Towards a Social Understanding of Productivity: An Introduction and Overview

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Following intense debates over free trade in the 1980s and the fiscal crisis in the 1990s, the focus of concern in the policy world has shifted in recent years to the widening productivity gap between Canada and the United States. Business leaders, government officials and media commentators have sounded alarms about the productivity gap and have engaged in vigorous debates about the causes of the problem and the best policy responses. Advocates have advanced their favourite culprits, with regulatory inefficiencies, innovation lags, relative tax burden and weak entrepreneurialism often cited, usually without much evidence. The wider Canadian public seems to regard the debate with a large dose of scepticism and perhaps concern about the implications of the productivity agenda for labour market prospects and potential trade-offs between social and economic objectives.

Part of the difficulty, in our view, is that the productivity debate in Canada has traditionally focused on narrow economic issues. It has given inadequate attention to the broader ramifications of productivity, not just for our material standard of living but also for the choices we make collectively to enhance our social well-being. The debate has also paid too little attention to the social determinants of productivity — that is, to the feedback mechanisms running from social conditions and factors to productivity growth.

The objective of this second issue of *The Review of Economic Performance and Social Progress* is to fill, at least in part, the parallel lacuna in the research literature in Canada. As in the public debates, most research focuses on one side of the duality, emphasizing the impact of productivity growth on the standard of living of citizens. Much less attention is paid to the impact of social conditions on productivity. However, economic factors alone cannot explain differences in the growth rates and productivity levels of countries around the world, and a comprehensive understanding needs to incorporate institutional and social factors. A country's basic human and social resources are important to its economy. The levels of education and health of its citizens, the demographic profile of its population, the strength of the social networks that link people, the level of inequality among individuals and families, and the effectiveness of its institutions may all have important

implications for a country's economic performance. In short, people and society matter.

The papers in this volume address the two-way nature of the linkages between productivity and social progress. They are organized into five sections. The three papers in the first section discuss productivity concepts and trends in Canada and OECD countries. The two papers in the second section examine the impact of productivity on government balances and natural resources and environmental sustainability. In the third section, four papers explore the implications of population aging, education, health and social diversity for productivity. In the fourth section, the focus shifts to the normative dimension of the issue, with three papers that ask whether productivity should be a social priority, including one that surveys the attitudes of Canadians on the question. In the fifth and final section, two papers examine the relationship among social policy, inequality and productivity.

The purpose of this introduction is twofold. First, it provides a detailed overview of the main findings of all chapters in the volume. Second, it provides a synthesis of the main themes that emerge from the different chapters and their implications for public policy.

THE TOOLS OF ANALYSIS: CONCEPTS AND LINKAGES

Before plunging into complex issues surrounding the linkages between productivity and social progress, it is important to establish as much clarity as possible about the concepts at the heart of the study, and the linkages among them.

Defining the term "productivity" poses little problem, certainly much less than the concept of "economic performance," which was the focus of last year's volume. As used in this volume, productivity is defined as the relationship between output and inputs. The level of labour productivity is the ratio of real output at the level of the firm, industry or the economy as a whole (measured in physical units or constant price terms) to the amount of labour input used to produce the output (measured in terms of hours or number of workers). Labour productivity growth is the change in this ratio over time. Total factor or multifactor productivity is the ratio of real output to an index of inputs, which normally includes labour and capital and may also include raw materials, purchased services and energy. Total factor productivity growth is the change in this ratio over time. While the definition of productivity is straightforward, it should be noted that the measurement of productivity, particularly in the service sector, is notoriously tricky. Technical measurement issues, however, are not addressed in any detail in the volume.

In contrast with the clarity of the meaning of productivity, "social progress" is a much broader idea. As was noted in the introduction to last year's volume, social progress can be manifested by improvements in a wide range of measures, including the incomes of families and individuals, the sense of economic security enjoyed by workers, the levels of poverty and social exclusion, the extent of inequality in life chances, the vibrancy of our distinctive communities, the strength of social cohesion and the sustainability of our environmental heritage. Such a complex and multifaceted phenomenon is thus best thought of as an overarching societal goal rather than as an analytical concept, and the contributors to this volume tend to

focus on specific dimensions of our collective social experience.

Any assessment of social progress is also complex because it must move beyond aggregate measures. Overall indicators of the average level of social well-being always mask important variations in the experiences of different individuals and groups. Economic and social change on a major scale always produces winners and losers, groups who benefit from the new order and others whose economic and social prospects are eroded by the same forces. The history of wars, it is often observed, is written by the winning side. The history of social progress needs to be more balanced.

As well as being complex, social progress is inevitably a contested idea, because different people have very different conceptions of what constitutes the "good" society. Even if members of society agree on whether specific indicators tap dimensions of social progress, they will differ on the relative importance to be attached to the various indicators and hence on whether social progress, in the aggregate, is advancing or declining. For certain indicators, there may even be disagreement about which direction of change represents social progress, reflecting the ideological or world view of the observer. For example, some may see a rising proportion of students in private schools as a negative indicator because they believe such a trend threatens the development of an inclusive society. Others may see such a trend as positive since it means individuals have more choice in the educational options for their children. In the end, therefore, there can be no single measure of social progress or well-being. Exploring the relationships between productivity and social progress remains a compelling task, but the judgements rendered in this volume are best seen as contributions to an open and pluralistic debate on the topic.

Not surprisingly, perhaps, the linkages between productivity and social progress are many and varied. In some cases the links are direct and immediate; changes in the average incomes of Canadians are tightly tied to productivity trends. In other cases the links are much more indirect and conditioned by other factors. For example, there may be a significant lag between productivity improvement and increased incomes on the one hand, and Canadians' own sense of economic security, as measured by opinion polls, on the other. In yet other areas, the link between changes in productivity and important dimensions of social well-being may be especially weak. For example, productivity may have little impact on indicators of social capital such as membership in associations and groups; cultural or social factors are probably much more decisive in shaping this aspect of our collective experience. Finally, in some cases the link between productivity and social progress may be negative. For example, the economic growth made possible by productivity gains may have a negative effect on certain environmental indicators such as greenhouse gas emissions, or on quality-of-life indicators such as time spent commuting.

It is also important to note that the relationship between productivity and social progress may not be constant over time. For example, the impact of higher aggregate real incomes arising from productivity growth on the rate of poverty may be strong in certain periods and weak in others, because of changes in the nature of growth or the influence of other factors on poverty.

The importance of the indirect linkages between productivity and the social lives of

citizens is evident in its implications for public policy. In part, the impact of productivity on social well-being flows through public policy. To take the most obvious example, the post-1973 productivity slowdown that took place in all OECD countries reduced government revenues and increased deficits, and the growth of social programs in OECD countries, including Canada, was much less rapid after 1973. Of course, governments did have options, and fundamentally political judgements inevitably had to be made about how to proceed. But the erosion of the fiscal dividend enjoyed during capitalism's golden era from 1945 to 1973 because of slower productivity growth left governments with fewer fiscal resources and hence less room to manoeuvre. Thus productivity performance is a powerful factor influencing public policies, even if its impact is indirect and mediated by political and social pressures.

Finally, in comparison with the links running from productivity to social progress, those running from social well-being to productivity performance are less obvious and less well documented. Nevertheless, these links are likely to be significant. To take the most obvious example, in a knowledge-based economy, social and cultural factors that influence the desire and capacity of families to invest in their children's education and development have potentially powerful long-term consequences for productivity growth. Changes in family structures and other social patterns that influence the capacity of families and communities to make such investments matter. For these and other reasons, some analysts have argued that social inequality can have negative implications for the accumulation of human capital, and that greater equality can boost long-term productivity growth. Similarly, many analysts have argued that the strength of social networks and the levels of social and political trust represent a form of social capital with important implications for economic activity.

The links between productivity and social progress are thus multiple and complex and tracking the relationships in a comprehensive manner is a challenging analytical task. Nevertheless, it is possible to make at least provisional judgements about the core dynamics at work. The contributors to this year's volume provide significant insight into some of the key issues, and point to areas worthy of further investigation.

PRODUCTIVITY CONCEPTS AND TRENDS

The three papers in this section discuss productivity concepts and trends in Canada and in OECD countries. In the first chapter, Andrew Sharpe provides a comprehensive non-technical introduction to the productivity issue, including discussion of the concept of productivity, measurement issues, trends and prospects. He begins by noting that productivity is the relationship between the output of goods and services and the input of resources, both human and non-human, used in their production. In terms of productivity concepts, the most important are:

- The distinction between productivity *growth rates* and productivity *levels*. The term "good productivity performance" is ambiguous. It can refer to a situation in which a worker produces a large quantity of output — that is, a high level of labour productivity — or to a situation in which the output a worker produces increases rapidly over time —

that is, rapid labour productivity growth. These concepts are often confused in public debates on productivity.

- The distinction between output *per worker* and output *per hour*. With the long-term decline in the length of the workweek during the first three-quarters of the 20th century, growth in output per hour significantly exceeded growth in output per worker. For international productivity level comparisons, countries with fewer average annual hours worked per employed person will fare relatively better in terms of output per hour than in terms of output per worker.
- The distinction between *labour* productivity and *total factor* productivity. The former is a partial productivity measure relating labour input to output, while the latter relates a combination of inputs, or the growth of these inputs, to output or output growth. Sharpe argues that for discussion of living standard issues, labour productivity is the more appropriate concept as it is the ultimate determinant of real income growth. For discussion of efficiency in the use of existing resources, total factor productivity is the more appropriate concept.

The measurement of productivity is fraught with conceptual and empirical issues, and there can be a significant margin of error associated with productivity growth rates, even at the aggregate level. Sharpe identifies two particularly important measurement problems, namely the estimation of real output in the non-market sector (i.e., public and non-profit sectors) and the estimation of price indices (which are needed to calculate real output) for products where quality has improved significantly or for new products (e.g., computers).

According to Sharpe, the most important productivity trends that the general public should be aware of are:

- *The post-1973 productivity slowdown*, which has affected all industrial countries. Business-sector output per hour growth fell in Canada from an average annual growth rate of 4.0 percent in the 1946-73 period to 1.4 percent in the 1973-2001 period, increasing the time required for living standards to double, from 18 years to 50 years.
- *The post-war convergence in OECD productivity levels towards the US level*. At the end of the Second World War, labour productivity levels in all OECD countries were well below those in the United States, the technological leader. Through the importation of US technology, these countries were able to catch up to, and in certain cases exceed, US productivity levels.
- *The post-1995 acceleration in labour productivity growth in the United States.* The revolution in information technology, which originated and is strongest in the United States, appears to have produced a one-percentage-point upward shift in trend labour productivity growth since 1995 in that country, a development that has not occurred in other industrialized countries. Despite the sharp downturn in the high-tech sector, and even greater declines in the stock-market valuations of high-tech companies, the productivity gains of the second half of the 1990s appear to be have been sustained in the early years of the current decade.
- *The decline in Canada's relative international productivity ranking*. In 1950, Canada

ranked second out of 21 industrialized countries in terms of the level of output per hour, behind the United States only. With productivity convergence, a number of countries have enjoyed very rapid productivity growth in the post-war period. By 1973, Canada had fallen to fourth place, by 1985 to 12th place and by 2001 to 13th place. Canada's level of output per hour fell from 94.7 percent of the US level in 1950 to 91.2 percent in 1973, 89.0 percent in 1995 and 83.3 percent in 2001.

The widening of the Canada-US manufacturing productivity gap. Canada has always had a lower level of labour productivity in manufacturing than the United States. Since the mid-1990s, this gap has widened significantly, growing 20 percentage points: the Canadian level was 87 percent of the US level in 1994 and 67 percent in 2001.

Labour Productivity and Canadian Living Standards

In the second chapter in this section, Tony Fisher and Doug Hostland examine, from an historical perspective, the relationship among labour productivity, labour income and living standards in Canada. The authors focus in particular on the recent divergence between labour productivity growth and real wage gains and its implications for Canadian living standards. They find that, once the appropriate adjustments are made, the labour share and the non-labour share (composed of profits, interest and investment income, and incorporated business income) in national income tend to revert to their historical means over the 1926-2001 period, although divergences may last for several years. They note, for example, that the decline in the labour share in Canada since 1994 is due not to any increase in profit share, but to an increase in the share of depreciation or capital consumption allowances associated with the short service lives of high-tech investment goods.

Traditionally, productivity trends have been related to trends in real wages, with the latter serving as a proxy for trends in living standards. The authors argue that this approach is too narrow, as non-labour sources of income also affect living standards. Shifts in labour and non-labour shares have little effect on aggregate household wealth and income, as households receive income from all components of national income. For example, labour productivity growth in excess of real wage growth does not mean that total income will lag behind productivity growth. The relatively slower rate of growth of wages will be offset by faster growth in other components of national income such as investment income or unincorporated business income.

Fisher and Hostland also point out that the national income accounts are not the appropriate framework for addressing the important issue of income distribution (e.g., extravagant CEO compensation represents a transfer from capital's income share of national income to labour's income share!). Rather, discussion of income distribution is more fruitfully based on personal income distribution measures such as the Gini coefficient and the ratio of incomes between the top and bottom quintiles.

Like other contributors to the volume, Fisher and Hostland stress that labour productivity was the chief source of advances in living standards in Canada throughout the 20th century. More importantly, however, they note that the other factors that contributed to growth in living standards in the past, including increases in the working-age component of the population and increased

female labour force participation, are unlikely to play as much of a role in the future. Consequently, productivity will become even more important as a source of increase in living standards.

The authors conclude by emphasizing the limitations of GDP per capita and productivity as measures of economic progress. They strongly support work on broader measures of economic well-being that incorporate stocks of wealth and income distribution, which they believe will provide a more meaningful basis for policy decisions than the basic indicators presented in the national income accounts.

Productivity and Income Performance in OECD Countries

In the third and final chapter in this section, Bart van Ark develops a framework for understanding the significant differences in productivity and income growth rates among OECD countries. The framework breaks GDP per capita into two basic drivers: labour supply and labour productivity. Labour supply is in turn determined by the hours worked per person employed, the share of employment in the working-age population, and the share of the working-age population in the total population. Within-industry productivity growth rates and inter-sectoral shifts in employment shares determine labour productivity. The former is affected by the efficiency in factor use (i.e., total factor productivity), investment in physical capital and investment in intangible capital.

Van Ark's useful decomposition of GDP per capita into its components for OECD countries in 2001 leads to a number of key findings:

- The United States, not surprisingly, had by far the highest GDP per capita, 17 percentage points higher than second-place Norway.
- The United States, however, did not have the highest level of labour productivity (output per hour), ranking fifth behind Belgium, Norway, France and the Netherlands.
- The key reason for the large gap in GDP per capita between the United States and other OECD countries was the much shorter working time in these countries. Relative to the average worker in the United States, the average worker in Norway put in 29 percent fewer hours per year in 2001. The corresponding figures were 28 percent in the Netherlands, 19 percent in Belgium, 18 percent in Austria and France, 17 percent in Germany and 16 percent in Denmark.
- In certain countries, lower rates of labour force participation were also important in accounting for lower GDP per capita relative to the United States. Lower participation rates reduced GDP per capita relative to that in the United States by 15 percent in Belgium, 12 percent in Spain, and 10 percent in Ireland and France.
- Higher unemployment was also a factor in accounting for lower GDP per capita relative to that in the United States in certain countries, including Spain (7 percent), France and Italy (4 percent), and Germany and Finland (3 percent). Differences in the size of the working-age population relative to the total population was a much less important factor in accounting for the differences in GDP per capita across countries.

Van Ark points out that, while from 1950 to 1990 most OECD countries saw a narrowing of their income gap with the United States, this has not been the case since

1990. In the first half of the 1990s the underperformance of the labour market in many OECD countries accounted for this failure to close the income gap with the United States. In the second half of the 1990s, it was the acceleration of productivity growth in the United States. Van Ark observes that information and communication technologies (ICTs) have been the main source of the productivity revival in the United States, and the smaller size of the sector in other OECD countries explains their more sluggish productivity growth.

Van Ark argues that the development of intangible capital has been a necessary condition for exploiting the productivity advantages of ICT investment, although the linkages between intangible capital and productivity growth are still poorly understood. He defines intangible capital to include human capital, knowledge capital, organizational capital, marketing of new products and social capital. In particular, van Ark notes that the relationship between organizational capital and productivity growth may be particularly strong and in need of additional research.

THE IMPACT OF PRODUCTIVITY ON SOCIAL WELL-BEING: THE CASES OF GOVERNMENT FISCAL BALANCES AND ENVIRONMENTAL SUSTAINABILITY

The theme of the second section is the positive impact that productivity can have on different aspects of social progress or well-being. The two chapters in this section examine the impact of productivity on government balances and natural resource and environmental sustainability.

In examining the linkages between productivity and social progress, one of the first considerations is the potential impact of changes in productivity growth on governments' fiscal balances, which in turn affects their ability to contribute to social progress. Of course, larger fiscal balances do not necessarily translate into enhanced social measures, as governments may have other competing objectives. But, clearly, determining the sensitivity of fiscal balances to alternative productivity growth rates is an initial step in determining how productivity growth can affect the ability of governments to pursue social objectives.

In the first chapter in this section, Peter Dungan investigates the sensitivity of Canadian government fiscal balances to alternative long-run productivity growth rates using elements of the FOCUS macroeconometric model to conduct simulations to the year 2030. The simulation strategy employed here in part parallels the technique used by the Department of Finance in recent budgets and fiscal statements to estimate the implicit size of the "fiscal dividend." A total of five alternative growth paths and sensitivity tests are presented.

Overall, the simulations indicate that even relatively small changes in productivity growth rates can cumulate over several decades to produce large changes in GDP and living standards, and this can alter significantly the fiscal "room to manoeuvre" of the federal and provincial governments and of public pension plans. This is true whether we are contemplating higher or lower productivity growth rates. For instance, a relatively modest addition of 0.3 percent to annual productivity growth from 2004 to 2030 increases real GDP by 8 percent, or $171 billion ($2000), over the base-case scenario by the end of the period.

This translates into an increase of $71 billion in aggregate government revenues. As Dungan demonstrates, however, an important factor in determining more precisely the size of the fiscal impact is the response of government-sector wages to the changes in private-sector real wages that would likely occur under alternative productivity growth rates. His sensitivity results show that if there is a pass-through of higher productivity growth into higher public-sector wages (as would seem most likely), then the fiscal impact of higher productivity growth is muted. Since approximately 75 percent of government spending on goods and services is wage-based, this effect is quite substantial. Under higher productivity growth, some of the enhanced government revenues ($29 of the $71 billion) simply go to pay higher government-sector wages, leaving $42 billion, equivalent to roughly 6 percent of government (base-case) expenditures, available for expenditure enhancement, tax cuts or debt reduction.

If, on the other hand, projected productivity growth is reduced by 0.3 percent, then the negative impact on government revenues ($66 billion by 2030) is partly offset by a reduction in government wages from what they would otherwise have been, leaving a fiscal-impact shortfall of $39 billion. This offsetting effect is more important for provincial governments than for the federal government. Of course, the size of the fiscal impact would also depend on whether real interest rates are affected by higher or lower productivity growth rates, in which case the fiscal impact is on average very small. This would likely be the case if the change in productivity growth did not occur only in Canada but rather was a worldwide phenomenon.

As Dungan points out, this study is only the beginning of a full inquiry into the interconnections between productivity growth and fiscal policy. The results focus on the effect of productivity growth on government fiscal room to manoeuvre, but there are undoubtedly important feedback effects from fiscal policy onto productivity growth. How the fiscal room to manoeuvre is used could have important effects on productivity growth itself: some tax cuts or expenditure increases could in turn raise productivity growth, through either improved technology or capital accumulation, while some poorly designed new social programs could reduce incentives and lower productivity growth. This feedback from fiscal policy to productivity becomes more important the further we go into the future. Finally, the issue of whether productivity change is confined to Canada or is part of a broader trend would also raise competitiveness issues that would affect domestic policy choices.

As the intense debate on Canada's ratification of the Kyoto Accord indicates, the issue of sustainability of natural capital and its implications for economic growth ranks high in the interests of both policy-makers and the general public. In the second chapter in this section, Nancy Olewiler makes an important contribution to the debate on natural resource sustainability by exploring the crucial, but often ignored, linkages among natural capital, sustainability and productivity.

Olewiler defines sustainability as the ability of the economy to maintain the flow of production necessary to prevent a decline in per capita consumption so that future generations can have a standard of living equal to or better than that of the present generation. In looking at natural capital as an input into production, Olewiler draws a clear distinction between those forms of natural capital, such as water and our atmosphere, that are essential to human existence, and other resources for which

there are substitutes. This distinction between essential and non-essential inputs in turn leads to the concepts of weak and strong sustainability. Weak sustainability assumes that all the forms of capital involved are perfectly substitutable for each other, and that sustainability requires only that an aggregate stock of capital be maintained at a level necessary to ensure indefinite production. Strong sustainability on the other hand recognizes that specific forms of natural capital are essential — that is, they have no substitutes — and that stocks of these resources must be kept intact to ensure continued production. The challenge is to determine what forms of natural capital are essential and how to sustain the necessary stocks.

In her chapter, Olewiler examines productivity in natural resource industries in Canada and the United States to determine whether depletion in natural resource capital has affected productivity growth. Based on her detailed analysis of labour and total factor productivity growth rates, the author observes that:

- For Canadian non-renewable resource industries, changes in the stock of natural capital have not led to a sustained decrease in labour or total factor productivity. Indeed technological change, whether induced by environmental regulation or stock depletion, appears to be contributing to continued productivity growth in these industries.
- For Canadian renewable resource industries, such as logging and fishing, productivity has been declining due to poor resource-management practices. While these industries are certainly not essential for the overall sustainability of production in the Canadian economy, their loss does affect the viability of many communities.
- Ignorance of the state of our environmental capital and its relationship to productivity and sustainability is particularly apparent in our lack of knowledge about *threshold effects*. Once a threshold is exceeded, damage to production and productivity from environmental degradation may be severe and irreversible. This uncertainty regarding thresholds has led many researchers to advocate a precautionary approach to environmental policy.

Olewiler concludes that the development of reliable productivity estimates for natural capital sectors is important for monitoring the sustainability of the Canadian economy. Reductions in productivity may be seen as a warning that production and consumption are moving into a path of non-sustainability. Falling productivity in sectors that rely on natural capital may signal three possibilities: (1) technological change is not keeping up with depletion, (2) substitute inputs are not readily available, or (3) regulation is not addressing, in an appropriate manner, the market failures associated with the use of particular resources.

SOCIAL DETERMINANTS OF PRODUCTIVITY: DEMOGRAPHICS, HUMAN CAPITAL AND SOCIAL DIVERSITY

As noted earlier, most research on the drivers of productivity growth has focused on economic factors, such as investment, new technology and innovation, market structures and openness to trade. The chapter by Richard Harris, however, makes clear that economic variables alone do not fully explain differences in the levels of productivity and economic

growth of countries around the world. This is especially the case when attention is focused on the growth experience of countries at all levels of development, from the richest to the poorest. The differences in productivity from the most to the least developed countries are enormous, and Harris concludes that coherent explanations must go beyond standard economic variables to incorporate a wider range of institutional and social factors. When attention narrows to the experience of industrialized or OECD countries, economic factors do a better job of explaining differences in their productivity. Nevertheless, even here a significant portion of productivity growth is unexplained by models built on purely economic factors, leaving open the question of the role of the institutional and social characteristics of different countries.

The chapters in this section analyze the implications for productivity of three dimensions of the social structure of countries: their demographic profile; the nature of their human capital — defined broadly to include the skills, education and health of their citizens; and the level of social diversity of the population.

Aging and Population Growth

As the retirement of the baby boom cohorts inexorably approaches, the implications of the aging of the population and the consequent fall in the ratio of consumers to producers receive growing attention from policy-makers and the general public. Many believe that the aging of the population will have negative effects on productivity and economic growth, with dire implications for the sustainability of social programs. In the first chapter in this section, William Scarth examines the relationship among population aging, productivity and growth in living standards, and reaches a more optimistic conclusion. Indeed, he contends that aging may in fact lead to increases in productivity, even if no policy initiative is taken. He argues that our economy possesses at least three adjustment mechanisms that insulate living standards from the adverse effects of an aging population.

The first adjustment mechanism is changes in relative factor prices. Scarth constructs a closed-economy model based on overlapping generations that shows that when the baby boomers constitute the old generation, capital becomes the relatively abundant factor of production. Interest rates fall and wages rise, decreasing living standards for the old and raising them for the young. The change in relative factor prices leads to greater substitution of capital for labour, which increases labour productivity. However, Scarth expresses caution regarding the extent to which such closed-economy effects apply to a small, open economy like Canada where the return on capital and the wage level are largely determined outside the country. It is thus primarily population aging in the rest of the world, not in Canada, that will affect relative factor prices in this country, and the rest of the world is not facing as intense demographic pressures as Canada faces.

A second mechanism insulating living standards from an aging population is changes in saving behaviour motivated by fear of falling living standards in old age. This increased savings means that foreign debt is paid off. Future interest payments to foreigners are thus lower, leading to higher levels of domestic consumption. Finally, a third mechanism is the increasing returns to human capital arising from the increased relative scarcity of labour. This leads to greater

human capital investment, which in turn raises productivity growth and living standards. Scarth concludes that, because of the adjustment mechanisms inherent in a market economy, the implications of the retirement of the baby boom cohorts for productivity and living standards in Canada may be significantly less than many observers currently believe.

The Role of Human Capital

The increased focus and attention of researchers and policy-makers, in recent years, on the potential determinants of productivity growth has generated considerable interest in human capital as a key contributing factor. Skills, innovation and human capital feature prominently on the policy agenda of industrialized countries concerned with productivity and competitiveness issues. Not surprisingly, formal education is the preferred and most conventional policy instrument of governments in pursuing these objectives. Indeed, "more is better" is often the guiding principle here. The actual linkages, however, are not as straightforward as they may appear. Certainly, there are gains to be achieved through a better understanding of the relationship between the skills developed through formal education and their causal impact on productivity, as well as a more nuanced approach to policy in this area. The former is the task Arthur Sweetman sets for himself in the second chapter in this section on social determinants. As he points out, "the issue is not whether education has benefits but, rather, the magnitude of its 'true' benefits, the benefits relative to costs, and the distribution of costs and benefits."

Sweetman examines three different sets of evidence, focusing on the impact of education on earnings at the individual level and on productivity at the macroeconomic level, and on issues related to the operation of the Canadian educational system. He begins with a review of recent challenges to the idea that more education is always better. For instance, an important issue is the extent to which the higher earnings attributed to higher education are in fact a function of higher innate ability which causes individuals to both acquire more education and achieve higher wages. As Sweetman argues, this would certainly have a bearing on the effectiveness of additional investment in education as a policy lever to aid disadvantaged groups. Another concern in recent years is whether Canada, which ranks among the top countries in terms of public spending on education and levels of educational attainment, has reached a point where its population is overeducated and underemployed. Survey results indicating that many people feel they are overqualified for their job or their skills are under-utilized have helped fuel this debate. Finally at a macroeconomic level, a significant number of studies looking at the relationship between country-level measures of educational attainment or inputs and per capita economic growth have failed to establish a positive link.

The chapter provides a detailed review of the literature on the impact of education on the earnings of individuals. Sweetman makes a clear distinction between studies that simply measure the correlation between an additional year of schooling and earnings outcomes and research on the causal impact of education, where the methodology explicitly discounts the effects of unobserved ability. While the former type of analysis suggests that the return on a year's education (in terms of employment earnings) is in the range of 7 to 15 percent (with most estimates clustering around

10 percent), one might expect the rate of return to be somewhat lower when only the causal effect is measured. Yet Sweetman finds little evidence that this is the case, and he concludes that the causal private rate of return for individuals is substantial.

Sweetman's examination of the relationship between education and economic growth highlights several key findings. Having pointed to the mixed macroeconomic evidence on the central role of human capital for economic growth, the author concludes that the problem is basically one of measurement. The studies that failed to find a correlation tend to use educational attainment, enrolment rates or educational spending as measures of a country's human capital. However, recent studies that use more direct measures of labour force skills based on the quality of education (e.g., standardized test results or literacy scores) have found a "substantial, and remarkably precise, correlation between human capital and growth." Based on his review of endogenous growth literature, Sweetman concludes that both the quality and content of education have a sizeable impact on overall productivity and economic growth. He cites as an example the results of a study by Barro (2001) which suggest that an additional year of education of "average" quality is associated with an annual increase of 0.44 percent in GDP. This implies a real social rate of return on education of about 7 percent. Educational quality is thus clearly more important for national economic outcomes than credentials or inputs. Indeed, on the latter Sweetman finds that there is "little evidence at the international level that school resources are highly correlated with the quality, or skill level, of the labour force."

Sweetman's chapter also addresses several issues related to the functioning of the Canadian education system. Canadian data not only show the expected positive relationship between levels of education and labour market outcomes such as hourly wages and the likelihood of employment, but also reveal remarkably good educational outcomes. In addition to the consequent increases in the national standard of living, his analysis suggests that the large-scale increases in Canadian educational enrolment in previous decades may have prevented increases in inequality due to the rapid growth in the supply of skilled labour. Sweetman's conclusion is that there has been and clearly will continue to be a key role for education policy in improving Canada's productivity and standard of living. An important question for policy-makers, however, is whether the education system is achieving its full potential. The main challenge is one of resource allocation in a context in which there seems to be on the one hand little correlation between the magnitude and the allocation of resources and educational outcomes and on the other hand insufficient information to channel these resources wisely.

While human capital is commonly associated with education and skills, health also has potential links to productivity. In the third chapter in this section, Emile Tompa provides a comprehensive review of the theoretical underpinnings and empirical evidence of the health-productivity relationship with an emphasis on the implications for public policy. As the author demonstrates, this relationship goes well beyond the obvious effect of health on capacity to work in terms of both energy level and working time. Tompa describes three additional pathways through which health can affect productivity at an aggregate level. For instance, individuals with a longer life expectancy may choose to invest more in education as they

receive greater returns from their investment. They may also be motivated to save more for retirement, which would lead to greater accumulation of physical capital. Finally, improvement in the survival and health of young children may provide incentives for reduced fertility and may result in increased labour force participation.

Tompa's review of historical economic trends reveals "substantive evidence concerning the productivity impact of increased life expectancy and reduced morbidity over the last few centuries in Europe and the United States." He cites estimates indicating that substantial improvements in health and nutrition explain as much as 30 percent of growth in per capita income in the United Kingdom since 1790. Similar estimates of the impacts of health are also found in cross-country studies based on data for the last 50 years, which would suggest that these historical trends have not fully run their course.

As expected, Tompa finds considerable emphasis on human capital in recent macroeconomic research on productivity, but much less attention to human capital in the form of health. Nevertheless in those studies that did include a measure of health, the association with productivity was significant and positive. The author reports results from a range of studies indicating that between 21 and 47 percent of GDP growth per worker over the last 25 to 30 years can be linked to improvements in the health of populations. As Tompa points out, however, most of the research in this area has focused on life expectancy as a measure of health, which, given significant convergence among developed countries, has become a less salient indicator in explaining productivity differences among these countries. In his view this clearly underscores the need for more refined and relevant indicators (e.g., morbidity, vitality, mental health and acuity) if we are to fully comprehend the contemporary role of health as a productivity driver in developed economies.

Looking at the health-productivity relationship from a microeconomic perspective, Tompa highlights the extensive costs attributable to work-related injuries and illnesses. For instance, in Canada the direct costs (i.e., indemnity payments, insurance and medical expenses) were estimated on the order of $5.7 billion in 2000. The indirect costs, in terms of lost earnings and employer adjustment costs, were more than twice that amount. While there was a 40-percent reduction in injury claims in Canada between 1990 and 1998, it is not clear to what extent this can be attributed to the effectiveness of insurance and regulatory mechanisms, the main policy levers in this area, or some broader economic trends. Another concern is the fact that occupational health and safety regulation and workers' compensation programs are still focused on the types of injuries and exposure that are characteristic of manufacturing and resource-based industries. There are indications that policy has not kept pace with the changing needs brought on by the dramatic changes in the labour market and the workplace as a result of the shift from manufacturing to services, technological change, and new management and organizational practices.

In the final section of his chapter, Tompa reviews the evidence on the causes and the costs of absences from work due to sickness. Canadian absence rates due to illness and disability have increased substantially since the mid-1990s. Surprisingly, he finds that most of the research on potential causes of sickness tends to focus on potential contributing factors that are perceived as amenable to

change and therefore pays relatively little attention to health status as an explanatory factor. The work that does examine this link indicates that chronic and acute physical and mental conditions, along with health-related behaviour, do account for a significant portion of sickness absence. However, the evidence on workplace health-promotion initiatives shows only modest results in terms of reduction in sickness absence. According to Tompa, such initiatives are often too narrowly focused on behavioural and lifestyle factors and need to be broadened to include organizational factors. Moreover, the more limited and short-term objectives of firm-level initiatives in this area underscore the important role that governments can play in improving the health of the labour force and the population as a whole and in turn overall productivity.

Given the multifaceted nature of the factors that influence health and, by extension, productivity, a more holistic approach to population health, including initiatives in areas traditionally considered outside the purview of health policy, may prove useful. Indeed Tompa's review of the health-productivity relationship from a human capital perspective suggests that education policy, child-care and family policy, and labour market policy are all important avenues through which the public sector can have an impact on population health.

Social Diversity

In the final chapter in this section, Quentin Grafton, Stephen Knowles and Dorian Owen examine the implications for productivity arising from the level of social diversity along a variety of dimensions, including ethnic, linguistic and religious differences, and inequalities between rich and poor. Their basic intuition is that human beings tend to associate and communicate most readily with people similar to themselves, and their hypothesis is therefore that "social divergence" generates social barriers to communication among groups, inhibiting the diffusion of knowledge and lowering the level of productivity in the economy. As a consequence, the more diverse the society and the greater the number of distinct social groups, the higher the communication costs and the greater the barriers to the exchange of ideas and innovation.

Grafton and his colleagues compare their concept of social distance to related concepts such as social capital, trust and social networks. They also survey the existing research on the economic consequences of different indicators of social divergence. The impact of the polarization of societies along ethnic lines has received considerable attention in the literature on economic development. A variety of analysts have concluded that ethnic diversity tends to generate high levels of rent-seeking among competing ethnic groups, at the expense of general economic policies that promote growth. Ethnolinguistic and religious diversity is also a predictor of conflict, political instability and weak institutional frameworks, all of which can retard growth. Similar findings emerge in terms of income inequality and inequalities in levels of educational attainment, a theme to which we return below in our discussion of the chapter by Richard Harris.

The chapter by Grafton, Knowles and Owen also summarizes the result of research conducted by the authors themselves, in which they analyze the impact on total factor productivity of a set of measures of social divergence, using data from a cross-section of 31 developing countries. Their findings

also support the proposition that social diversity and economic inequality weaken economic performance.

These research findings are clearly preliminary, and are subject to important limitations, as the authors indicate. For example, indicators of social divergence do not directly measure the extent and quality of communication among individuals and across social groups in a society. More direct measures of the links and exchanges among individuals would allow a clearer test of the proposition that social diversity inhibits the diffusion of knowledge and innovation. In addition, most of the literature on the economic consequences of social fragmentation uses data sets that are dominated by the experience of developing countries, and the authors own analysis is limited to third world nations. The applicability of such findings to high-income countries that are socially diverse, including Canada, is an open question. Such countries tend to have much stronger institutional frameworks and richer communications networks that may well reduce the barriers to exchange across groups.

Finally, Grafton and his colleagues stress that their analysis does not imply that social homogeneity is to be preferred. Social diversity can also have important economic benefits, as suggested by J.S. Mill in a passage quoted by the authors: "It is hardly possible to overrate the value…of placing human beings in contact with persons dissimilar to themselves, and with modes of thought and action unlike those with which they are familiar." The danger, the authors argue, is that barriers to communication across groups can prevent the benefits of diversity from being realized. The challenge for multicultural countries like Canada is therefore to develop institutions and policies that facilitate communication among groups. From this perspective, initiatives such as bilingualism, multiculturalism and services for recently arrived immigrants are not simply instruments of cultural integration; they are also instruments of productivity enhancement.

Social factors such as demography, educational levels, health care and social diversity may not be standard features of the debate about the determinants of productivity growth. But the chapters in this section illustrate the importance of understanding the potential linkages that run from social dynamics to economic performance in advanced economies.

SHOULD PRODUCTIVITY GROWTH BE A SOCIAL PRIORITY?

Although the debate over productivity turns in part on empirical evidence of the relationships at work, it also touches on fundamental normative questions about values, the nature of the good society and the purposes of public action. In the most general sense, it is difficult to challenge a commitment to productivity or efficiency, understood as the best possible use of scarce resources to achieve a valued end. Who could be opposed to achieving greater human welfare — to meeting our economic, social and psychological needs more fully — with the resources at our disposal? In most policy debates, however, the concept of productivity tends to take on a narrow economic focus, one concerned with maximizing economic output. The social priority of this conception of productivity is certainly open to challenge, both in theory and in active politics, and the challenge emerges strongly in the three contributions in this section. The first questions the benefits that productivity growth has

brought society in the last quarter century. The second analyzes survey results of the attitudes of Canadians towards the productivity issue. The third discusses productivity and accountability across the private, public and voluntary sectors.

In a provocative contribution, Joseph Heath argues that we tend to overestimate the contribution that further productivity growth will make to the welfare of Canadians. Traditionally, productivity growth was thought to contribute to increased leisure time, greater consumer satisfaction, the elimination of poverty and greater public support for redistributive efforts to narrow social inequality. While accepting that such benefits have flowed in the past, Heath argues that in the last 25 years productivity growth has contributed less and less to the well-being of Canadians. He points to the following indicators:

- After a long period of growth in leisure time, average working hours per week have begun to edge up again in North America over the last two decades. Moreover, a dramatic increase in two-income families — reflecting in part the widespread perception that it is impossible to maintain a middle-class lifestyle on the basis of one salary — has made the juggling of work and family increasingly difficult for many Canadians.
- While productivity growth has led to higher consumption, there is no evidence that it has produced greater overall consumer satisfaction or happiness. Heath draws on a number of surveys that show that whereas economic growth is strongly associated with increased happiness in poor countries, there is no correlation between higher consumption and increased happiness in richer countries. Certainly, there is little evidence that people in rich countries have become happier in the last 25 years.
- Economic growth alone no longer seems to be reducing poverty. Important gains were made in the post-war decades as a result of the expansion of redistributive government programs, but Heath points to studies finding no reduction in the level of "basic needs" poverty since the late 1970s.
- Economic growth during the last 25 years has not increased people's willingness to share through redistributive programs. Heath argues that there seems to be growing middle-class resistance to redistribution and the taxation needed to support it.

The key puzzle for Heath is why further economic growth does not lead to greater happiness. In attempting to solve this puzzle, he canvasses three currents of thought in the literature. One possible explanation is that increased consumption does not generate lasting increments in welfare, because the process of satisfying our desires generates new desires, an interpretation that Heath traces from classical Greek philosophers to modern analysts such as John Kenneth Galbraith. A second explanation, which Heath describes as neo-Veblenian, contends that consumption not only satisfies needs but also communicates status, class, upbringing and tastes. The difficulty with this element of consumption is that such status hierarchies have a zero-sum structure. If a spurt of economic growth suddenly allowed everyone to purchase an exotic car, the process would cancel out the status inherent in driving one. A third possible explanation draws on the work of Fred Hirsch, who argues that the supply of some goods, which he labels positional goods, is

fixed. Waterfront property is a classic example. For these goods, the process of economic growth does not increase their quantity; it increases only their relative prices. As people become richer, therefore, some goods may become easier to acquire but positional goods continue to recede over the horizon.

Heath argues that if these three forms of consumption absorb a significant portion of the benefits of economic growth, there will be little increase in satisfaction, at either the individual or the aggregate level. For Heath, this argues against making productivity growth a social priority. For this reason, he is sceptical about investing scarce public dollars in a productivity agenda, and believes that other forms of investment will be more effective in enhancing the welfare of Canadians. He suggests a number of possibilities, including dealing seriously with the externalities generated by economic growth for the environment, reducing crowding in urban areas, increasing the supply of public goods, promoting leisure and increasing individuals' sense of security. However, his key point is that since productivity growth does not generate the benefits we expect, it should not be treated as an unchallenged priority, and we should not worry about our relative productivity compared to other countries, such as the United States. There is no reason why a decline in our relative "standard of living" should necessarily mean a decline in our quality of life.

Canadian Attitudes Towards Productivity Issues

These philosophical debates are echoed in the attitudes of the Canadian public, which are explored in the chapter by Frank Graves and Richard Jenkins. The distinction between our standard of living and our quality of life is a powerful one for Canadians.

The economic citizen who emerges from Graves and Jenkins's data is relatively aware of the terms of the productivity debate. Canadians appear to have a broadly optimistic view of the economy, but give the country only a lukewarm overall rating of its productivity. They are certainly aware of the divergent trends in Canada and the United States. Moreover, although improved productivity does not rank as high as health care, education, the environment and crime prevention, the public does see it as an important goal. Admittedly, this broadly positive orientation is qualified by some scepticism. A slim majority of Canadians believe that recent concern about productivity has been manufactured by large corporations and wealthy Canadians, and a minority see talk about productivity as ideological code for job losses and lower pay. Nevertheless, a strong majority believes that improved productivity will create more jobs and especially more high-skill jobs. Overall, Graves and Jenkins conclude, the public leans towards a positive view of a productivity agenda.

Nevertheless, the Canadian public's attitude towards productivity is qualified by a commitment to a broader sense of quality of life. Graves and Jenkins report that Canadians place considerably greater emphasis on quality of life as a goal as compared with a high standard of living when these are traded off. While Canadians are keenly aware that incomes are higher in the United States, the public overwhelmingly believes that the quality of life in Canada is superior to that enjoyed south of the border.

This attitude also influences the public's reaction to the policy debate about how to improve Canada's productivity. Graves and Jenkins find a strong preference among Canadians for human and social investment priorities (e.g., improving health care, enhanc-

ing workers' skills and supporting early childhood development) in contrast to prescriptions such as tax cuts or R&D investments often advocated by key voices in the debate. This dichotomy is particularly apparent when the general public and members of various elite groups are asked to choose among three government strategies to improve productivity: (a) a national learning strategy to invest in the education and training of Canadian workers, (b) corporate and income tax cuts to reduce costs and stimulate growth, and (c) a national technology strategy to help business and citizens access the latest high-tech processes and equipment. According to Graves and Jenkins, "there is clearly a significant gap in the understanding of how productivity should be dealt with between the residents of Canada's family rooms and the residents of its boardrooms." A majority of opinion leaders (57 percent) support a strategy of cutting corporate and income taxes, and this preference is almost unanimous among private-sector elites (86 percent). However, for Canadians generally the preferred option is a national learning strategy (40 percent), with tax cuts clearly in second place (33 percent).

The public also overwhelmingly rejects the idea that the current level of social spending is an impediment to improving Canadian productivity. Rather, they see social programs as a form of investment that increases productivity by ensuring a healthy, educated and secure population. How Canadians would measure a successful innovation agenda is also consistent with this view. Having more skilled workers electing to stay in Canada and achieving a higher quality of life are considered the best indicators.

Thus in both philosophical debates and public opinion, support for productivity as a social priority is conditioned by an insistence that the larger goal is quality of life rather than a narrow conception of our standard of living defined in purely economic terms, and that a policy agenda focusing on increasing productivity should not come at the expense of other priorities.

Implications for the Public and Voluntary Sectors

The chapter by Janice Gross Stein also cautions against the dangers of adopting a narrow conception of productivity and efficiency. Building on her analysis in *The Cult of Efficiency* (2001), she argues that the language of efficiency, understood narrowly as cost-effectiveness, confronts distinctive problems when transferred from the private sector to the public and voluntary sectors. The efficiency or productivity of a public service is determined by measuring the value or utility that it creates. However, such measurements are much more difficult than those carried out in the private sector, where the feedback provided by the market provides a continuous measure of value. As a result, demands for efficiency or productivity in public services have tended to be translated into simple exercises in cost-containment and a determination to deliver public services at the lowest possible cost.

Stein contends that the collapse of the language of efficiency into mere cost-containment has actually undermined the effectiveness and productivity of the public and voluntary sectors. She illustrates the perverse results along three dimensions: the inability to provide for unexpected contingencies, cuts in investment in research and development, and the problems in maintaining full accountability.

The private sector, Stein insists, understands that redundant capacity is essential in an

uncertain world. She observes that on 11 September 2001 most of the firms housed in the World Trade Center were operational again within a few hours because they had built redundancy into their operations, not only backing up their data systems but also providing for alternative command-and-control capacities. Such redundancy is normally understood as excess or unproductive capacity, but firms in the private sector have been willing to back up their essential systems to cope with emergencies, breakdowns and unanticipated needs. The public sector, she argues, is not allowed this luxury. With the exception of security and defence, redundant capacity is seen as "inefficient," leaving our emergency services, health systems, environmental protection programs and other essential services ill-equipped to respond effectively to the unexpected.

A similar pattern appears in research and development. The private sector invests in research and development and does not insist that R&D divisions be productive within short time horizons. The drive for "efficiency," however, leaves little tolerance for similar investments in the public and voluntary sectors. During the cost-containment drives in the public sector during the 1980s and 1990s, research advisory bodies were closed, and policy units within departments shrank in size. Many leaders within the public service at the federal and provincial levels worry about the policy capacity of the organizations they lead. Stein sees even stronger constraints in the voluntary sector. In the era of downsizing and alternative service delivery, the voluntary sector is expected to deliver a wider range of important public services with limited resources. But the voluntary sector is not financed to conduct the serious research and evaluation required to constantly refine and improve the services it provides.

Finally, Stein argues that the concepts of efficiency and productivity, as they have been applied to the public and voluntary sectors, do not give sufficient scope to the multiple forms of accountability expected of those sectors. In addition to accountability "upward" to elected representatives in the case of the public sector and to funding agencies in the case of the voluntary sector, Stein argues that public and voluntary organizations also have accountabilities "outward" to clients, stakeholders and the wider community. Pressures for greater accountability in the name of efficiency and cost-containment have tightened accountability upward, reducing the operating flexibility needed for accountability outward in daily program activities. As a result, it has compromised this wider social responsibility of public and voluntary organizations, weakening their roots in the community and eroding the public's trust in them.

SOCIAL POLICY, INEQUALITY AND PRODUCTIVITY

The question of whether productivity growth is a social priority raises the related question of whether there is an implicit tradeoff between economic growth and social well-being. Establishing the relative priority of different goals is especially important if the tradeoffs are harsh, if more of one requires deep sacrifices of another valued goal. But is this the situation we face? Is there a sharp tradeoff between productivity growth and social policy objectives? Or could there actually be a positive relationship between these two agendas? The two chapters in this section tackle these questions from different perspectives.

In the first chapter in this section, Richard Harris surveys recent challenges to

the traditional view that there is an inherent conflict between economic efficiency and social equality, a view neatly summarized in the title of Okun's famous book, *Equality and Efficiency: The Big Tradeoff* (1975). This view gained renewed currency in the policy debates of the 1990s, as commentators contrasted the economic performance of Europe and the United States in that decade. The European record was one of slow economic growth, particularly of employment, a pattern many commentators dubbed "Eurosclerosis" and blamed on the welfare state. In contrast, the United States was recording a major surge in employment and strong productivity growth, which was widely heralded as the advent of a new economy — indeed a third industrial revolution — rooted in innovation in the information, communications and telecommunications fields. This growth was preceded by a significant rise in inequality in the United States, leading many to infer that higher levels of inequality seemed to contribute to growth.

More recently, however, this traditional view has been challenged both by cross-national empirical studies and by theoretical advances. This recent research seems to suggest that there is no efficiency-equity tradeoff and that social policy and greater equality may actually contribute to higher productivity growth. Richard Harris surveys two streams of recent research that point in this direction. In the early 1990s a number of researchers analyzed cross-sectional and time-series data for both developing and developed countries, and identified a robust negative correlation between measures of income inequality and economic growth. This evidence would seem to suggest that greater equality can actually contribute to stronger economic growth. However, the majority of these studies involved samples dominated by developing countries. When attention is focused on OECD countries alone, the evidence is far from conclusive. Indeed, Harris concludes that the empirical case for a link running from greater income equality to higher economic growth for high-income countries is "at best statistically fragile and at worst insignificant." But he also cautions that there is no significant evidence for the traditional idea of a tradeoff between equality and growth.

The chapter also examines new theoretical literature, especially the new endogenous growth theory, which suggests that increases in inequality can hurt growth. However, Harris concludes that the theoretical literature is too diverse and too susceptible to changes in assumptions and parameters to form the basis for reliable policy formulation without empirical validation. And that validation, as we have seen, is not available, at least not yet.

Harris then narrows his focus to the direct relationship between social policy and growth, without reference to an intervening effect on social inequality. After all, many social programs are not designed primarily to alter the level of inequality in a society, but nonetheless may have an impact on productivity. Here the evidence seems more persuasive. While there is some evidence that high overall levels of government spending on social programs may reduce growth, much stronger results are found when social spending is disaggregated into different functions. Initial findings suggest that passive social spending, such as traditional income-support programs, is prejudicial to growth but that active social spending, such as expenditures on training and labour market adjustment, promote growth. Moreover, education stands in a class by itself. As Sweetman does in his chapter on human capital, Harris points to

considerable evidence that increasing education has a substantial effect on productivity and that much of Canada's economic growth can be attributed to Canadians' high levels of educational attainment. While the evidence for health expenditures is less strong, Harris concludes that the productivity case for improving human capital is compelling.

At the broadest level, then, Harris concludes that the general case for linking social policy and inequality to productivity remains unproven. The productivity case for active social spending and for improving human capital is clear, but more research is needed before a wider claim can be established.

The second chapter in this section, that by William Watson, also engages these themes. Watson challenges Joseph Heath's interpretation of the benefits of productivity growth, but agrees with Richard Harris's views on the state of our knowledge about the potential contribution of social programs to productivity growth.

Watson tackles Heath's assessment of the social benefits of productivity growth directly, starting with the issues of social inequality and poverty. He argues that there has been no flagging in redistributive effort in Canada. Although market incomes have become more unequal, the tax-and-transfer system has continued to offset the impact, with the result that the post-tax/transfer distribution of income has, in his words, "remained almost eerily constant," at least through 1997. In the case of poverty, Watson counters Heath's focus on the last 25 years with an appeal to the long view of human history, which demonstrates that productivity increases have dramatically reduced poverty in Canada and throughout the Western world. Watson is less direct in his critique of Heath's focus on consumer satisfaction or happiness, but argues that citizen choice may reveal an underlying preference for income over leisure. Moreover, he challenges what he sees as Heath's preference for enhancing public expenditures, emphasizing the scope for government failures and the possibility that higher tax rates in the contemporary period have increased the marginal cost of public funds.

Even if one were able to resolve the question of the appropriate balance between the public and private sectors, Watson believes that the case for higher productivity would remain compelling. In his words, it is "hard to understand how getting more 'stuff' for a given effort would be wasteful." He therefore turns to the issue of the determinants of productivity growth and the role that social programs might play in enhancing it. Here, Watson remains a sceptic. Drawing on Hayek, he argues that societies are extremely complex phenomena, and that we simply do not know enough to advance confident policy prescriptions about the role of social policy in enhancing productivity. Even if we did succeed in analyzing the relationships between social policy and growth in the past, we cannot be sure that the drivers in the past will be the drivers in the future. In addition, Watson remains concerned about the problems he sees as inherent in public action: the possibility of government failure, the possibility of duplicating private action and the marginal cost of public funds.

In the absence of powerful analytical guidance, Watson concludes, reform of social policy will inevitably be guided primarily by intuition, politics and hunches. In these circumstances, he counsels modesty in aspirations. Social policy changes should be made at the margin, in small steps, program by program.

Within that overall approach, Watson's personal intuitions and hunches call for more competition in health care and education, more support for women who wish to take time off to raise their young children, and continued awareness that — whatever the broad relationship between social policy and growth — poor design in individual welfare programs can have harmful effects on productivity.

The broad conclusions emerging from the papers in this section actually increase the challenges facing policy-makers. The old mythology that there is an inevitable tradeoff between efficiency and equality must be set aside. But new ideas suggesting that inequality is harmful for economic growth as yet lack compelling empirical support. As a result, the policy-maker must make do without convenient intellectual crutches, and the implications of social programs for productivity must be assessed on a case-by-case basis. As often is the case, research has increased, rather than decreased, the analytical complexity facing governments.

THE RELATIONSHIP BETWEEN PRODUCTIVITY AND SOCIAL PROGRESS: KEY THEMES

Standing back from the detailed analyses presented in the various chapters brings into focus a number of larger themes that run through the volume as a whole. Three major implications leap out from the pages: the two-way nature of the relationship between productivity and social progress, the long-term and largely indirect nature of the role of public policy in enhancing productivity, and need to broaden the debate over productivity in Canada.

A Two-Way Relationship

The two-way or reciprocal relationship between productivity and social progress is the central theme of the volume. Both sides of this relationship are relevant to social progress. Looking at the first linkage, productivity increases the amount of material wealth that a given hour of labour can produce. However, too often advocates of a productivity agenda highlight only its importance for our material standard of living, giving such an agenda an unnecessarily narrow political appeal. The additional wealth created by productivity growth can be taken in different forms: private consumption, enhanced social programs, lower taxes, more leisure time, or some combination of all four of these. In effect, productivity growth provides more opportunity for society.

Greater productivity is not a necessary condition for social progress; indeed, we could choose to devote a larger proportion of our existing income to social purposes if we wished; and certainly greater productivity does not guarantee greater social well-being, as Joseph Heath correctly emphasizes. What paths are taken depend on social and political choices. In the real world of politics, however, productivity growth does expand the choices open to society, and reduces the apparently zero-sum nature of choices inherent in a weak economy. It is no accident that the welfare state expanded greatly during the golden years of capitalism following the Second World War. There is a social as well as an economic case to be made for productivity growth, and it is unfortunate that the advocates of a productivity agenda tend to cast it in such narrow terms.

These realities should inform assessments of the performance of different countries around the world. Much has been made of the contrast

between the economic performance of the United States and that of Europe in the last decade. Clearly, the link between productivity and living standards, in terms of both levels and growth rates, is crucial. Countries with high levels of output per hour tend to have high levels of income, as measured by GDP per capita, and countries with rapid labour productivity growth tend to have fast GDP per capita growth. But as the data presented in the van Ark paper show, certain European countries have very high levels of output per hour but relatively low levels of income. This is because average annual hours worked and/or labour force participation are low. The working-age population in these countries thus enjoys greater leisure but less income than would be the case if they worked longer and had higher labour force participation. It is misleading to characterize these countries as having a lower standard of living than countries with comparable productivity levels and higher income levels, when a conscious choice is made to use productivity gains for additional leisure instead of income. Indeed, a broadly defined measure of living standards or economic well-being would include leisure as well as income. This inclusion of leisure, as well as income, in the measurement of living standards thus more fully defines and tightens the link between productivity and living standards. Productivity growth increases the production possibility frontier of society, allowing both greater income and greater leisure. Societies make different choices about which combination of these two variables they prefer.

Gaining a socially aware understanding of the role of productivity growth will be especially important in the years to come. While labour productivity was the main source of advances in living standards in Canada through the 20th century, other factors were also important, including increases in the relative size of the working-age component of the population and increased female labour force participation. These trends have by now largely run their course. As noted by a number of contributors, with the retirements of the baby boom cohorts and the attainment of high levels of female labour force participation, the contribution of these factors to further increases in living standards will be considerably smaller in the future. Consequently, productivity growth will become even more important, in a relative sense, for the advancement of living standards.

Productivity advance is also an essential element of any strategy to ensure the sustainability of natural resources and the environment. While environmental sustainability is high on the public agenda, there appears to be limited public awareness of the positive role that productivity can play. The paper by Nancy Olewiler in this volume sheds new light on the contribution that productivity growth and technical progress — the two go hand in hand — can make to sustainability. Technological progress can help improve the functioning of eco-systems through the production of more energy-efficient producer and consumer goods and the development of products that do less damage to the environment.

A socially aware understanding of productivity must also incorporate the reciprocal nature of the relationship. Productivity growth is influenced by social factors that are the manifestations of the social progress of a society. Higher levels of educational attainment of the workforce enhance productivity growth. Better health makes workers more productive. Stronger communications flows across diverse groups in modern multicultural societies promote learning

from others and lead to improved productivity. The role of education is fundamental here. Indeed, several chapters in the volume highlight the essential role that education has played and will continue to play in productivity and real income growth. At the level of both the individual and society, high levels of educational attainment are associated with high productivity and high incomes, while low levels have the opposite effect. Indeed, it is impossible to imagine a productive 21st-century economy and society that does not have a highly literate and numerate workforce. Because of the externalities associated with education and training, public policy has an important role to play in fostering human capital development. This perspective also applies to health. It is a well-known fact that improvements in population health have also contributed significantly to increased productivity and living standards over time. However, the productivity effects of health go well beyond those associated with increased life expectancy. We are only now beginning to understand the multifaceted nature of the factors that influence the health of the labour force and of the population as a whole.

In addition to highlighting the positive role of human capital, it is important to clear away traditional mythologies that do not stand up to close scrutiny. The belief that there is an inevitable tradeoff between efficiency and equality has long been an influential assumption underlying policy debates in Canada and many other Western nations. This hardy perennial has been seriously undermined by new research. To be sure, the more recent argument that greater equality and social spending actually contribute to productivity growth also seems to lack convincing support, at least in the case of advanced economies. But in the real world of public policy, debunking the assumption of an implicit tradeoff represents a significant corrective to the intuitions and hunches that shape choices. The need to assess social programs on a case-by-case basis, without the aid of such default positions, may raise the complexities confronting policy-makers. But clearing away unsupported intuitions is a healthy contribution to the policy process.

It is time to end the political posturing between the advocates of productivity growth and the defenders of social well-being. Doing so requires accommodations on both sides. Advocates of the productivity agenda need to broaden their focus by highlighting the ways in which productivity can enhance social Canada and recognizing the contribution of social well-being to future productivity. But defenders of social Canada need to incorporate productivity into the causes they hold dear. Productivity growth does not automatically fulfil collective aspirations, but it increases the choices available to society and reduces the zero-sum nature of alternatives facing government decision-makers.

The Long-Term and Indirect Role of Public Policy

The primary drivers of labour productivity growth are to be found in the accumulation of physical and human capital and technological progress, and both of these drivers have their own dynamic that is affected by public policy only in the long term. Appropriate government framework policies such as the rule of law are a prerequisite for economic and productivity growth. Long-term investments in human capital, as represented by education and health care, are important. In the short term, specific economic policies such as corporate tax rates and R&D subsidies can affect productivity

growth, and poor macroeconomic policies can have detrimental effects.

But government seems to have much less power on the upside to increase long-run productivity growth beyond the trend productivity determined by the underlying technological progress. For example, a recent study by David Card and Richard Freeman (2002) of the impact of the Thatcher reforms on British productivity growth illustrates this point. They found that the overall impact on aggregate labour productivity growth of these sweeping economic reforms (including laws that weakened the coverage and power of trade unions, privatized nationalized industries, and created incentives for self-employment and share ownership) was 0.35 percentage points per year. While the cumulative effects of 0.35 percentage points per year should not be dismissed, the economic legacy of the Thatcher era is a lesson in humility for ambitious political reformers.

Another example of the overselling of the positive productivity effects of public policy is the structural reforms instituted by the Canadian government in the second half of the 1980s and the early 1990s. A key rationale for the implementation of the Canada-US Free Trade Agreement, the introduction of the GST, the privatization of Crown corporations, deregulation, tax reform and other structural measures was that these policies would foster productivity growth. While certain of these policies may have had some positive impact, the overall effect seems not particularly large. Productivity growth in the Canadian economy did not pick up after these reforms were implemented.

Trend output per-hour growth in Canada is projected to be around 2 percent per year over the next decade based on technological advances. It is doubtful that government policies aimed at increasing productivity growth could improve productivity growth dramatically above this trend line. Trend productivity growth is still largely determined by technological change, which takes place outside Canada, and by the investment behaviour of Canadian business.

Finally, determining which public policies and programs should be defined as productivity-related can be difficult. Indeed, many government policies and programs that are not motivated by productivity concerns can have positive (and negative) effects on productivity. A good example is the NASA program in the United States, which was initially set up to put a man on the moon by 1970, an initiative motivated by the Cold War and the desire of the Americans to beat the Russians in the space race. This program led to massive R&D, and much of this public research effort produced important technological spinoffs that improved productivity in the private sector, an unintended consequence. Another example is the construction of divided highways motivated by public concerns over road safety. The construction of these new highways in turn fosters productivity growth by reducing transportation costs and stimulating economic development in general.

All of this suggests that the role of public policy is long-term and indirect, more akin to the patient investor than the day trader.

Broadening the Productivity Debate: From Standard of Living to Quality of Life

The attitudes of Canadians towards productivity appear to be surprisingly positive, an elemental reality that should not be ignored. According to survey results reported by Frank Graves and Richard Jenkins,

Canadians recognize the importance of productivity but prefer to link productivity to quality-of-life issues than to narrower economic concerns. Thus support for productivity as a societal priority is conditioned by an insistence that the larger goal is a better quality of life rather than simply a raised economic standard of living, and that a policy agenda focused on increasing the productivity of the Canadian economy should not come at the expense of other priorities. Governments would be well advised to take this observation into account in developing policies that relate to productivity growth and in promoting any productivity or innovation agenda.

Despite the importance of productivity growth for improvements in economic well-being, productivity is not a panacea for society's problems, and should not be oversold. Productivity gains and the resulting higher incomes alone will not solve social problems such as poverty, pollution and crime. But they do widen the choices open to Canadians, by increasing the public and private resources that can be allocated to address these issues.

CONCLUSION

In the end, our plea is for a social understanding of productivity. Productivity does not simply enhance our material standard of living; it also expands the range of choices available to Canadians. Enhanced productivity will not automatically increase the social well-being of Canadians, but it will reduce the apparently zero-sum nature of many of the decisions that we face today, and make it easier to achieve the economic and social goals that have defined Canada as a distinctive society on the northern half of the North American continent.

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