining productivity

There are two key methods of defining productivity. First, there is labour productivity, which is measured as output per worker, output per person or output per hour worked. Second, there is total factor productivity (TFP), also referred to as multi-factor productivity (MFP), which measures the additional output created after removing the effect of adding workers and additional machinery and equipment. There is considerable debate over which is the best measure, but we feel that output per hour worked is the most appropriate for a discussion about the impact of productivity on the standard of living. Let's take a moment to explain why.

Output per worker or output per person are serviceable measures, but neglect certain underlying subtleties. For example, output per worker can be raised by increasing the number of hours worked per employee, which is a reflection of additional effort exerted and forgone leisure time rather than higher productivity. Output per person is also biased by this, as well as by movements in Canada's employment rate. And, while having a greater percentage of the population in the workforce is clearly going to result in higher economic output, this is largely due to greater effort exerted, not higher productivity.

Total factor productivity – which controls for the number of employees, the hours worked and for the amount of capital used in producing goods and services – is superior in some ways, but imperfect in others. This approach requires measuring the value of a country's capital stock (i.e. plant and equipment), adding a great deal of complication and increasing the possibility of error in the estimate of productivity. Moreover, in a discussion about the standard of living of Canadians, it intuitively seems more appropri-

Measuring Standard of Living

From an economic perspective, real income (GDP) per capita is often used as a benchmark for standard of living. The growth in real GDP per capita can be broken down into three main components: increases in productivity (output per hour worked), increases in work intensity (hours worked per worker) and increases in employment intensity (employment as a share of the population). Admittedly, this is a relatively narrow definition of economic well being. It overlooks many societal and environmental factors that have a considerable impact on the standard of living experienced by individuals. In this paper, we are focused on how to raise Canada's standard of living without increasing work intensity and in an environment where employment growth is limited by an aging population – leaving higher productivity the only option.

ate to measure productivity from the perspective of the worker.

Consequently, the best and most clear-cut characterization of productivity, in our opinion, is the amount of output generated in an hour's work. The more that can be produced in a fixed period of time, the higher is productivity. Framed in this fashion, the benefits of rising productivity are obvious: greater productivity allows more goods and services to be generated with a certain amount of labour. Alternately, rising productivity allows for a fixed amount of output to be produced, while simultaneously permitting additional leisure time. Both of these, in turn, provide the foundation for better living conditions for households.

Canada's poor productivity track record

So, using our preferred measure of productivity, how has Canada done in recent years? There are a variety of ways of assessing the performance. First, we can compare Canada's recent productivity growth numbers with those in the past. Second, we can contrast Canada's productivity growth with that of other countries. Third, we can evaluate how Canada's level of productivity has fared against other nations. Regrettably, Canada has done poorly by all three measures.

Productivity growth has steadily declined

In absolute terms, it is clear that Canada has experienced a significant slowdown in productivity growth over

time. Canadian productivity rose rapidly in the 1960s, posting average annual gains of 3.6 per cent. However, the rate of productivity growth fell in the 1970s and the 1980s, dropping to 2.1 per cent and 1.4 per cent, respectively. In the 1990s, productivity growth edged back up to 1.8 per cent, but the good news did not last, as productivity growth has dropped to 0.9 per cent so far in the current decade. Worse still, productivity was virtually unchanged in 2003 and posted an outright decline in 2004.

What explains this dismal outturn? To be honest, there is a lot that we don't understand about productivity, including why it has fluctuated so dramatically and trended so much lower. At the most basic level, the diffusion and implementation of rapid technological advances after the Second World War likely supported the rapid rate of productivity growth in the 1960s. Productivity during that decade was also likely bolstered by strong business investment, rising education levels and booming government investment in infrastructure. However, the pace of increase was probably unsustainable, implying that a slower rate of productivity growth in the 1970s was to be expected to some extent. But, the extent of the pullback in the 1970s and 1980s is difficult to fully explain. Part of the story likely relates to the volatile economic times, as reflected by wild swings in inflation, interest rates, employment and investment. The weakness in the 1980s appears to have been excessive, with the result that productivity bounced back in the 1990s. Moreover, corporate restructuring in the wake of the 1990-91 recession was probably a boon to

This report relied particularly heavily upon the excellent productivity research conducted by the Centre for the Study of Living Standards under Andrew Sharpe and Statistics Canada's Micro economic Studies and Analysis Division under John Baldwin. The CD Howe Institute and Jack Mintz also provided crucial taxation statistics.

productivity, but the acceleration was constrained by rising tax burdens in the first half of the decade, more moderate government investment, weaker government financial support for post-secondary education and deteriorating public infrastructure. The subsequent pronounced drop in productivity growth since 2000 has been perplexing and is the subject of considerable debate, which we will discuss a little later.

Domestic trends do not fully explain the weakness

At face value, one is left with the impression that Canada must have done something terribly wrong to have suffered through the historical slump in productivity, but in many respects Canada has pursued initiatives that should have been productivity enhancing.

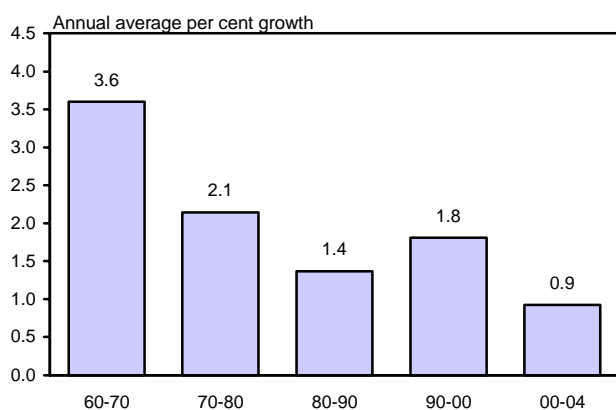
Indeed, Canada has not become less innovative. To the contrary, overall R&D spending has risen modestly over recent years. Meanwhile, business enterprise R&D intensity – the ratio of private sector R&D as a share of GDP – has risen from just 0.80 per cent in 1981 to 1.35 per cent in 2003.

On the labour front, it may be the case that the rate of growth in human capital has moderated over time. Although the rate of university attainment continues to increase in Canada, the pace of increase has slowed.

Output per hour worked may have also been damped by structural changes, as the economy shifted towards more domestically-oriented, services-producing industries, which tend to have lower productivity than export-oriented goods-producing industries that face competition in international markets. However, this argument is not completely compelling, as there has been a simultaneous general movement towards the production of more sophisticated goods and services (i.e. higher-value added output).

In recent years, there has been an argument that strong corporate profit growth, which resulted in record corporate profits as a share of GDP, has permitted firms to be-

CANADA'S DECLINING PRODUCTIVITY GROWTH

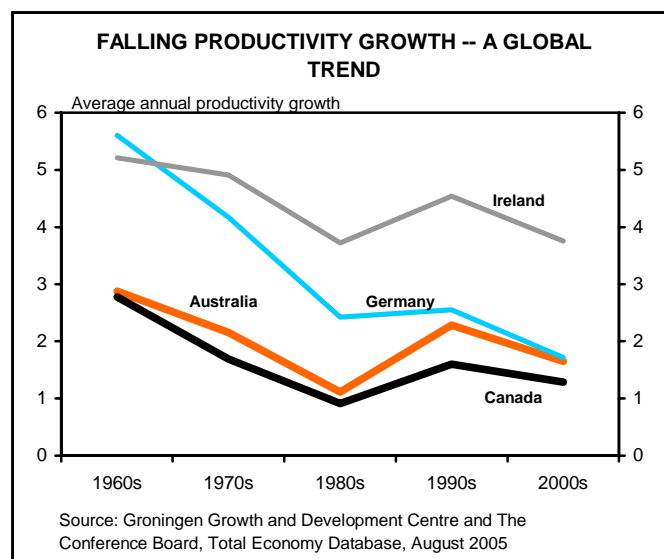


Source: Centre for the Study of Living Standards (CSLS)

come complacent. This has deterred them from pushing for productivity growth because the bottom line is already well padded, leading to a declining ratio of investment to GDP. However, this argument is not consistent with the assumption of profit maximization and would only explain developments in the past couple of years. And, while the outright growth in Canada's capital stock has slowed in recent years, growth in the capital-labour ratio – the pertinent measure given the definition of productivity we use – has actually accelerated since 2000. Investment growth in information and communications technologies (ICT) – high tech – has moderated, both on an absolute basis and as a ratio to labour, but this is a very recent development and might only contribute to the weakness in 2003 and 2004.

Canada caught up in a global trend

If domestic developments cannot fully explain the long secular decline in productivity growth, what does? Here, we must turn to global developments. Perhaps the most powerful determinant of productivity growth for a relatively small country like Canada is what happens in the rest of the world. With the extraordinary mobility of technological know-how and best business practices, innovations developed in one country filter very rapidly to other nations. To illustrate, the 1950s and 1960s were marked by unparalleled technological innovation, with the unveiling of improvements such as mass production, mass marketing, as well as major innovations in air travel, electronics

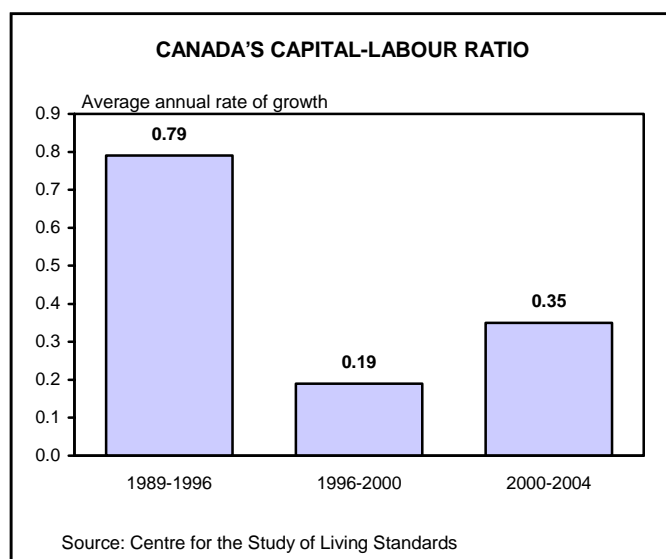


and polymers. But this pace of innovation soon slowed, and although recent years have offered up a slew of useful technologies, they may not have collectively packed the same economic punch as earlier innovations. As a result, the average rate of productivity growth of the major industrialized countries – as represented by countries that are members of the Organization for Economic Co-operation and Development (OECD) – has slowed over time, dropping from an average of 5.2 per cent in the 1960s to 3.7 per cent in the 1970s and has averaged roughly 2.0 per cent over the 1980s, 1990s and the present decade.

Like Canada, 21 of 23 OECD nations experienced a decline in productivity growth between the 1960s and the 1970s, and 22 out of 24 saw slower productivity growth in the 1980s relative to the 1970s. Fully 20 out of 23 OECD nations experience slower productivity growth today relative to the 1960s. Similarly, Canada is not alone in its recent decline in productivity growth over the past few years. 14 out of 24 OECD nations have experienced slower productivity growth so far this decade compared to last decade.

Canada's performance has been poor by international standards

So, the gradual decline in Canadian productivity growth partly reflects global trends, but this does not let Canada fully off the hook. Indeed, Canada's underachievement relative to most other industrialized economies has been remarkable. Canadian productivity grew more slowly than 18 out of 22 OECD nations since 1960 and 21 of 23 OECD



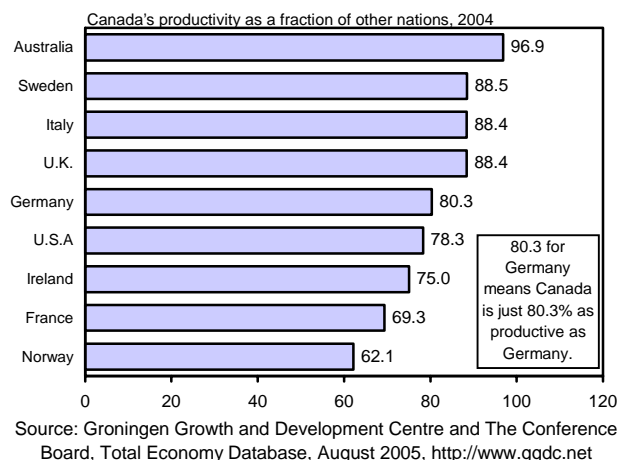
nations over the past two years. Given Canada's record of lacklustre productivity growth relative to others, it is unsurprising that the nation's productivity level compared to other countries has also fallen behind. Whereas Canada was once ranked at a lofty 3rd out of 23 OECD nations in its level of productivity in 1960, it now sits at a lowly 17th out of 24, behind virtually the full complement of Western European nations including the United Kingdom, Germany, and France. Canada also trails after some smaller countries, such as Finland, Australia, and Ireland (with the latter having risen from being only half as productive as Canada in 1970 to one-third more productive in 2004). In all, two-thirds of all OECD nations utilize their workers more efficiently than Canada.

In order to put this in perspective, if Canada had maintained its 3rd place ranking in 1960, the level of productivity would have needed to rise by a cumulative 44 per cent more over the past four and a half decades, or just slightly less than 1 percentage point faster per year. Perhaps that is setting the bar too high. Instead, if Canada had maintained a level of productivity in the top 10 of OECD countries, it would have needed to increase output per hour worked by a cumulative 20 per cent more since 1960, or about 0.4 per cent faster per annum. And, Canada would have needed to post annual productivity growth of close to 2.0 per cent this decade – more than twice the actual recorded performance – just to keep pace with the OECD average.

Canada is not closing the gap with the United States

When making international comparisons, Canadians tend to focus on the United States, and on this front Canada's performance has been disappointing. With respect to growth rates, Canadian productivity increased more slowly than the U.S. over both the 1980s and the 1990s, but the differential widened significantly between 2000 and 2004. With respect to productivity levels, there is considerable debate within the economics community, with estimates of Canadian productivity ranging from 80 to 90 per cent of that in the United States as of 2004, but with a wide range of estimates. In order to clear up some of the uncertainty, Statistics Canada (Baldwin et al., 2005) investigated the issue and made a concerted effort to adjust for methodological differences in estimates of GDP per hour worked. The main conclusion of the research was that the level of

A SAMPLING OF NATIONS MORE PRODUCTIVE THAN CANADA



SLIPPING CANADIAN PRODUCTIVITY RANKING



Canadian productivity for the entire economy was roughly 94 cent of that in the United States as of 1999.

While this significantly narrows the level of the productivity gap in contrast to other estimates, there is reason to believe that U.S. productivity at the economy wide level is understated by the treatment of the public sector. The problem lies in the fact that it is difficult to quantify the value of what the public sector produces, with the result that wages and salaries are used as a proxy. In the current estimates, Canada's public sector productivity is put at as much as 30 per cent higher than in the United States – a massive differential and dubious outcome. Given this uncertainty, plus the fact that the public sector is different in so many ways from the rest of the economy, it is preferable to exclude the public sector from the international

comparisons. In so doing, Canada's private sector productivity gap relative to the U.S. widens by about 9 percentage points relative to the economy-wide estimate. In addition, Canada's productivity gap has widened in the intervening years between 1999 and today. As a result, if we make the adjustments suggested by the Statistics Canada paper, look only at the private sector, and recalibrate to 2004, Canadian productivity is about 79 per cent of the level in the United States.

In light of what appears to be a substantial gap, two counterpoints are worth raising. First, the productivity gap fluctuated in a narrow band over the 1980s and 1990s, showing little discernable worsening until the marked deterioration in Canadian productivity and the sharp acceleration in U.S. productivity this decade. Second, Statistics

Canada has also concluded that the sustained lower level productivity in Canada only explains one-third of the gap in Canada-U.S. standard of living, on the basis of real GDP per capita. The remaining two-thirds is explained by lower employment and fewer average hours worked in Canada. Together, these observations might leave one with the impression that Canada doesn't have a productivity problem. But, this is erroneous.

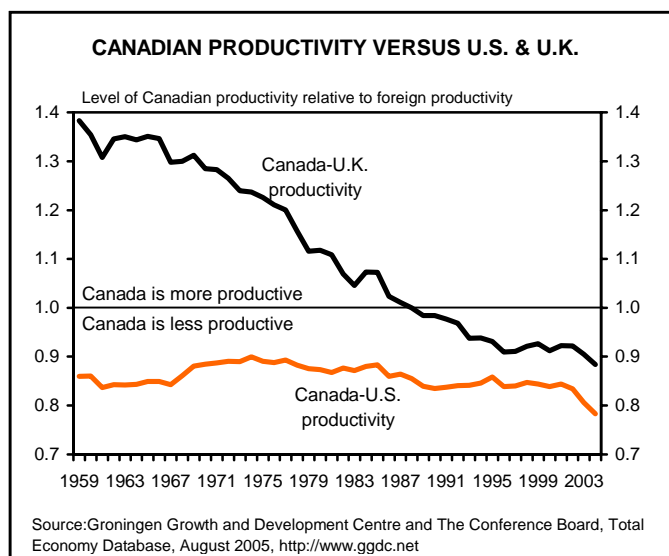
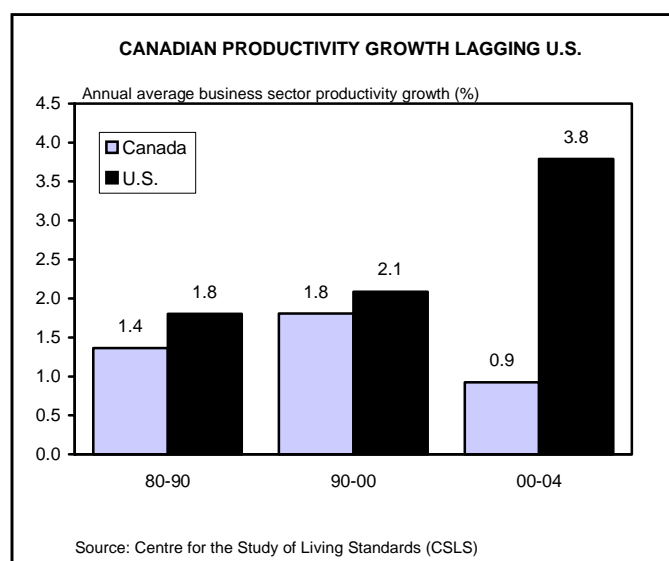
The central problem is that Canada has been unable to make any progress at closing the gap with the U.S., while many other countries have. This is a remarkable finding given the increasing openness of the Canadian economy through the reduction of barriers to international trade (including the elimination of duties and tariffs, the introduction of NAFTA and other bilateral trade agreements) and the repeated government efforts to improve productivity over the past decades. Moreover, there is also no question that Canada's performance has been trailing the rest of the industrialized world, and Canada competes with most of these countries for sales, capital and labour. So, the central issue is identifying the factors that led to Canada's relatively poor performance and investigating what initiatives might help reverse the trend.

Prognosis: Canada has a productivity problem

There appear to be a number of hindrances, some more intractable than others. Relative to the United States, Canada appears to have a greater orientation toward less productive sectors, to have a lower stock of capital, to engage in less R&D, to have a less university-educated labour force, to suffer a greater tax burden, and to have less in the way of economies of scale than the United States. Let us look at each of issues.

Sectoral composition only partly explains Canada's weak productivity

One argument often used to excuse Canada's productivity gap with the U.S. is that Canadian businesses are more oriented toward sectors that are inherently less productive. For example, Canada is more heavily weighted towards the forestry sector, which despite recent gains experiences weaker productivity than many other industries. By contrast, the U.S. is more heavily weighted towards relatively more productive sectors, including business services, machinery and computers, and electronic

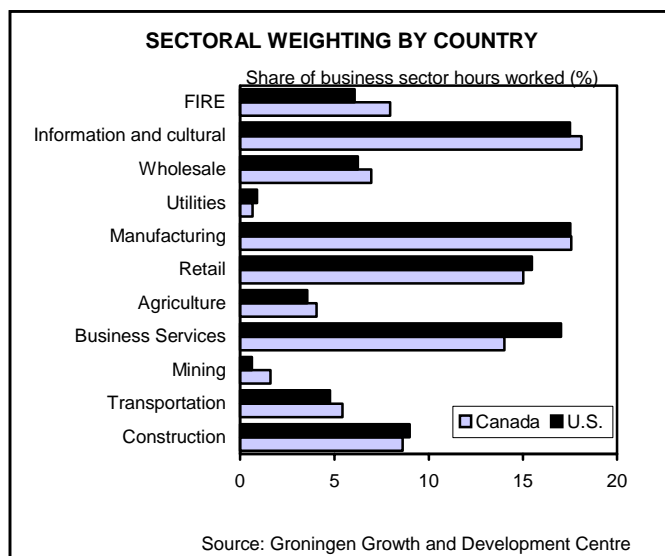
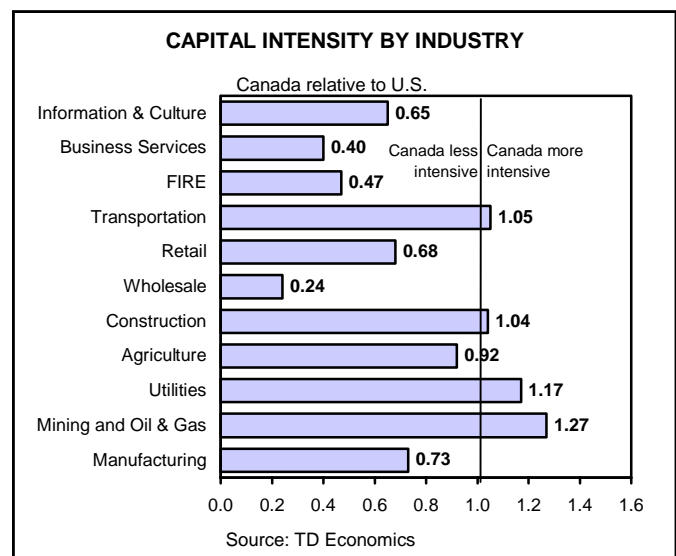
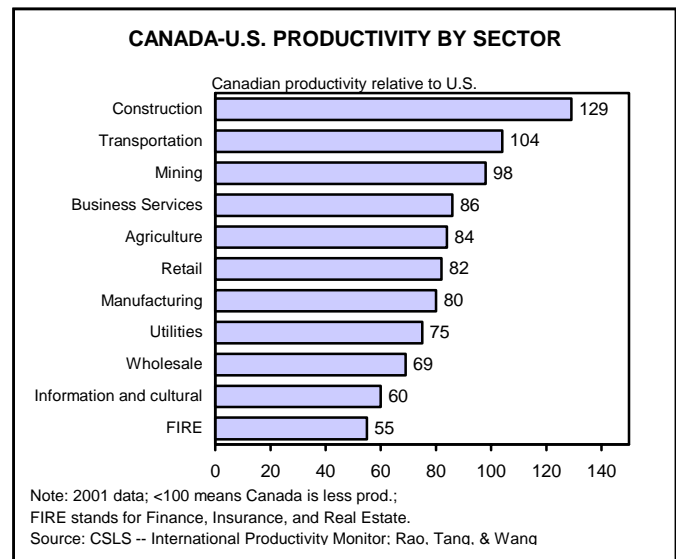


and electrical equipment. In fact, by our calculations, about one-third of the Canada-U.S. productivity gap evaporates when Canada is compared on the same sectoral footing as the United States.

However, even accounting for Canada's sectoral mix, two thirds of the Canada-U.S. productivity gap remains. In fact, as of 2001, Canada's relative level of labour productivity was lower than the United States in 18 out of 28 industries. Meanwhile, at the most aggregated sectoral level, Canada lags in 3 out of 4 categories: the primary sector, manufacturing, and services. The lone bright spot is the construction sector, where Canada holds a substantial lead over the United States (although recent productivity growth in the construction sector has been abysmal).

Canada's lower capital intensity

Part of the explanation for the weaker productivity performance at the industry level might be Canada's lower capital intensity than the United States, meaning that Canada spends less on capital stock per worker. To illustrate, for every dollar per employee spent on machinery, equipment, land, and structures in the United States, only 85 cents were spent in Canada as of 2001. Moreover, a larger proportion of the Canadian capital stock is allocated to structures, while investment in machinery and equipment has a greater bearing on productivity. And, on this front, the ratio of machinery and equipment to hours worked in Canada has only been around 55 per cent of that in the United States. With fewer dollars spent on the capital needed to support workers in Canada, it is not surprising



that the level of productivity is more modest. The Centre for the Study of Living Standards estimates that this factor represents one-quarter of the Canada-U.S. productivity gap.

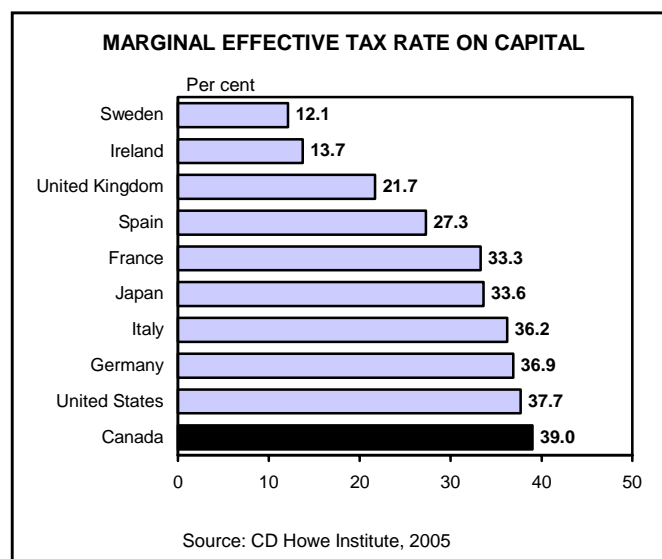
So, why does Canada have a lower capital intensity? The data suggest that it is not a sectoral composition issue. In general, the sectors of the Canadian economy that have a greater weighting than in the U.S. tend to have higher capital intensity. This is especially true for mining and transportation. The manufacturing sector is a key exception, as it represents a greater share of the economy, but has only 73 per cent of the capital intensity of its counterpart Stateside. However, the dominant story is on the services side of the private sector, where Canada trails the U.S. in terms of capital intensity in virtually every industry. Con-

sequently, the explanation for the lower investment may be partly attributed to smaller economies of scale, but is also a reflection of a slightly higher cost of capital. In September, the C.D. Howe Institute released a research paper revealing that Canada has the second highest marginal effective tax rate on capital across the 37 major economies. This lamentable situation may also help to explain why Canada has been attracting less foreign capital over the years. Canada's share of global foreign direct investment (FDI) fell from 7.7 per cent in 1980 to 3.1 per cent in 2002. Perhaps it is unreasonable to assume that Canada should keep pace with rapidly developing countries like China, but the deterioration has also been evident with respect to Canada's share of FDI within North America.

A couple of other factors may have also constrained capital investment. For example, Canada imports about 80 per cent of its machinery and equipment. As a result, the steadily decline in the Canadian dollar in the 1990s may have acted as a deterrent. It is also possible that Canadian managers are slower to introduce new innovations or shift towards more capital intensive processes.

The innovation gap

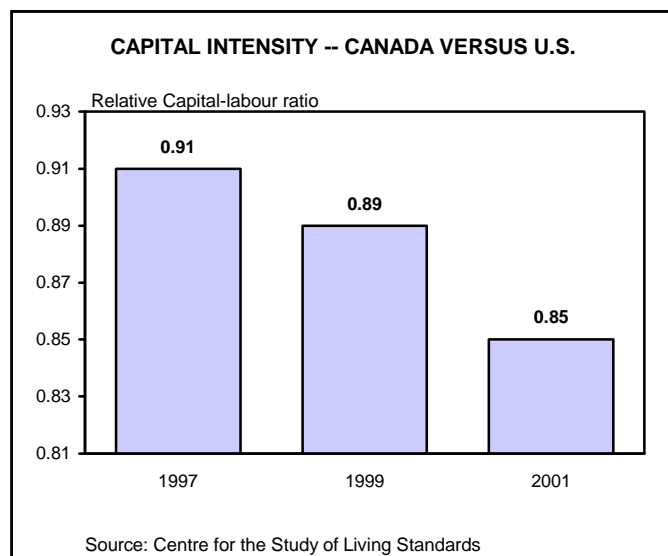
Along with Canada's lower investment in capital than the United States, Canada also lags in research and development (R&D) activities. The World Bank reports that Canadian research and development expenditures amount to 1.94 per cent of GDP, below the 2.64 per cent average by the world's 55 high-income economies, and the 2.8 per



cent of GDP spent by the United States. Similarly, the number of Canadian researchers per capita conducting R&D is 9 per cent less than the average of 55 high-income economies, and 30 per cent less than the United States. Canadian researchers also produce less than their U.S. counterparts, with more than 3 times as many patent applications filed by U.S. residents per capita than Canadian residents. This underperformance may reflect the historical branch plant nature of the Canadian economy in the past, which encouraged the establishment of foreign businesses in Canada, but left much of the R&D activities at the head offices located abroad. Nevertheless, this is a hurdle that needs to be overcome and some believe the innovation differential is the single greatest determinant of the Canada-U.S. productivity gap.

Canada's shortfall on university graduates

On the labour side of the slate, the Canadian population is better educated than the U.S. population. Literacy and numeracy rates in the Canadian workforce are somewhat higher than the United States. Canada also has more post-secondary education graduates than the United States as a fraction of the population. Unfortunately, while these factors are crucial to the well being of the Canadian economy, they do not appear to be the most important determinants of innovation. Canada's lead in post-secondary graduates comes from the number of community college graduates (including Quebec's CEGEP program), while the United States has far more university graduates per capita. And, the difference is most pronounced at the graduate



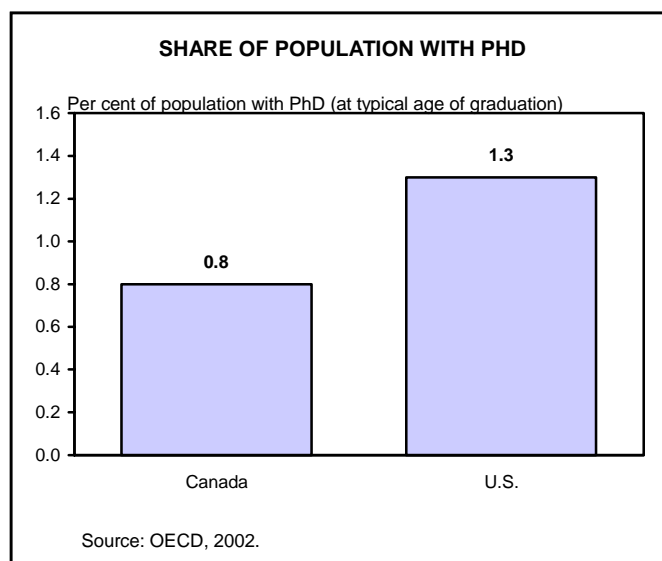
level, with 1.3 per cent of the U.S. population at the typical age of graduation having a PhD, versus just 0.8 per cent of the Canadian population. The U.S. also has a greater ratio of academic scientists and engineers. As a result, part of Canada's productivity gap may originate from a lesser university-educated labour force with a lower share of graduate degree holders.

Economies of scale

Given Canada's smaller size, it would be unsurprising if part of Canada's productivity gap with the United States was the result of lesser economies of scale. Large companies tend to be more productive than smaller firms, and companies are smaller, on average, in Canada than the United States. Let us be absolutely clear that small firms are an important part of the Canadian economy. A great deal of innovation goes on at the small business level, and a sizeable number of these firms eventually wind up as large businesses. Still, Canada's greater incidence of small firms does serve to constrain Canada's productivity relative to the United States.

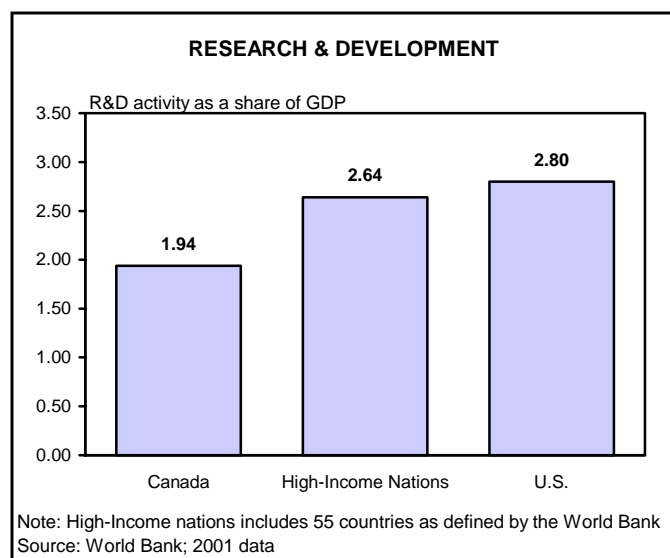
The government burden

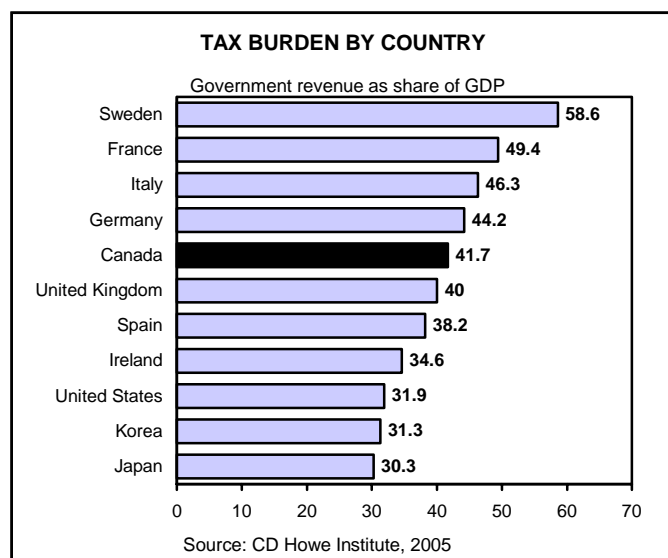
The impact of government regulations and taxes is frequently cited as a key reason for Canada's poor productivity performance relative to the United States. This is an ideologically charged question and the jury is still out from an empirical point of view. Speaking in the broadest of sense, one can get an idea of the government burden by looking at total government receipts as a share of all in-



come in the economy (i.e. nominal GDP). By this measure, Canadian government revenues are relative high at 41.7 per cent in 2004, compared to an average of 37.6 in the industrialized world and 31.9 per cent in the United States. However, the share of government receipts is much lower in Canada than in Europe. Following this train of thought, one would expect the United States to lead the way on productivity, while European nations to lag behind even Canada. However, this is not the case. The most productive nations of the world appear to be the heavily regulated Western European nations, followed by the relatively laissez-faire United States, with middle-of-the-road Canada lagging behind. Clearly, the impact of the regulatory burden on productivity is not cut-and-dry. To the contrary, some regulations enhance productivity, while others diminish it.

On the one hand, certain regulations appear to clearly hinder productivity growth. Foreign ownership restrictions, tariffs, and barriers to trade can limit investment and hamper the transfer of new innovations. High tax rates can also discourage saving and investment, as well as distort the deployment of capital. Furthermore, not all taxes are created equal, meaning that tax cuts must not be willy-nilly, but rather focused on the least efficient burdens. Administrative hurdles can similarly hinder productivity growth. To illustrate, Canada has the second highest level of regulations on inflows of foreign direct investment within the OECD. And, as already mentioned, Canada's marginal effective tax rate on capital is higher than in the U.S. and Europe.





On the other hand, government spending on university research, its contributions to Canada's post-secondary education institutions, and its programs like the R&D tax credit all likely enhance Canada's productivity.

Meanwhile, at least part of the productivity advantage held by some European nations over the U.S. may be only skin deep. For example, it appears that the greater incidence of unionization and the higher minimum wage of Western Europe may enhance productivity, but not necessarily in the way that one might initially think. A higher minimum wage effectively prices unproductive workers out of the economy, leaving only the more productive workers behind. Similarly, insofar as unionization can result in higher wages for workers, unionized businesses may prefer to invest in capital (which becomes relatively cheaper) than in additional workers (who become relatively more expensive) when making expansion plans. As a result, capital intensity rises, and so does labour productivity. In both cases, productivity ends up technically higher, but the well being of the population may not be greater if large numbers of people are left without jobs.

Lessons from the past

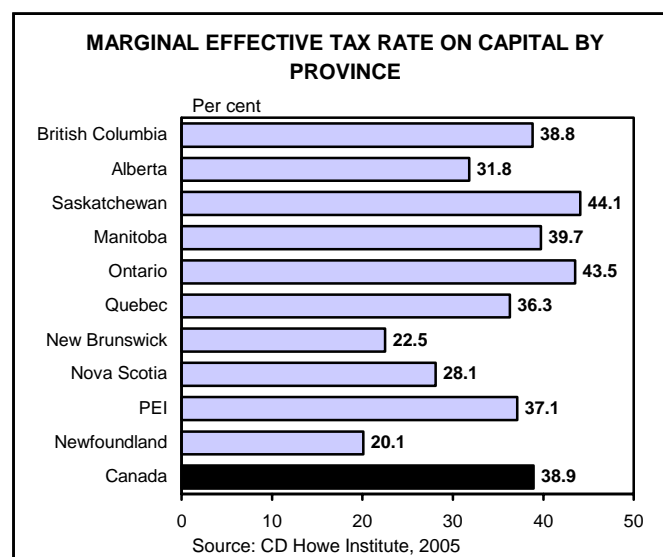
The reasons for Canada's absolute and relative productivity performance have now been explored, and it appears that Canada trails for a number of reasons. Sectoral orientation, lower capital intensity, more modest R&D, a lower intensity of university graduates and smaller economies of scale appear to play a significant role. Regulatory and tax burdens have more ambiguous effects, but Cana-

da's high effective tax rate on capital is particularly troubling. Based on these conclusions, a number of policy recommendations present themselves.

Boost competition, do not pursue industrial policies

With respect to sectoral orientation, one must avoid the trap of concluding that governments should pursue industrial policies aimed at fostering growth in higher-productivity industries. The public sector has a remarkably bad track record of picking winners and a good track record of selecting poor performers. Subsidies, tax breaks and other incentives targeted at the sectoral level are often counter-productive. They reduce the drive for productivity growth by limiting the competitive environment and can lead to international trade disputes over unfair business practices. Moreover, the cost of these initiatives direct funds away from potentially more effective policies and they can necessitate a higher tax burden for persons and corporations to pay for the industrial policies.

Instead of providing support to individual areas, the superior approach is to lower the barriers or disincentives to save and invest, as well as encourage competition to spur productivity advances by the private sector. For example, Canada should reduce many of the remaining barriers to foreign direct investment, which restrict the inflow of capital and new business practices to some sectors. Action on this front would also be desirable in order to reverse Canada's declining share of global foreign direct investment inflows. Similarly, impediments to interprovincial trade should be eliminated. The OECD has also recommended that



Canada strengthen its antitrust legislation to promote competition.

Competition might also be enhanced by encouraging greater entrepreneurship. This can be fostered by educational efforts to promote entrepreneurial skills and the reduction of impediments to small business creation. While this recommendation may seem counterintuitive and flies in the face of the argument about economies of scale, the reality is that greater entrepreneurship and stronger business formation could play an important role in boosting competition in the domestically-oriented services industries, which is an area where Canada's productivity tends to trail significantly relative to the United States. Moreover, to the extent that small business are successful, their growth would eventually lead to an increasing number of large businesses that could boost competition.

It should be stressed that government policies aimed at raising competition and entrepreneurship cannot boost productivity on their own, as the task would ultimately fall on the shoulders of the private sector to take advantage of the opportunities that are created.

Promote investment by lowering effective tax rate of capital

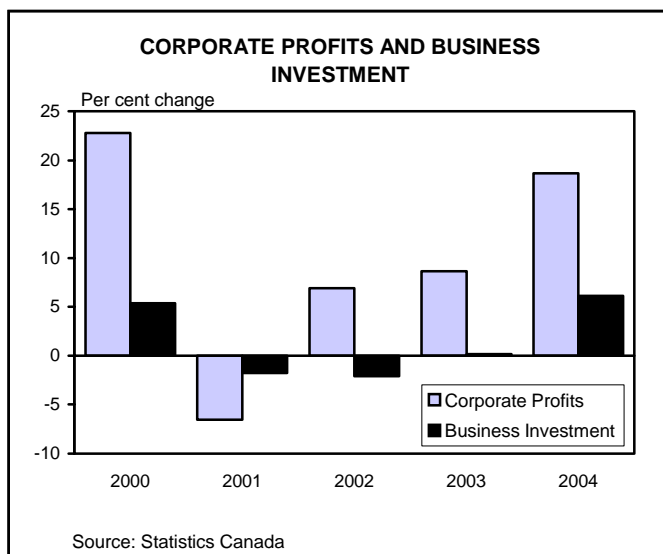
On the matter of capital intensity, policies should be aimed at encouraging greater private sector investment, both in terms of the amount of capital per worker and the quality of capital per worker. Although regulations and taxes per se may not be a deterrent to productivity growth, there are tax initiatives that could make investment more

attractive. For example, a reduction in corporate income tax rates (such as the promised cut from 21 per cent to 19 per cent) and the introduction of capital tax credits would both be beneficial. At the provincial level, several governments continue to have capital taxes, which are an obvious disincentive to investment and should be eliminated, and the elimination or reduction of sales taxes on capital purchases would be beneficial. An end to the double taxation on dividends might also be worthwhile, as the incentive to adopt the financial structure of trusts purely to obtain a more favourable tax treatment reduces the motivation to reinvest profits and pursue growth strategies. Furthermore, lower taxes on dividends could encourage saving, which, in turn, could provide additional funds for investment purposes.

Again, public policies can provide inducements for investment, but the private sector must ultimately take action. As already mentioned, the rapid growth in corporate profits over the past few years has not been accompanied by a matching increase in capital spending, with the result that machinery and equipment investment as a share of GDP has declined – and this has happened during a period of rapid strengthening in the Canadian dollar that has reduced the cost of imported capital. This conservative behaviour is likely in response to an uncertain economic environment – including worries over lofty energy prices, a higher exchange rate and the prospect of rising interest rates – but it will not help to improve Canada's pitiful productivity performance. The main message is simple – the private sector must put greater weight on productivity enhancing capital investment in the coming years.

Generous support for R&D already exists

The historical experience suggests that public policy should be aimed at boosting R&D. But much has already been done on this front, with the federal government and many provincial governments having provided significant support for research and development in past years. This has occurred through two main channels. First, the public sector pursues considerable R&D on its own. To illustrate, the Industry Canada website has links to 101 federal and 46 provincial research facilities. Second, Canadian governments have provided major incentives to encourage private sector research, as illustrated by the fact that there

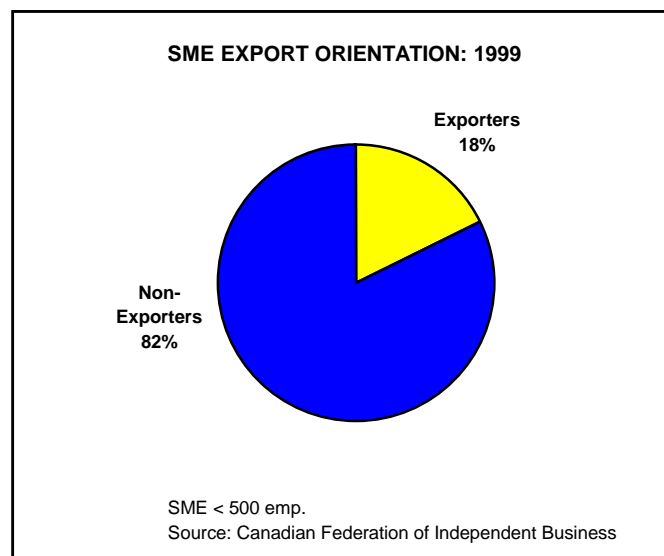
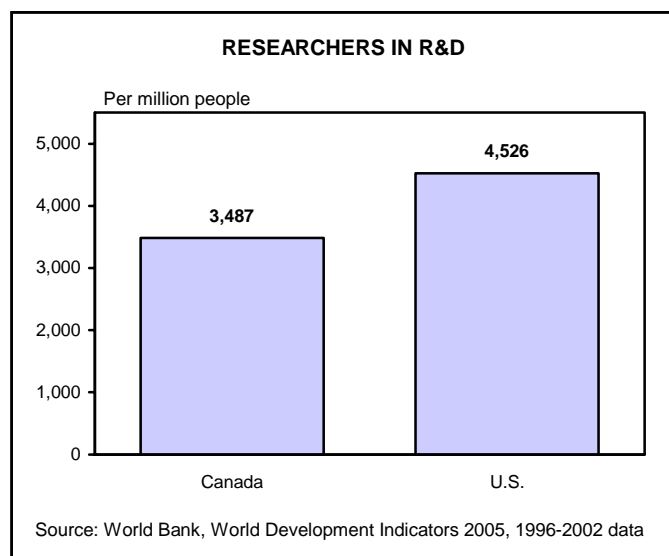


are 35 federal and 27 provincial assistance programs at the moment. And, from an international perspective, Canada has one of the most generous R&D tax credit systems.

The bottom line is that governments have targeted R&D for many years and it is time for the private sector to step up to the plate and put a larger emphasis on research. Canada also needs to improve its track record in developing commercial applications from new innovations. This shortfall may be reflected in the fact that 30 per cent of R&D in Canada is done by universities, compared to 14 per cent in the United States. But, R&D for its own sake or for academic interest will not boost productivity. Innovations must lead to commercial applications, which then need to be implemented in business practices. This requires managerial leadership in adopting new technologies and an openness to new ways of doing things.

Economies of scale

It should also be noted that the public sector has done quite a lot in the past to provide an environment that allows businesses to develop economies of scale. The elimination of tariffs and non-tariff barriers, privatization, and the introduction of free trade and bilateral trade agreements have all encouraged increased competition and promoted foreign investment. As already noted, more can be done to foster competition, as well as domestic and foreign investment. At the same time, it is not clear that Canadian businesses have fully taken advantage of the opportunities to build scale. As just one illustration, consider that of the



2.2 million firms in Canada only 50 firms account for roughly 46 per cent of all Canadian merchandise exports and only 18 per cent of all small and medium size enterprises do any exporting at all. Clearly, even if businesses are feeling constrained by the size of their local markets, technological changes and globalization have opened the door to accessing international markets for growth and scale.

Greater emphasis on university education

Based on historical trends, it appears that Canada would benefit from a greater emphasis on promoting post-secondary education. While the historical experience and the academic research suggest that the emphasis should be on university education, particularly at the graduate level, we feel that the importance of colleges should not be minimized. With an aging population, many skilled trades people will retire in the coming years. In order to avoid labour shortages that would hamper economic growth and productivity, Canada will require more college graduates with technical training. As a result, additional commitments to post-secondary education broadly speaking are called for.

And to some extent, the federal government and provincial governments have come to this realization in recent years. From 1980 to 2002, real public funding per student for post-secondary education fell by 20 per cent, while in the United States it rose by 30 per cent. But, the tide appears to have shifted in Canada. In the Federal government's Innovation Strategy announced in 2002, several noble objectives were established, including: increasing the percentage of the population aged 25-64 with a post-sec-

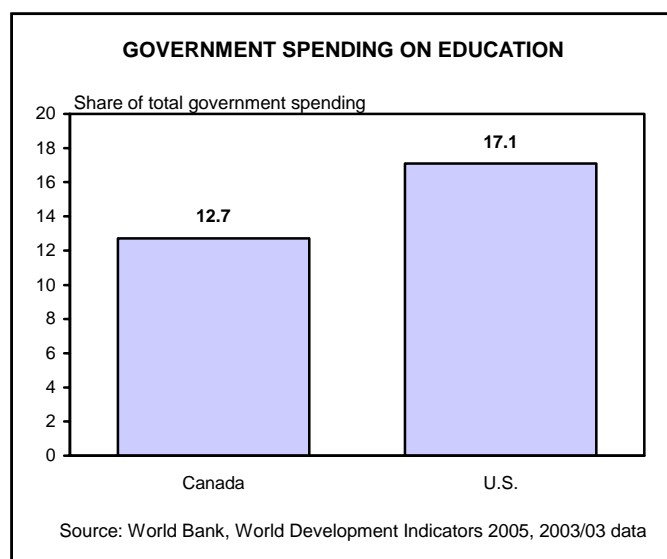
ondary education from 39 per cent to 50 per cent over the next decade and increasing admissions to Masters and PhD students by 5 per cent per year through 2010. The federal government and many provincial governments have also provided additional funding to universities and colleges over the past couple of years, which has started to reverse some of the prior cutbacks. Efforts have also been made to improve the state of student financing. However, more can still be done.

Government funding should not only be restored to prior levels, but it should be increased beyond that point. These should be used to lower student-to-professor ratios and improve deteriorating infrastructure. Tuition fees should not be eliminated, nor should they be frozen, as there is a substantial financial return to the individual pursuing the education. However, the student loans and grants system should ensure that adequate financing is available and repayment is not too burdensome. For example, the use of income contingent loans might play a role on this front.

In the Innovation Strategy, the federal government set the objective that everyone in Canada should have the opportunity to a post-secondary education regardless of geography or means. We agree. Governments, businesses and families should also encourage young Canadians to pursue post-secondary education, as it is a windfall gain for the individuals, for society and for the economy.

Other policies to promote productivity

Up to this point, we have examined the factors that



Public Sector Prescriptions

- Reduce remaining barriers to foreign direct investment; eliminate impediments to interprovincial trade.
- Do not pursue industrial policies aimed at fostering growth in higher-productivity industries – this rarely works.
- Reduce corporate income tax rates and introduce capital tax credits. Eliminate provincial capital taxes. End double taxation on dividends.
- Reduce personal marginal tax rates. Shift towards a greater reliance on user fees and consumption taxes.
- Greater emphasis on post-secondary education.
- Need more public sector investment in infrastructure.
- Need renewed investment in cities.

have led to Canada's weak productivity relative to other countries in the past, but there are a few other public policy initiatives that we believe would be beneficial from both a productivity and standard of living point of view.

Additional investment in infrastructure

Public sector investment in infrastructure (such as border crossings, highways, ports, and airports) could lead to productivity gains, as would policies aimed at urban development (including roads, water systems, electricity generation and transmission, public transit, etc). Much of Canada's infrastructure was put in place in the 1960s and is badly in need of replacement. Meanwhile, renewed investment in cities can be a catalyst for productivity growth, as healthy cities act to pool capital and labour and attract foreign investment. Moreover, the clustering of industry suggests that a virtuous circle of urbanization and productivity growth is possible. It should be noted that governments need not carry the infrastructure burden alone, as efficiencies can be had from increased use of public-private partnerships. Additional revenue for these initiatives might also be drawn from an increased use of user fees as well.

LESSONS FROM THE IRISH EXPERIENCE

Since 1987, Ireland has been an economic star, delivering remarkably strong economic growth, as well as robust gains in productivity and employment. The performance is all the more remarkable for Ireland's dismal performance in the prior decades that had left it as the poor man of Europe. This remarkable change of fortunes has led many to suggest that Canada might replicate Ireland's success by imitating many of the public policies implemented in the emerald isle.

Ireland's about face

In the decades that preceded 1987, Ireland experienced weak growth, dismal unemployment and primarily exported individuals hoping to escape poverty. All of that changed when the government elected to put its fiscal house in order during the late 1980s. In prior years, the government had sought to boost growth and lower unemployment through expansionary fiscal policy to little avail. Despite running deficits of over 10 per cent of GDP from 1976 to 1986, the Irish economy stagnated. From 1987 onwards, Ireland pursued an ambitious set of economic reforms.

The primary catalyst was the decision by the government to put its fiscal house in order. After years of deficit financing that crowded out private sector investment – by raising tax burdens and lowering the incentive to work, save and invest – the government decided to reverse course, cutting costs and lowering taxes. By doing so, they created a virtuous circle that is the marvel of the world today.

The government reduced the corporate tax rate to 10 per cent for selected industries and slashed inefficiencies in public programmes. Meanwhile, the government, businesses and unions acted to moderate wage growth. These efforts reduced unit labour costs, spurring economic growth, profits and foreign direct investment. The acceleration in the economy sparked strong employment growth and rising demand for skilled labour. The government responded by boosting its support of secondary education. It also improved its technical and trades education programmes. The economic boom attracted strong immigration of skilled workers. Lastly, despite the robust economic upswing, the economy received support from Europe through European subsidies for agriculture and infrastructure.

Lessons for Canada

While Canada can learn from the Irish experience, the comparisons are limited. First, the Canadian government already put its fiscal house in order in the early 1990s. The Federal government has been running budget surpluses since 1997 and the government debt-to-GDP ratio has trended steadily lower. Although government spending has been quite strong in recent years, there is no evidence that the public sector is 'crowding out' private sector investment. Indeed, interest rates are at historically low levels. Wages and salaries have posted only modest gains in recent years, despite low rates of unemployment. Canada already has a publicly funded secondary system and the government has made a renewed commitment to post-secondary education in recent years. Canada is also unable to receive subsidies from foreign governments, as Ireland has.

Nor can Canada fully replicate the Irish experience on tax reform. In order to attract foreign investment, Ireland applied preferential corporate tax rate on profits for exporters and manufactures. During the 1980s, the tax system was shifted to a 10 per cent corporate tax rate on all manufacturing, internationally traded services and financial services in Dublin – while other firms faced a 32 per cent tax rate. This unbalanced and preferential tax system was viewed internationally, and particularly by the European Union, as an unfair practice. International pressure grew over time and in 2003 Ireland shifted to a 12.5 per cent corporate tax rate across all industries.

The main lesson that Canada can take from Ireland is that fiscal policy reforms can provide huge benefits. Although government spending on social priorities is critical, it is essential that the money is well spent. And, fiscal savings should be used to lower tax burdens in ways that encouraging saving and investment. The Irish experience also reveals the virtuous circle that can be created by putting productivity enhancing policies in place. Cutting wasteful public spending and lowering corporate taxes can fuel productivity, attract foreign capital, spur investment, boost economic growth, raise income, create jobs and improve the standard of living in the economy.

Tax reform could pay off

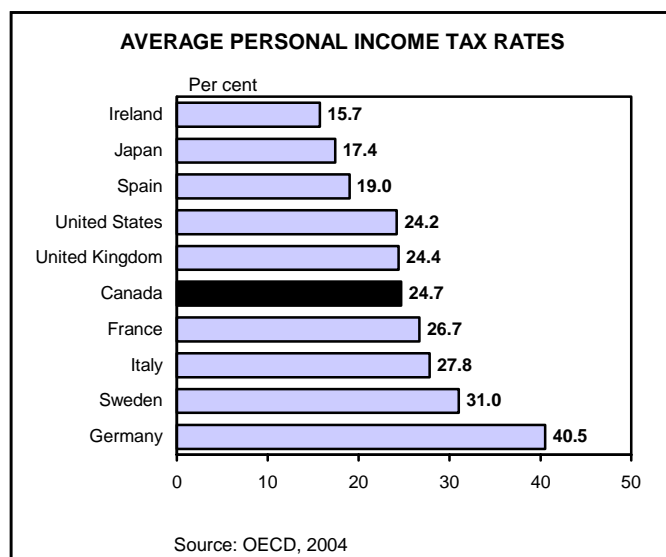
While the overall tax burden may not necessarily be a deterrent for productivity, reform to the tax system could prove beneficial. We have already mentioned tax incentives to boost capital intensity (such as lower corporate tax rates, eliminating sales taxes on capital purchases, the elimination of provincial capital taxes and tax credits for capital spending), but a reduction in personal marginal tax rates could also lead to productivity gains.

The prevailing level of personal tax rates act as a deterrent to work, save and invest. For example, various clawbacks mean that low and modest-income Canadians often face effective personal income tax marginal rates of 60 per cent and sometimes much higher. Any increase in personal saving resulting from a reduction in personal taxes would help to provide financing for productivity enhancing investment. Meanwhile, so long as the additional willingness to work is accompanied by sufficient skills, the addition to the labour force might be positive for productivity. And, to the extent that personal income rises, it is clearly a boon for the standard of living of those concerned.

On a separate note, a shift towards a greater reliance on user fees and consumption taxes would also be superior to the dependence on income and capital taxes, as the former two revenue collection methods act as a disincentive to spend and an incentive to save.

Better engagement of immigrants in the economy

Finally, there is a potential to improve the involvement



CANADIAN IMMIGRATION Per cent of total by destination

2001-2002	
GTA	46.9
Vancouver	13.5
Montreal	12.9
Calgary-Edmonton	5.2
Ottawa-Gatineau	3.8
Other	17.9

Source: Statistics Canada

of immigrants in the Canadian economy. With an aging population, Canada will become ever more reliant on immigration for population growth. In fact, immigration will provide the entirety of population growth in Canada as soon as 2010. However, businesses often have a challenge appreciating the skills that were acquired abroad. This can lead to a sub-optimal outcome in labour markets and a lower standard of living for immigrant families. Moreover, new arrivals need to have the opportunity to develop the skills that the Canadian economy requires, and there is a role for governments to play on this front through their education policies. Government initiatives may also want to encourage immigrants to seek opportunities outside of Toronto, Montreal and Vancouver, as these three urban centres are currently the initial destination for 73 per cent of all new arrivals.

A Canadian approach can succeed

Up to this point, we have outlined the policy and business prescriptions for greater productivity, however it is also worth stressing what is not required.

Historical experience suggests that a reduction in unionization is not necessary, as collective bargaining has a mixed impact on productivity – it encourages the substitution of capital for labour, but does tend to restrict labour mobility. Moreover, a move towards low wages, the elimination of minimum wages or a shift towards greater working hours (including unpaid overtime hours) is also unnecessary. A reduction in public services, including the elimination of a public welfare system is also not required, although the creation of a competitive personal and corporate tax system does put a major constraint on the extent of government spending and investment. These observations can all be seen from the experience of many European countries, which have managed to maintain higher

Private Sector Prescriptions

- Private sector needs to put a larger emphasis on research. Canada also needs to improve its track record in developing commercial applications from new innovations.
- Canadian businesses need to take full advantage of opportunities to build scale, particularly given cross-border opportunities.
- Private sector must put greater weight on productivity-enhancing capital investment.

productivity levels than in the United States, despite having less flexible labour markets and having relatively generous social welfare systems. The main point is that Canada need not adopt U.S.-style economic and social systems to close the productivity gap.

However, it must be stressed emphatically that any additional government spending and investment must pay sufficient productivity dividends. Indeed, new and existing government policies must pass the fundamental test that the boost to productivity derived by the initiatives must be greater than the advantage that would have been received from lowering taxes by the cost of the new initiative. The bottom line is that it is not enough to throw money at health care, education, infrastructure, etc. The money must be used effectively and the payoff has to be greater than the resulting tax burden.

Conclusions

In the final analysis, Canada would benefit from more competition in domestic markets and greater investment in human and physical capital. There is a wide array of public policies that would accomplish these goals. The good

news is that many of the prescriptions mentioned above do correspond with the general themes outlined by Finance Minister Goodale in his Halifax speech. Having said that, the government's inclination appears to be towards social policies, such as public investment in education, health care, and daycare. On the tax front, the only hints in past months have been a continued loose commitment to lowering the corporate tax rate to 19 per cent. This would be welcome, but we would champion additional tax initiatives to promote capital investment and additional saving by Canadians. The sad state of affairs is that little tax relief is likely in store so long as there is a minority government in Ottawa.

The ultimate recipe for stronger productivity growth is a shift in the economy away from consumption and towards investment. Finally, we agree with the assessment that the private sector has a crucial role to play in boosting productivity. Canadian business can do more in the areas of capital investment, research and development, identifying economies of scale, implementing new technologies and innovative business practices, as well as maximizing the efficiency of an increasingly diverse labour force. Indeed, only by pulling together in unison, with governments, businesses and individuals playing their part, can Canada achieve a cultural shift, and in turn achieve the sustained acceleration in productivity growth that will raise the standard of living for Canadians over time.

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