

Tax Cuts: The Implications for Growth and Productivity

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ABSTRACT

In current public debates over the allocation of budget surpluses, advocates of tax cuts typically emphasize a large economic efficiency payoff in the form of higher rates of long-term economic growth, while social advocates emphasize equity concerns. This paper reviews the mainstream economic and econometric literature on the relation between taxes and growth, and pays particular attention to recent work by the Organisation for Economic Co-operation and Development (OECD) and the International Monetary Fund. The paper argues that the alleged negative microeconomic impacts of taxes on work effort, savings, and investment are not always well founded theoretically and that, even where such linkages are plausible, the impacts on long-term growth rates are modest. Furthermore, the mainstream literature indicates that public investment and social expenditures financed from taxes have positive impacts on growth, which suggests that any efficiency losses associated with such spending may be more than counterbalanced by efficiency and not just equity gains.

The paper shows that there is no significant statistical relationship between overall tax levels as a share of gross domestic product (GDP) and growth rates of per capita GDP or productivity for OECD countries in the 1990s, which implies that tax levels are neutral in efficiency terms. In contrast, higher tax levels are associated, as expected, with lower levels of after-tax household income inequality.

The paper concludes that in the choice of a combination of tax and spending measures as a share of GDP the supposed tradeoff between efficiency and equity does not exist; that the economic efficiency case for tax cuts is exaggerated; and that the debate over the roles of tax and spending measures in a long-term economic growth strategy needs to be more balanced.

INTRODUCTION

The current debate over the allocation of future federal budget surpluses to tax and/or spending measures has become highly polarized, not least in terms of the

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typical media presentation of the issues. It would be easy to gain the impression that the only debate is between those primarily concerned with equity and distributional issues, who emphasize the need for more social spending, and those primarily concerned with growth and productivity issues, who emphasize the need for tax cuts. However, casting the debate as one between achieving equity through spending, on the one hand, and achieving efficiency through tax cuts, on the other, rests on assumptions that tax cuts are the best path to economic growth, and that increased public investment would be at the expense of future economic performance. The central argument advanced in this paper is that tax cuts are, at best, a weak instrument for promoting growth and higher productivity, and that there is good reason to believe that well-targeted public investment would actually enhance growth more than across-the-board tax cuts.

Social advocates rightly emphasize the need for increased social spending on programs and transfers, with particular attention to issues such as growing child poverty, growing family income inequality and social exclusion, and homelessness. As they point out, the federal deficit was eliminated mainly through cuts to federal program spending rather than through hikes in federal taxes as a share of gross domestic product (GDP). Federal program spending is projected by the Department of Finance to fall from 16.0 percent of GDP in 1993-94 to 12.0 percent in 2000-1, during which period federal tax revenues are projected to rise from 14.8 percent to 16.2 percent of GDP. The burden of a slow growth/high unemployment economy, cuts to income transfers as a result of employment insurance (EI) program changes and reduced transfers to the provinces for social assistance, and even of rising income taxes, fell disproportionately on lower-income households. Between 1993 and 1997, the real family income after tax of most Canadians remained basically flat, but it fell for the poorest 20 percent (by 2.1 percent) and rose (by 1.5 percent) for the top 20 percent.¹ The central argument of social advocates is that, with surpluses now at hand, justice demands that priority be given to restoring the damage caused by past cuts, and to increasing public provision to meet new needs.

For their part, business organizations typically emphasize the need for continuing debt reduction and the allocation of additional surpluses to tax cuts. Both the Business Council on National Issues (BCNI) and the Canadian Chamber of Commerce argued in their 1999 submissions to the House of Commons Standing Committee on Finance that federal program spending should rise only in line with population growth and inflation, while personal income taxes should be cut, particularly for high- and middle-income earners. They have also said that a start should be made on corporate tax cuts. Specifically, the BCNI has called for elimination of the 5 percent high-income surtax, a reduction from 75

1 Statistics Canada, *Income After Tax Distributions by Size in Canada*, 1997, catalogue no. 13-210-XPB.

percent to 66.7 percent in the rate at which capital gains income is included in taxable personal income, a cut in the middle federal tax rate from 26 percent to 25 percent, \$2,000 and \$4,000 increases respectively in the middle and top income tax rate, and 1 percentage point cuts to the general corporate tax rate and the corporate surtax.² Roughly \$3.5 billion in personal income tax cuts is proposed, and \$0.5 billion in corporate tax cuts (expressed as forgone federal revenues only). It is notable that the BCNI income tax proposals would provide no relief at all to those in the bottom tax bracket, and would provide maximum benefits to those in the top tax bracket and earning significant amounts of taxable capital gains income (40 percent of which goes to individual taxpayers with more than \$150,000 in pre-tax income). Taxpayers earning more than \$250,000 per year—0.4 percent of all taxpayers—would get an average personal income tax cut of almost \$11,000 under this set of proposals.³

Few people would dispute the proposition that social spending in the form of income transfers combined with a progressive income tax system militates against poverty and market income inequality. In Canada in the 1980s and 1990s until 1992, the combined impacts of the tax-transfer system completely offset the increasingly unequal distribution of market income, resulting in no increase in inequality in after-tax family incomes, and generally stable after-tax poverty rates. However, as noted, the evidence shows that the deep spending cuts since the Liberals took power in 1993 have worsened income inequality and contributed to disturbing poverty trends, particularly for families with children, largely because lower-income groups rely more heavily on transfers.⁴ Few would seriously question the proposition that the quality of public services that are valued by the great majority of citizens—notably, health and education—has declined as federal program spending has been cut.

In this context, the only morally defensible case for tax cuts for higher-income earners is that the higher growth, stimulated by cuts, would ultimately assist in resolving these social problems. The argument that even regressive tax measures are preferable to redistributive spending measures because they will lead to faster growth of personal incomes and of national income and thus “expand the size of the pie” was, indeed, explicitly used by BCNI president Tom D’Aquino before the Parliamentary Committee on November 25. Obviously, business interests would not get far in the public debate if they simply argued that the already affluent and profitable corporations should get even more money for themselves, while poor people and insecure and average Canadians sit on the sidelines.

2 Business Council on National Issues, Memorandum for the Right Honourable Jean Chrétien, “Mediocrity Versus Excellence: The Choice Facing Canada,” September 15, 1999.

3 Author’s calculations, based on Revenue Canada personal income tax data.

4 Armine Yalnizyan, *The Growing Gap Report* (Toronto: Centre for Social Justice, 1998).

Many economists, of course, argue that tax cuts should be given priority in the allocation of the federal surplus because of their contribution to growth and efficiency. However, the central argument of this paper is that the economic efficiency case for tax cuts, both in its own right and as opposed to the alternative of increased public investment, is not well founded and, indeed, is advanced quite tentatively even by organizations such as the Organisation for Economic Co-operation and Development (OECD) and the International Monetary Fund (IMF), which generally support “free market” solutions. Since there is a vast literature on the economic impacts of various forms of taxes, the focus here is on the very general question: Would tax cuts make a significant contribution to future economic growth when compared with the alternative of increased public investment? (The argument in favour of public investment does not mean that selected tax changes could not improve economic efficiency any more than it means that all public investment is highly productive.)

MACROECONOMIC IMPACTS OF TAX CUTS AND SPENDING

In narrowly Keynesian, national income accounting terms, the economic case for growth through tax cuts is quite weak. Table 1 presents some results from the Informetrica macroeconomic model (TIM) that show, in common with most other such models, that the immediate positive impacts of public spending increases on GDP growth are typically much stronger than tax cuts, with corporate tax cuts having particularly weak impacts on growth. For example, federal spending on health and schools has double the immediate impact on GDP and an even greater impact on employment than a general personal tax cut, and an equal impact in the fifth year. Other models might differ in detail but not in terms of the basic direction of the impact. Increases in government spending tend to have an initially larger impact on GDP growth because the money spent is directly injected into the economy through increased transfers or wages or purchases from the business sector, while tax cut injections are likely to suffer from higher “leakages” from the spending stream. Some part of a personal income tax cut will be saved rather than spent, depending on the recipients’ marginal propensity to consume or save. Tax cuts to the more affluent are more likely to be saved, at least in part, while increases in transfers are more likely to be spent because the average income level of recipients is likely to be lower. (That said, targeted tax cuts and transfer increases may have the same impact.) Furthermore, public spending on services (for example, education, health, and basic public services) tends to have a high labour content and a relatively high Canadian content in terms of purchased inputs. In contrast, private consumption spending, particularly on goods, is more heavily tilted toward imports. It follows from the impact on trade that the stimulus to national income from personal tax cuts is likely to be lower than that of higher public spending. The link between increased corporate profits through a corporate tax cut and increased real corporate investment is particularly problematic because extra profit may just be retained in the corporation or distributed as dividends.

Table 1 Canadian Macroeconomic Effects of Fiscal, Monetary, and Other Impacts

	Year 1			Year 2			Year 5		
	GDP (%)	Jobs (000s)	Cost/job (\$000s)	GDP (%)	Jobs (000s)	Cost/job (\$000s)	GDP (%)	Jobs (000s)	Cost/job (\$000s)
Spending increases, \$1 billion									
Additions to federal employment	0.14	3e + 26	18.1	0.14	2.51e + 28	18.1	0.08	2e + 28	29.5
Employee compensation increase	0.04		189.3	0.06		189.3	0.05		87.1
Spending on goods and services	0.15		41.2	0.15		41.2	0.09		41.5
Defence spending	0.07		71.3	0.07		71.3	0.03		78.5
Infrastructure spending	0.14		44.0	0.14		44.0	0.08		50.2
Spending on machinery	0.13		50.9	0.12		50.9	0.10		70.7
Spending on health	0.14		16.1	0.13		16.1	0.06		35.0
Spending on schools	0.14		21.7	0.13		21.7	0.08		30.1
Transfers, \$1 billion									
To persons, general	0.07		97.2	0.09		97.2	0.07		48.4
To persons, day care	0.13		8.3	0.11		8.3	0.02		9.2
Foreign aid (ODA)	0.08		58.6	0.08		58.6	0.04		63.6
Tax changes, \$1 billion									
General personal tax cut	0.07		96.1	0.09		96.1	0.07		48.5
Corporate tax cut	0.04		95.3	0.02		95.3	0.01		587.4
EI contribution rate cut	0.07		76.2	0.09		76.2	0.06		54.4
GST tax rate cut	0.09		69.5	0.12		69.5	0.11		36.2

Source: Informetrica Ltd.

TAX CUTS AND ECONOMIC EFFICIENCY

The more powerful economic argument for tax cuts is that they will boost longer-term or potential economic growth through increased productivity. The argument rests on the core “free market” or neoclassical economic proposition that taxes “distort” market signals, and that efficiency losses rise in line with the general tax level as a proportion of GDP, particularly if the tax burden is heavily tilted toward the most “distortionary” forms of tax. Most current advocates of tax cuts, whether personal or corporate, implicitly or explicitly argue that a lower level of taxation will boost longer-term economic growth by creating a more competitive, dynamic, and efficient economy. The “new” or “endogenous” growth theories place particular emphasis on the dynamic impacts on growth of capital investment and investment in research and in knowledge and skills. New technology and new techniques as embodied in new investment may boost productivity and potential growth well beyond the one-time impacts of a simple increase in the capital-output ratio. However, the new growth theories also tend to emphasize the importance of public and not just private investment, leaving unanswered the question of the relative impacts of tax and public spending changes. A key insight of the new growth theories is that high levels of public investment in infrastructure, research, and education are needed to fuel long-term productivity growth.

On close examination, current economic research provides, at best, very thin and mixed support for the large dynamic efficiency impacts from general tax reductions that are routinely claimed by tax cut advocates. Before reviewing some of this research, let me summarize the theoretical basis for significant assumed impacts.

With respect to the taxation of labour income (through personal income taxes and social security contributions, which create a “tax wedge” between the total wage costs of the employer and the takehome pay of workers), one argument is that higher average and marginal rates reduce the willingness of workers to supply more labour. Thus, higher taxes allegedly result in workers being less prepared to work long hours or overtime, or even to invest in the skills needed to get higher-paying jobs. Conversely, however, it can be argued that higher average and marginal tax rates on labour income increase the willingness of workers to work longer hours, since they need to work those additional hours to get the same or more after-tax income.

With respect to the taxation of capital income, the basic argument is that increased taxation of property income in the hands of individuals (for example, dividends, capital gains, or interest) leads people to save less. Again, however, it can be just as plausibly argued that lower after-tax returns from savings lead people to save more in order to reach the same savings target. In either case, it is assumed in neoclassical theory that the level of savings, as changed by the structure of taxes, feeds through into real investment. Other economists argue that it is investment that largely causes savings, rather than the other way around. As a matter of accounting identity, national savings are equal to investment in a

closed economy, but there is evidence that causality works in both directions, with higher levels of investment leading to the higher national income, which generates higher levels of savings.⁵

With respect to the taxation of corporate income, the basic argument is that high average and marginal rates raise the cost of capital to companies, and thus reduce real investment in plant and equipment, research and development, and so on, which in turn reduces the long-term rate of economic growth. In open economies, impacts on the cost of capital and returns to investment also have impacts on capital flows between countries.

TAXATION OF PERSONAL INCOME

When it comes to the taxation of labour income, national and comparative cross-national research, as recently summarized by the OECD in a major 1997 survey of the literature, *Taxation and Economic Performance*,⁶ shows that there is little or no impact from higher taxes on wages on the willingness of (predominantly male) primary income earners to work. An IMF survey of the literature has similarly found that “although studies do not all agree on whether the uncompensated wage elasticity of men is positive or negative (i.e., on whether men increase or decrease their hours worked in response to an increase in their wages), the majority of studies agree that whatever the sign of the elasticity, its absolute value is small.”⁷ This is hardly surprising, given that paid work is the source of income for the vast majority of working-age adults, and that any tradeoff between income and leisure is theoretical for most workers. However, some studies do indicate that the labour force participation rate of secondary earners (predominantly married women) may be affected by the tax rate on earned income.

In the case of Canada, research has shown that the demand of Canadian men for work is highly unresponsive to the level of wages, and that this has become increasingly true of women as well. Only women from high-income families reduce their hours of work in response to lower wages.⁸ In the high unemployment economy Canada has endured for the past 25 years and more, the great

5 For an extended discussion of the issues, see Robert Pollin, ed., *The Macroeconomics of Saving, Finance, and Investment* (Ann Arbor, Mich.: University of Michigan Press, 1997).

6 Willi Leibfritz, John Thornton, and Alexandra Bibbee, *Taxation and Economic Performance*, OECD Economics Department Working Paper no. 176, OCDE/GD(97)107 (Paris: OECD, 1997) (available on the Web at www.oecd.org/).

7 Philip Gerson, *The Impact of Fiscal Policy Variables on Output Growth*, IMF Working Paper WP/98/1 (Washington, DC: International Monetary Fund, 1998), 33 (available on the Web at www.imf.org/).

8 Shelley A. Phipps, “Does Unemployment Insurance Increase Unemployment?” (Spring 1993), 1 *Canadian Business Economics* 37-50, at 38.

majority of working families have relied heavily on two earned incomes to maintain total household incomes, and there is no strong evidence to support any alleged disincentive effects of taxes on the willingness of workers to work. It can indeed be noted that, in the 1990s, full-time employed workers, both men and women, were working longer hours rather than reducing hours in response to increased personal and payroll taxes, and that higher-paid workers such as managers and professionals tended to work the longest hours.⁹ Furthermore, even if workers at high levels of income were, in response to tax and other factors, inclined to work less, this would have positive effects on total employment and welfare in a context of continuing high unemployment and considerable underemployment in jobs (part time, temporary, seasonal) that do not offer desired hours or (as in the case of much own-account self-employment) provide low incomes.

It has been argued that a progressive income tax rate structure creates disincentives to workers taking higher-paying but more stressful jobs, or upgrading their education and skills. However, recent analyses of the Canadian labour market show that job vacancies are very few and far between, and that unemployment due to a mismatch between the skills of the unemployed and job requirements is very rare. Osberg and Lin estimate that no more than 1 percentage point of Canadian unemployment is due to skills mismatches,¹⁰ and a recent study published by the Department of Human Resources Development¹¹ argues that there is little evidence of a significant skills gap in Canada. Even in those rare cases where job vacancies do exist because of a lack of qualified applicants, it is hardly clear that progressive or high marginal tax rates have played a causal role, as opposed to prior private or public underinvestment in education and training. Common sense seems to suggest that the vast majority of people are prepared to invest in education and skills and in career paths in order to access better paid and more rewarding jobs, even if higher-paying jobs come at the price of a higher marginal and average personal income tax rate. It is notable that the participation rate of Canadians in post-secondary education is now higher than that of Americans, despite any supposed tax disincentives.

It has, of course, been argued that taxes play a role in creating skill shortages by generating a “brain drain” from Canada to the United States. But the “brain drain” story rests on anecdotes that have found no support in the aggregate data

9 Statistics Canada, *Labour Force Update: Hours of Work*, Summer 1997, catalogue no. 71-005-XPB.

10 Lars Osberg and Zhengxi Lin, “How Much of Canada’s Unemployment Is Structural?”, paper presented to the Centre for the Study of Living Standards Conference on Structural Aspects of Unemployment in Canada, Ottawa, April 22-23, 1999 (available on the Web at www.csls.ca/).

11 Yves Gingras and Richard Roy, *Is There a Skill Gap in Canada?* (Ottawa: Human Resources Development Canada, Applied Research Branch, October 1998).

to date. Data from the US Current Population Survey, recently compiled and analyzed by Helliwell for Industry Canada,¹² show that there was no increase at all in Canadian emigration to the United States in the 1990s to 1997, and that the number of Canadians living in the United States in 1997 was a 20th-century record low of less than 2 percent of the Canadian population. This annual US survey, based on a reliable sample of all US households, provides data on the number of Canadians resident in the United States for any reason, and is the single most accurate source of information. (Data on the growing number of temporary work permits issued by the US government have been used by the Conference Board of Canada and others as evidence of a “brain drain.” However, the apparent growth of temporary permits is highly misleading, since the number of permits awarded includes multiple entries by the same person over a year, and since a recent tightening of US immigration requirements has led to business visitors from Canada having to obtain a permit where none was required before. Furthermore, many of those who enter the United States on temporary permits stay for only a few days.)

Statistics Canada data cited in recent speeches by the chief statistician of Canada clearly show that immigration to Canada greatly exceeds emigration from Canada, and that the balance has moved sharply in Canada’s favour over time. In the 1990s, emigration from Canada has amounted to only about 20 percent of immigration to Canada. While some have attempted to argue that the “quality” of emigrants is higher than that of immigrants, the data show that a large proportion of immigrants are university educated, and that Canada imports about four university graduates for every one who leaves. There is, at worst, a rough balance in the numbers of still more highly qualified immigrants and emigrants such as those holding PhDs. Helliwell argues convincingly that the small flow of highly skilled Canadians to the United States is not primarily explained by taxes at all, but rather by a relative lack of jobs and opportunities in Canada (for example, for nurses, academics, scientific researchers, and other professions affected by recent cuts and by high unemployment). As he notes, it is hardly surprising that some Canadians in highly specialized fields would choose to work in the United States for at least a few years in order to accumulate experience, and the real surprise is why the number of emigrants did not grow faster in the 1990s given much higher Canadian unemployment. This general analysis was borne out by Statistics Canada’s recent survey of 1995 Canadian university graduates. A mere 1.5 percent of graduates moved to the United States in the two years following graduation, and one in five of those who left were nurses (who would have been unable to find jobs in Canada because of cuts). One in four of those who left did so to pursue higher education

12 John F. Helliwell, “Checking the Brain Drain: Evidence and Implications” (September 1999), 20 *Policy Options* 6-17.

in the United States, and many will likely return to Canada. The survey found that one in five who left returned to Canada, and that very few of those who left cited taxes as a reason.

Another alleged route from personal taxes to lower growth is through a direct impact on the wage costs of employers. It has been argued by the OECD in the influential Jobs Study and other studies that taxes on labour will reduce employment if these taxes are passed on to employers in “inflexible” labour markets. In this argument, relatively high unemployment in many continental European countries is explained by high payroll taxes, which drive up wage costs and thus cost jobs. The argument that higher wage costs lead to higher unemployment is questionable, but even if it is true, any negative impact on growth will take place only to the extent that employers do not merely substitute capital investment for labour. The evidence does show that capital-labour ratios (and thus labour productivity) tend to be higher in countries that tax labour relatively heavily. If there is an argument, then, it is about the impact of payroll taxes on employment rather than on growth. Even in this context, it should be noted that some smaller European countries with relatively high wages and payroll tax levels compared with Canada and the United States—for example, Austria, Norway, Denmark, and the Netherlands—have very low unemployment rates. Furthermore, payroll taxes in Canada are relatively low, and lower than in the United States, and most economists agree that these taxes are paid by workers in the form of lower wages over the long run rather than passed on to employers.¹³ In this context, it is implausible to suggest that major reductions in payroll taxes would boost Canadian growth rates.

The final major alleged link between personal taxes and economic growth is through the link to personal savings. As noted above, it can be argued that taxes on capital income reduce or, alternatively, increase personal savings, with consequent impacts on investment. Higher after-tax rates of return from higher interest rates or lower taxes on property income may be spent on increased consumption, or they may lead households to save more in order to achieve the same savings target. Economists have, however, been unable to show that interest rates affect savings rates, either positively or negatively. Summarizing 13 major econometric studies, the OECD notes that “[t]he empirical research on the interest elasticity of savings gives mixed and not very robust results.”¹⁴ Some studies show no impact at all, others very small positive impacts, and still others small negative impacts. Similarly, there have been very mixed results from studies on the impacts of tax-assisted savings (as through RRSP-type plans) on

13 See, for example, Canada, *Report of the Technical Committee on Business Taxation* (Ottawa: Department of Finance, 1997), 3.17.

14 Leibfritz et al., *supra* footnote 6, at 19.

overall national savings rates. Engen, Gale, and Scholz¹⁵ find that tax incentives to savings merely promote tax-assisted savings at the expense of other forms, with no impact on the overall level, and result in lower total national savings through lost tax revenues. While other studies have found small positive impacts on household savings, this has often come at the price of negative impacts on total national savings because of lost government revenues. Overall, the OECD study concludes that “[o]n balance it appears that taxing capital income reduces savings, but not by very much.”¹⁶ The OECD notes that, on the basis of one recent study, completely eliminating the average tax rate of 40 percent on capital in 21 OECD countries would raise private savings by about 0.5 percent of GDP. Such a change would—as they fail to point out—greatly undercut the income redistribution role of the tax-transfer system.

Rising personal tax levels may have marginally reduced national savings rates, but it is notable that the United States (clearly a low-tax jurisdiction compared with most OECD countries) has consistently had one of the lowest personal savings rates in the OECD. Indeed, studies show that US tax reform in the 1980s, which sharply cut marginal rates on high-income earners (from 43 percent to 28 percent in the case of those earning double the median wage), had no impact on the US household savings rate.¹⁷ Personal savings rates are very high in many European countries that have high levels of personal taxation as a share of GDP. Variations in national savings rates are likely due more to institutional features (such as the nature of pension arrangements and of housing markets) than to differences in tax systems. The key conclusion is that there is no strong evidence for the argument that cutting taxes on property income will lead to higher savings rates.

Even if it were true that lower taxes, particularly on property income, led to higher national savings rates, and even if governments were prepared to accept the inequality-increasing implications of lower taxes on property income and of cutting transfers and social programs to finance the tax cuts, it is unwarranted to believe that higher personal savings rates would necessarily lead to higher rates of real investment. The link between financial savings and real private and public investment—investment in structures, equipment, research, and skills—is, at a minimum, highly problematic and contested. It can be argued that increased financial savings may simply flow into unproductive paper investments, fuelling unproductive corporate mergers, the inflation of financial asset values, and the like. The link between an increased flow of personal savings into stock markets

15 Eric M. Engen, William G. Gale, and John Karl Scholz, “The Illusory Effects of Savings Incentives on Savings” (Fall 1996), 10 *The Journal of Economic Perspectives* 113-38.

16 Leibfritz et al., *supra* footnote 6, at 8.

17 *Ibid.*, at 111.

and real investment is, to say the least, hardly clear and direct.¹⁸ If there is an argument for higher savings to boost real private investment, the strongest link would not be between household savings and investment, but between corporate savings and investment. This is because new business investment is overwhelmingly (90 percent in the case of Canada) financed from retained earnings rather than from the stock market or corporate bond issues. Curiously, however, business organizations are currently favouring personal income tax cuts over corporate tax changes. Finally, it should be noted that national savings are not necessarily reinvested in a national economy, given greater global integration of capital markets. Strikingly, most advocates of tax cuts in Canada also favour raising limits on the foreign investment of RRSP and pension savings, arguing that the Canadian market is too small to absorb the current level of national savings.

TAXATION OF CAPITAL

One of the key theoretical linkages between taxation and growth is the channel that runs from the cost of capital to real business investment—that is, investment in structures and machinery and equipment, as well as “soft” business investment in research and development and in worker skills. Economists generally agree that high levels of business investment contribute to faster labour productivity growth by increasing the capital-labour ratio—the amount of real capital invested per worker. In new growth theories, real business investment is an important source of potential growth since technological progress is embodied in new capital investment. Such theories also put great emphasis on corporate investment in research and development and in skills and the associated general advancement of knowledge and technique, which is the foundation for total factor productivity growth—that is, increased output on the basis of constant inputs of capital and labour.

In mainstream economic theory, the cost of capital, which is influenced by the level of real interest rates and by the general level and structure of corporate income and capital taxes, directly affects the level of real business investment. If the “capital tax wedge” or marginal effective tax rate on investment rises, then investment will fall. (The tax system may also shift the composition of investment by favouring or discriminating against certain sectors.) A negative impact on investment from the impact of taxes on the cost of capital is certainly theoretically plausible but, as Gerson of the IMF reports, “[N]umerous studies . . . have attempted to measure the influence of the cost of capital on investment. While many of these studies find that investment is negatively related to the cost of capital, most find that the size of the effect is rather small.”¹⁹ The

18 Jim Stanford, *Paper Boom: Why Real Prosperity Requires a New Approach to Canada's Economy* (Toronto: Lorimer and the Canadian Centre for Policy Alternatives, 1999).

19 Gerson, *supra* footnote 7, at 42.

major finding of such studies is that real business investment is much more strongly related to the rate of growth of output than to the cost of capital. In other words, business investment decisions are more strongly influenced by the growth of the market (the demand side) than by the cost of capital (the supply side). A recent survey by Chirinko for the *Journal of Economic Literature* concludes that while “there is clearly no uniformity in the results . . . the response of investment to price variables tends to be small and unimportant relative to quantity variables.”²⁰ A 1991 OECD study of real business investment trends in OECD countries in the 1980s found no relationship at all to the cost of capital, and not even a very significant relationship between investment and the total growth of output. In their conclusion, the authors noted that “[m]uch of the literature on investment demand has emphasized the difficulty of obtaining robust cost-of-capital effects.”²¹ The recent OECD survey of the literature similarly states that “[w]hile many studies find that investment is negatively related to the costs of capital, most find that the effect is small and generally less important than quantity variables.”²² Only 3 of the 10 recent econometric studies surveyed by the OECD found a significant negative impact on real investment from the cost of capital, 3 found no effect at all, and 4 found small negative effects. Wasylenko²³ surveyed US studies of the impact of interstate tax-driven cost-of-capital differentials on business investment, and found little evidence of impacts. (Bartik,²⁴ in contrast, finds a strong relationship between US state spending on public services and state productivity performance.)

In the case of Canada, the recent Report of the Technical Committee on Business Taxation (“the Mintz report”) argued, on the basis of a very selective review of the literature, that “[corporate] taxes do have a significant impact on investment decisions.”²⁵ However, the broadest background study for the committee found that changes in the relative cost of capital as between Canada and the United States had “a small, but statistically significant, impact on relative investment levels in the two countries for equipment investment, although not

20 Robert S. Chirinko, “Business Fixed Investment Spending: Modeling Strategies, Empirical Results, and Policy Implications” (December 1993), 31 *Journal of Economic Literature* 1875-1911, at 1906.

21 Robert Ford and Pierre Poret, “Business Investment: Recent Performance and Some Implications for Policy” [Spring 1991], no. 16 *OECD Economic Studies* 79-121, at 116.

22 Leibfritz et al., *supra* footnote 6, at 26.

23 Michael Wasylenko, “Empirical Evidence on Interregional Business Location Decisions and the Role of Fiscal Incentives in Economic Development,” in Henry W. Hertzog Jr. and Allan M. Schlottman, eds., *Industry Location and Public Policy* (Knoxville: University of Tennessee Press, 1991), 13-30.

24 Timothy J. Bartik, *Growing State Economies: How Taxes and Public Services Affect Private-Sector Performance* (Washington, DC: Economic Policy Institute, 1996).

25 *Supra* footnote 13, at 3.2.

for structures investment.”²⁶ The major cost-of-capital difference between Canada and the United States was due to higher real interest rates as opposed to tax differences, and the study calculated that a 1 percent increase in the Canadian cost of capital overall would lead to a 0.03 percent decrease in the rate of growth of the Canadian capital stock, holding constant the cost of capital in the United States. True, some other studies for the committee did find larger effects on the investment decisions of transnationals, which can more easily allocate investment between different jurisdictions. These studies were, however, at the firm level rather than at the economy-wide level, and beg the question of why supposedly significant micro impacts do not register at the macro level.

From a left perspective, Stanford²⁷ deals at some length with the possible relationship of business taxes to flagging real private investment in Canada. He notes that effective corporate tax rates have been stable at about 35 percent of pre-tax profits, and thus likely explain only a small part of the real investment decline over time (which is itself modest with respect to real investment in machinery and equipment). His econometric estimation finds that the private investment slowdown in the 1980s and 1990s is primarily explained by slowing growth of overall GDP, in line with restrictive macroeconomic policies, higher long-run real interest rates, which had a negative impact on both the demand side and the cost of capital, and lower after-tax corporate rates of return. He found that the fall in after-tax business profitability—which could plausibly be offset by changes in corporate taxation—explained 11 percent of the fall in business investment. It is somewhat ironic that Stanford—a left-wing economist—finds more robust (but still very modest) cost-of-capital effects from corporate taxes on real investment than the mainstream econometric literature.

It follows from the generally weak assessments of the impacts of the cost of capital on investment that corporate tax incentives may simply provide wind-falls to corporations for investments that would have taken place anyway. Ford and Poret note that “there is considerable doubt that incentives [to invest] do, in fact, raise investment demand,” with the implication that “[t]ax breaks, such as accelerated depreciation and investment tax credit, . . . may do no more than erode the corporate tax base, leaving the capital stock unchanged in the end.”²⁸ Similar conclusions were reached in many studies of the effects of Canadian corporate tax-based investment incentives of the 1970s and 1980s, which contributed to growing fiscal imbalances of the period.

26 Kenneth J. McKenzie and Aileen J. Thompson, *Taxes, the Cost of Capital, and Investment: A Comparison of Canada and the United States*, Working Paper 97-3 (Ottawa: Department of Finance, Technical Committee on Business Taxation, April 1997), abstract (available on the Web at www.fin.gc.ca/).

27 *Supra* footnote 18.

28 *Supra* footnote 21, at 116-17.

The general weakness of the cost of capital as an explanatory factor behind real investment trends is not that surprising. It is due in part to the fact that corporate investment can be financed in different ways, including through debt (interest on which is generally tax-deductible) and through earnings retained in the corporation, which are sheltered from tax. Corporate-tax-driven cost-of-capital differences between countries are, in the aggregate, not that significant. (In the case of Canada compared with the United States, the general corporate rate is often slightly higher in Canada than in the United States, depending on the particular geographic location, but the rate is lower in manufacturing, so the higher rate of taxes generally applies to geographically less-mobile services investment. Furthermore, small business is more lightly taxed in Canada than in the United States, and US individual taxpayers receive no dividend tax credit to offset tax paid at the corporate level.) The lack of major impacts in cross-country studies may reflect the still-limited degree of mobility of real capital between advanced industrial countries.

The major point to emerge is that macroeconomic policy—the level of real interest rates, fiscal policy and the consequent overall rate of growth of aggregate demand—is by far the most important variable behind the level of real business investment. Even if the cost of capital is modest, firms will not invest unless markets are expanding. And an investment may promise a high rate of return for many reasons: access to skilled workers; high productivity; access to good public infrastructure; access to energy, resources, and other inputs at favourable prices; and so on. The after-tax cost of capital is only one small variable in the overall investment decision. A 1999 benchmark study by KPMG, *The Competitive Alternative*,²⁹ found that the effective total tax rate for nine industries was slightly lower in Canada than in the United States (35.7 percent versus 36.0 percent), while Canada had a significant cost advantage in numerous non-tax areas. The small difference in effective corporate income tax was more than offset by other taxes.

It should be emphasized that the overall limited impact on investment of rates of return on capital does not mean that the pattern of investment is not shaped by the structure of the corporate tax system, which may indeed favour some sectors over others and some forms of financing over others. Rather, the conclusion is that the overall level of corporate taxation has, at worst, only extremely modest negative impacts on the rate of real business investment.

29 KPMG Canada, *The Competitive Alternative: A Comparison of Business Costs in Canada, Europe and the United States* (Vancouver: KPMG, 1999) (available on the Web at www.kpmg.ca/).

INCENTIVES TO SAVINGS AND INVESTMENT: THE CASE OF THE LIFETIME CAPITAL GAINS EXEMPTION

The general argument that tax incentives have only weak impacts on real investment has been illustrated in many studies of specific measures. At the same time, such studies tend to show that tax incentives to savings and investment can be highly regressive in terms of their impacts on income distribution, and are often very costly in terms of forgone government revenues. An interesting case in point is the lifetime capital gains exemption introduced by the Mulroney government in 1984. Initially set at \$500,000, the lifetime exemption was reduced to \$100,000 in 1987, and finally eliminated in 1994. The major stated purpose of the measure was to encourage investment, particularly in more risky equity investments.

The Department of Finance and the Institute of Policy Analysis of the University of Toronto sponsored research on the impacts of the measure just before it was eliminated, and the research was published in a special issue of *Canadian Public Policy* in 1995. In an overview evaluation, Mintz and Richardson said that “[the] overall conclusion, therefore, is that the lifetime capital gains exemption failed to stimulate investment in a significant way” and that “the economic benefit of reducing or eliminating capital gains taxation is not well demonstrated.”³⁰ The major study by McKenzie and Thompson on investment impacts³¹ found negligible changes in stock market valuations consistent with the theory that easier treatment of capital gains encourages investment in more risky equities, and the authors judged that the impact on real investment was, at best, very small. The implication was that a lot of investors enjoyed a significant tax break for an unchanged pattern of overall investment behaviour. The research confirmed that the forgone revenues from the measure were substantial: between \$4.5 and \$9.0 billion, depending on the method chosen. A distributional analysis found that, on a single-year basis, 25 percent of the benefit went to those making more than \$250,000, and 57 percent went to those making more than \$100,000.³² Even on a multiyear basis (that is, taking into account the relatively quick use of the maximum exemption by high-income taxpayers), the benefits were highly concentrated. In short, the measure was very costly, highly regressive, and a failure in terms of boosting real investment.

IMPACTS OF “GLOBALIZATION”

It might be argued that studies of the impacts of corporate taxation on investment fail to reflect the reality of “globalization,” the growing integration of both

30 Jack Mintz and Stephen P. Richardson, “The Lifetime Capital Gains Exemption: An Evaluation” (November 1995), 21, supplement *Canadian Public Policy* 1-12, at 6 and 11.

31 Kenneth J. McKenzie and Aileen J. Thompson, “The Impact of the Capital Gains Exemption on Capital Markets” (November 1995), 21, supplement *Canadian Public Policy* 100-15.

32 James B. Davies, “Distributional Impacts of the Lifetime Capital Gains Exemption” (November 1995), 21, supplement *Canadian Public Policy* 159-73.

the real and the financial economy on an international scale. Certainly, international capital flows have greatly increased through the 1980s and 1990s, and the corporate tax base in individual countries has been subject to some erosion as a result. Strikingly, the OECD study on taxation and economic performance argued that countries would have to respond to the growing international mobility of capital by shifting the tax burden from capital to labour, by reducing corporate and capital taxes, and by shifting the fiscal base to income, consumption, and payroll taxes.

Erosion of the corporate tax base can arise through two distinct mechanisms: the use by transnational corporations of transfer pricing and other techniques to shift taxable income to low-tax jurisdictions and tax havens; and geographic shifts of real investment in response to lower effective tax rates. The former issue is undoubtedly very serious, but it is principally a tax-compliance issue rather than an economic issue. The OECD recently endorsed a comprehensive set of recommendations calling on governments to adopt common standards with respect to issues such as transfer pricing and the reporting of taxable income.³³ This may have some prospects for success, given that the communiqué from the 1997 G7 economic summit noted that harmful tax competition between countries threatened to lead to the erosion of national tax bases, and called for common action.

The cross-national economic evidence to date summarized above suggests that corporate tax differences have had relatively little impact on the location of real investment. However, it has been widely argued in the business-oriented media that jurisdictions with low corporate tax rates, such as Ireland, have won more real investment through foreign direct investment (FDI) in the 1990s. Ireland, indeed, appears to have won a significant share of US direct investment in Europe, and has become something of an “export platform” serving European markets. (However, many other important factors have been at play, including very high levels of public investment in higher education and infrastructure, and a social pact between business and a strong labour movement. It is also notable that while the Irish share of FDI in Europe is high, it has been proportionately no higher than some relatively high-tax jurisdictions such as the Netherlands, and that the tax incentives long predated the investment inflow.)³⁴

If it is indeed true that relatively low effective corporate tax rates have played some modest role in Irish economic success in the 1990s, the argument is not so much that lower corporate taxes per se promote higher levels of real investment, but that relatively low rates may have shifted the geographical locale of investment within Europe. To the extent that Ireland won a disproportionate share of

33 Organisation for Economic Co-operation and Development, *Harmful Tax Competition: An Emerging Global Issue* (Paris: OECD, 1998).

34 Peter Auer, *Employment Revival in Europe: Labour Market Success in Austria, Denmark, Ireland and the Netherlands* (Geneva: International Labour Office, 1999).

US transnational investment serving the European market, other countries lost out. It follows that if national attempts to win more investment by lowering relative effective corporate tax rates are successful, they are highly likely to erode the tax base across closely integrated regions such as Europe, with no increase in the regional or global rate of real investment. At the European level, this has already led to some tentative discussion regarding the need to establish a “floor” for corporate and capital tax bases. Indeed, Ireland was recently obliged by the European Union to modify its corporate tax system, replacing sectoral incentives in export manufacturing with lower overall rates. The key point is that if corporate taxes have significant impacts on levels of real investment linked to “globalization” and “regionalization” of national economies, the most appropriate policy response is not (as is so often implied) to slash the national tax base. A competitive free-for-all will result in a shift of income from labour to capital through a regressive tax transfer, which could well dampen overall demand in the economy and certainly cannot be counted on to boost real investment rates. The more appropriate policy conclusion to be drawn is that governments should cooperate to preserve the corporate tax base.

OVERALL IMPACTS OF TAXES ON GROWTH

Consistent with the results of “bottom-up” studies that show, at best, only modest positive growth impacts from lower taxes, “top-down” studies show only a very weak relationship between the overall tax level and rates of real economic growth. The comprehensive and recent OECD study, *Taxes and Economic Performance*, has suggested that the 10 percent of GDP increase in the overall tax rate in OECD countries over the past 25 years “may”—as an upper-bound estimate that rests heavily on a number of assumptions—have reduced growth in OECD countries by 0.5 percent per year. This conclusion is based on the (weak) overall statistical relationship drawn between rates of economic growth (not adjusted for population growth) and overall rates of taxation in different OECD countries. Even a cursory glance at the data in table 2, however, indicates that some high-tax countries grew quite rapidly in the 1990s (for example, Norway, the Netherlands, and Denmark) and achieved higher rates of productivity growth than lower-tax countries. Relatively low-tax jurisdictions, notably the United States, performed no better in terms of economic efficiency than many higher-tax countries in the 1980s and 1990s. Even in the 1990s, when the United States performed reasonably well in terms of GDP and productivity growth, there was no clear edge over higher-tax countries. *The Economist* magazine recently pointed out³⁵ that, over the cyclically neutral 1989-1998 period, the US economy unambiguously performed better than the supposedly sclerotic and high-tax continental European countries on only one measure, employment

35 “Desperately Seeking a Perfect Model,” *The Economist*, April 10, 1999.

growth. In per capita terms, GDP growth and overall business sector productivity growth have been generally as high in high-tax Europe as in the United States. A major study by the US-based Economic Policy Institute of the cyclically neutral 1989-1998 period shows that the United States lagged Germany and matched France and Italy in per capita GDP growth; that US productivity growth has lagged European growth; and (less surprising to most) that relatively good US growth figures mask stagnation of earnings for most workers, and increasing wage and overall income inequality.³⁶

Table 2 provides cross-national data for OECD countries on the overall tax level (taxes as a share of GDP) and average annual economic growth in the 1990s measured in per capita terms. This is the best single measure of the growth of living standards in terms of income (though it ignores hours worked and income distribution). Figure 1, a scattergram of the data on taxes and growth, indicates a very weak relationship between tax levels and average annual economic growth for the OECD countries for the most recent cyclically neutral period.

Table 2 also provides data on taxes and labour productivity growth for the same set of countries. The productivity measure is output per hour worked. Figure 2 indicates a very weak relationship between taxes and labour productivity growth.

Table 3 provides data on taxes and income distribution for an overlapping but smaller set of countries (for reasons of data availability). The measure of inequality is the Gini coefficient of the distribution of post-tax and transfer income, adjusted for household size, as calculated by the Luxembourg Income Study. As shown in figure 3, there is a very strong relationship between high taxes (a proxy measure for a large tax-transfer system) and a low Gini.

There are profound differences in income distribution between industrial countries, as further illustrated in the decile ratio data in table 3. This shows that the top 10 percent of income earners in the United States have disposable incomes at least 6.44 times the bottom 10 percent, double the gap in the (high-tax) Benelux and Scandinavian countries. The scattergram in figure 4 confirms the strong (and unsurprising) relationship between the tax level and income inequality. It should be noted that high tax levels also generally imply much higher levels of access to public services, and thus reduced reliance on disposable income. The data thus understate national differences in terms of equity.

These relationships are confirmed by statistical analysis. The relationship between taxes as a share of GDP and growth and productivity is weak and insignificant, while the relationship to inequality measures is strong and significant (table 4).

36 John Schmitt and Lawrence Mishel, *An Evaluation of G-7 Economies in the 1990s* (Washington, DC: Economic Policy Institute, 1998).

Table 2 Taxes and Economic Performance, OECD Member Countries^a

	Growth of GDP per capita, 1990-1998	Taxes as % GDP, 1994	GDP per hour worked, 1990-1998
Australia	2.2	28.7	2.3
Austria	1.5	43.3	1.8
Belgium	1.5	45.9	2.4
Canada	1.0	35.1	1.2
Denmark	2.3	49.9	2.1
Finland	1.0	46.7	3.0
France	1.0	43.7	1.5
Germany	0.9	38.4	2.9
Greece	1.2	31.7	1.3
Iceland	1.1	30.9	na
Ireland	5.5	35.7	4.2
Italy	1.1	41.4	1.9
Japan	1.0	27.8	1.9
Netherlands	2.1	44.7	1.3
New Zealand	0.6	36.7	0.2
Norway	3.2	41.3	2.7
Portugal	2.2	32.6	3.2
Spain	1.9	35.0	1.8
Sweden	0.6	49.0	1.9
Switzerland	-0.3	33.0	0.8
United Kingdom	1.7	34.5	2.2
United States	1.7	28.4	1.2

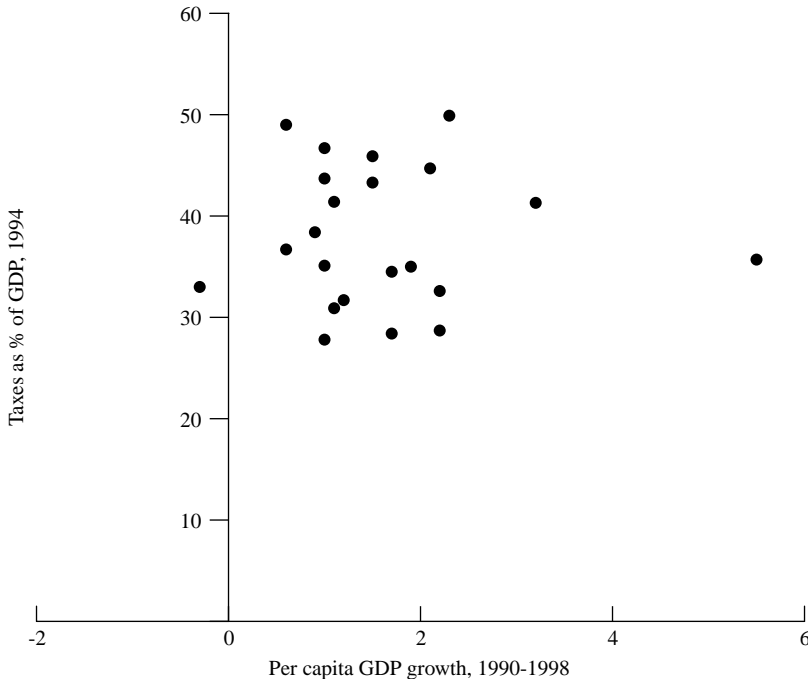
na not available.

^a Korea, Mexico, Czech Republic, Hungary, and Poland excluded.

Source: Organisation for Economic Co-operation and Development Statistical Working Party, *Economic Growth in the OECD Area: Are the Disparities Growing?* DSTI/EAS/IND/SWP(99)3 (Paris: OECD, November 1999).

It should be emphasized that the OECD study of taxation and economic performance emphasized the (weak) overall relationship between taxes as a share of GDP and GDP growth, which disappears in the 1990s when the dependent variable is per capita GDP growth or labour productivity growth. Even if it could be convincingly shown that cutting the overall tax rate by 10 percentage points of GDP would raise growth rates marginally—and this has hardly been demonstrated—it has to be considered that such a shift would have massive implications for income inequality and rates of poverty. The redistributive role of the state, not to mention the level of public and social services available on a non-market basis, would be gutted by such a reduction.

To summarize, simple top-down comparisons indicate, at best, a weak and tenuous relationship between the tax burden and economic growth and productivity, but a strong relationship between relatively high taxes and low levels of income inequality. Seen from this perspective, relatively high taxes represent a social choice in favour of public as opposed to private consumption, and in

Figure 1 Taxes and Growth, OECD Member Countries^a

^a Korea, Mexico, Czech Republic, Hungary, and Poland excluded.

Source: Same as table 2.

favour of low levels of inequality. It is not true that this choice comes at the cost of reduced economic efficiency.

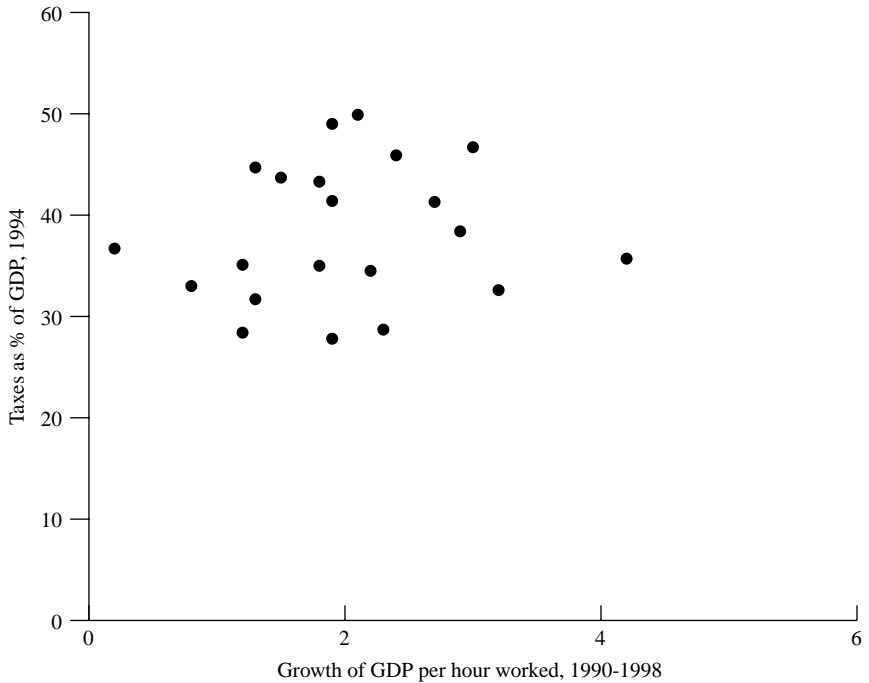
PUBLIC INVESTMENT, PRODUCTIVITY, AND GROWTH

Even the OECD study on taxes and economic performance allows that

the direction of tax effects on the level and growth of income is not always clear. Taxation may, in fact, be beneficial for the economy if it provides the financial basis for the provision of public goods that improve average living standards and social welfare. More and better public goods and services may also increase the productivity of private fixed and human capital and hence increase economic growth. In addition, government transfers may reduce poverty and improve social cohesion.³⁷

Similarly, Gerson extensively reviewed the available literature on the impacts of both taxing and spending on output growth in an IMF working paper and concluded that “well-targeted government expenditures on health, education,

³⁷ Leibfritz et al., *supra* footnote 6, at 15.

Figure 2 Taxes and Productivity, OECD Member Countries^a

^a Korea, Mexico, Czech Republic, Hungary, and Poland excluded.

Source: Same as table 2.

and infrastructure should have a positive impact on growth. By contrast, the impact of taxation on the supplies of labor and capital, and on output growth, is more muted.”³⁸ Thus, both the IMF and OECD have, in recent technical studies, been much more accepting of the relative merits of public spending over tax cuts than many would believe, and indeed the background technical research has been at odds with strong claims in public pronouncements by both organizations.

Economic growth has, unsurprisingly, been linked by many economists to the growth of “human capital,” and few would disagree with the argument that publicly financed education and training have a major role to play. Growth has been linked to increasing educational attainment, which is achieved mainly through public investment. For example, Easterly and Rebelo³⁹ find a significant

38 Gerson, *supra* footnote 7, abstract.

39 William R. Easterly and Sergio Rebelo, *Fiscal Policy and Economic Growth: An Empirical Investigation*, NBER Working Paper no. 4499 (Cambridge, Mass.: National Bureau of Economic Research, May 1994).

Table 3 Taxes and Inequality, Selected OECD Member Countries

	Gini coefficient ^a	Taxes ^b	Decile ratio ^c
United States	0.368	28.4	6.44
Japan	0.315	27.8	4.17
Germany	0.3	38.4	3.84
France	0.324	43.7	4.11
Italy	0.255	41.4	3.14
United Kingdom	0.346	34.5	4.56
Canada	0.287	35.1	3.93
Belgium	0.23	45.9	2.79
Denmark	0.239	49.9	2.86
Netherlands	0.249	44.7	3.05
Norway	0.242	41.3	2.85
Sweden	0.229	49.0	2.78

^a Gini coefficient of disposable income (Luxembourg Income Study). ^b Taxes as a percentage of GDP in 1994. ^c The decile ratio is the ratio between the top of the bottom decile and the bottom of the top decile, and thus slightly understates the gap between the top and the bottom of the income distribution.

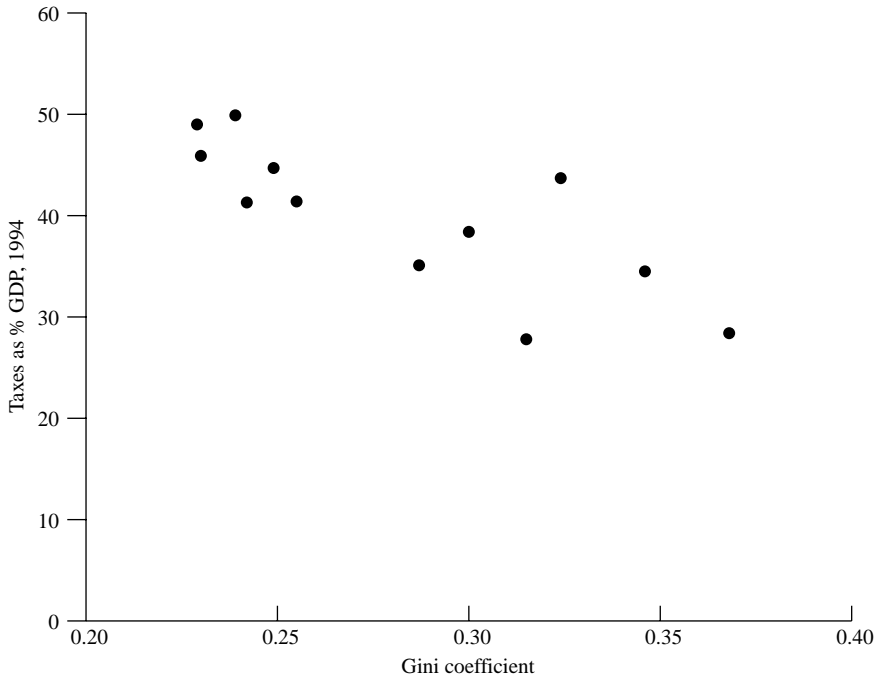
Sources: Gini coefficient and decile ratio: Luxembourg Income Study, www.lissy.ceps.lu; taxes: Organisation for Economic Co-operation and Development, www.oecd.org.

impact on per capita income growth for 119 countries from the 1960s through the 1980s, and Hansson and Henrekson⁴⁰ find that higher government spending on education led to higher average private sector productivity growth in OECD countries in the 1965-1982 period. The literature as a whole, as reviewed by Gerson, suggests that returns are highest for investment in primary education. In the case of Canada, a strong argument has been made in recent years by Fraser Mustard and associates at the Canadian Institute for Advanced Research that investment in early childhood education would yield large future returns in the form of a better educated and more skilled work force, and in the form of reduced social costs from crime.

Government capital spending on infrastructure, which has been falling sharply in Canada and most OECD countries as a share of GDP since the 1970s, has been linked by Aschauer and Munnell, among others, to falling private sector productivity. The basic argument is that core infrastructure such as transportation and communications systems has a direct impact on operating efficiencies in private businesses. An IMF study by Cashin⁴¹ finds that the level of government real investment had a significant impact on per capita output growth in OECD coun-

40 Pär Hansson and Magnus Henrekson, "A New Framework for Testing the Effect of Government Spending on Growth and Productivity" (December 1994), 81 *Public Choice* 381-401.

41 Paul Cashin, *Government Spending, Taxes, and Economic Growth*, IMF Working Paper WP/94/92 (Washington, DC: International Monetary Fund, 1994) (available on the Web at www.imf.org/).

Figure 3 Taxes and Inequality, Selected OECD Member Countries

Sources: Same as table 3.

tries in the period 1971-1988. Aschauer⁴² and Munnell⁴³ find strong links between public infrastructure investment and growth. Easterly and Rebelo⁴⁴ and Ford and Poret⁴⁵ also find robust links between public investment in transportation and communications and output growth. Other studies that find weaker links agree with the general argument, while noting that the productivity impact of public infrastructure projects varies and that projects have to be well selected.

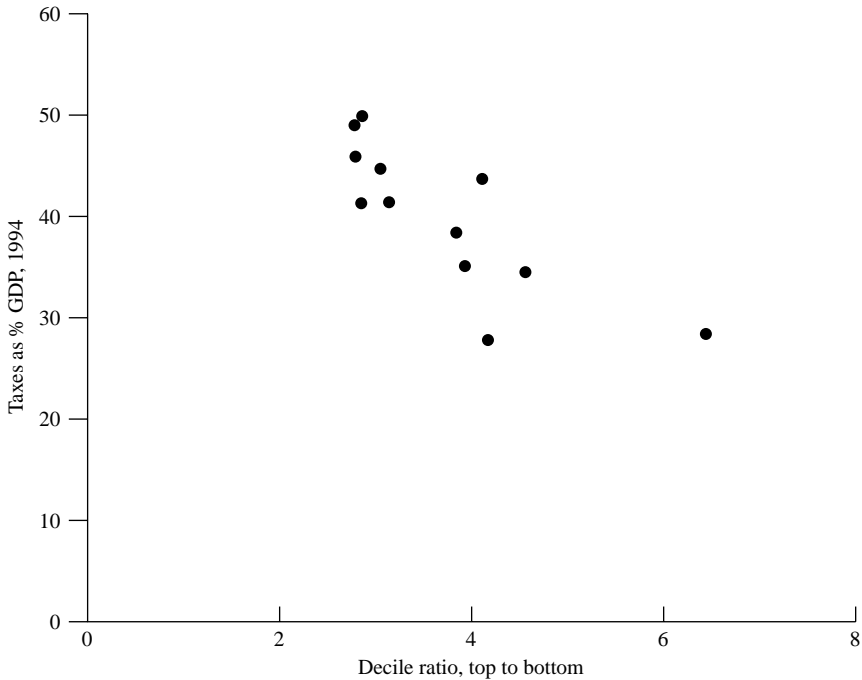
An interesting recent literature has begun to link public spending on transfers, which reduce inequality, to economic growth. Whatever the direction of causality, it is clear that the level of spending on transfers and public services tends to rise with national income, suggesting either that public expenditures on

42 David Alan Aschauer, "Is Public Expenditure Productive?" (March 1989), 23 *Journal of Monetary Economics* 177-200.

43 Alicia Munnell, "Why Has Productivity Growth Declined?" (1990), vol. 1, no. 3 *New England Economic Review* 3-22.

44 Supra footnote 39.

45 Supra footnote 21.

Figure 4 Taxes and Inequality, Selected OECD Member Countries

Sources: Same as table 3.

“consumption” promote growth, or that richer societies tend to choose greater equality and more security outside the market. Alesina and Rodrik⁴⁶ find a significant negative link between income inequality and per capita output growth, and Cashin⁴⁷ finds positive effects of transfers on per capita income growth, in OECD countries. There are many non-economic reasons to favour strongly redistributive public spending, but this literature suggests that there is a link to growth through improved “human capital” and reduced social costs. Other recent studies have shown a clear link between inequality and poor health, suggesting that inequality-reducing transfers may reduce public and private health costs.

Finally, many studies have shown particularly high social returns from government-sponsored research and development (R & D). It is generally recognized that the social returns from R & D are very high, but that the private sector tends to underinvest because of high risks and upfront costs, and because the

46 Alberto Alesina and Dani Rodrik, *Distributive Politics and Economic Growth*, NBER Working Paper no. 3668 (Cambridge, Mass.: National Bureau of Economic Research, March 1991).

47 Supra footnote 41.

Table 4 Rank Order Correlations (Spearman's Correlation Coefficient)

Taxes and growth ^a	0.052
(significance level)	(0.820)
Taxes and productivity ^a	0.183
(significance level)	(0.427)
Taxes and inequality	-0.818
(decile) ^b	(0.001)
Taxes and inequality	-0.804
(Gini) ^b	(0.002)

^a Correlation is significant at the 0.05 level. ^b Correlation is significant at the 0.01 level.

Source: Tables 2 and 3 and author's calculations.

fruits of research tend to be quickly appropriated by business rivals. Lichtenberg⁴⁸ shows the expected positive and significant impact from R & D as a percentage of GDP to economic growth. An important recent study for Industry Canada by Richard Lipsey suggests that there have been very large net benefits from direct government support for Canadian R & D through the National Research Council and Industry Canada programs such as Technology Partnerships Canada. Given that Canada's R & D performance has been comparatively weak, notwithstanding the most generous system of tax support in the industrialized world, a strong case can be made for moving from broad tax incentives to more narrowly and efficiently targeted public investments.

The purpose of this paper is not to document the potential positive impacts on growth of proposed new public investments. However, there are strong grounds to believe that investments in education, research, health, basic public infrastructure, and income transfers, among other areas, would enhance growth, aside from producing immediate stimulative macroeconomic impacts. Many of these initiatives are, of course, also justified by the need to attain social and environmental and not just economic goals. The present state of economic evidence does not allow for a precise comparison of costs and benefits, but there are no strong grounds to believe that tax cuts enhance growth more, in principle, than increases in public investment.

CONCLUSIONS

The central conclusion of this paper is that the alleged links between tax cuts and growth are often theoretically ambiguous, are not well founded in the mainstream economic literature, and are at odds with simple cross-country evidence. High taxes do not necessarily impair growth or productivity, and the programs

48 Frank R. Lichtenberg, *R&D Investment and International Productivity Differences*, NBER Working Paper no. 4161 (Cambridge, Mass.: National Bureau of Economic Research, September 1993).

they sustain may well promote basic economic objectives. Such a conclusion does, of course, leave a huge range of questions unanswered regarding the best growth policy, and it is certainly not being argued here that private investment is unimportant or irrelevant, or that the tax system could not be improved in many ways. Rather, the argument is that expansionary macroeconomic policies and well-targeted public investments may better stimulate private investment than ideologically driven and economically unjustified across-the-board tax cuts. On equity grounds, however, the evidence clearly shows that inequality is reduced by a relatively high level of taxes, which is a proxy for a large tax-transfer system.

The central current argument of big business and the political right is that we have to dismantle the tax base we need to fund transfers, public programs, and public investment in order to get growth. This argument is wrong. It is morally wrong, it is wrong in terms of the economic research, and it should be rejected.