

PRODUCTIVITY AND PROSPERITY IN QUEBEC

2010 OVERVIEW



The HEC Montréal Centre for Productivity and Prosperity, created in 2009, has a twofold mission. First of all, it is devoted to research on productivity and prosperity, mainly in Quebec and in Canada as a whole. The Centre also intends to transfer knowledge, make it widely accessible and, in the end, educate people about productivity and prosperity.

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PREFACE

This is the second edition of *Productivity and Prosperity in Quebec*. The *1981-2008 Overview* was published last year to mark the official opening of the *Centre for Productivity and Prosperity*, on September 25, 2009.

With this new edition, the *2010 Overview*, we hope to build the largest possible regular readership. Quebec's situation in terms of productivity and standard of living is worrisome in many ways. It is worth a closer look, since after all it is our quality of life that is at stake. All economic players are affected by this situation, from individuals to businesses and governments.

The situation in Canada as a whole is just as disturbing. The significant setbacks experienced in Ontario as a result of the global recession in 2008-2009, caused by the financial crisis, did nothing to improve the Canadian situation as concerns productivity and quality of life.

In fact, the *2010 Overview* clearly shows that productivity and standard of living issues in Quebec and Canada as a whole are not due to current economic conditions but rather have more to do with structural factors that are difficult to change in the short term. The research program at the *Centre for Productivity and Prosperity*, which you can consult at www.hec.ca/cpp, presents various research projects all intended to identify the structural factors underlying our lagging productivity and standard of living.

In addition to updating the *1981-2008 Overview*, the *2010 Overview* includes two new features. First of all, it presents a detailed analysis of the impact of Quebec's greying population on the province's standard of living. Secondly, it examines Canada's behaviour with regard to foreign direct investment and the impact of such investment on productivity.

In closing, I wish to emphasize that this *2010 Overview* is the fruit of collaboration by everyone at the *Centre for Productivity and Prosperity*. This (small) team working under my supervision is made up of Kristelle Audet, Laurent Da Silva, Jonathan Deslauriers and Pierre-Olivier Lachance. I thank them all most warmly for their commitment and involvement. I would also like to extend my special thanks to Jonathan Deslauriers for co-ordinating the data compilation and processing.

Robert Gagné, Director

Centre for Productivity and Prosperity
HEC Montréal

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INTRODUCTION

Over the past 50 years, Quebec has developed public institutions and infrastructure that today allow its citizens to enjoy a quality of life that is enviable in many ways. A comparative analysis of the province's economic performance reveals a disturbing fact, however: Quebec could do much better, when it is compared with other industrialized economies.

When we compare Quebec's performance with that of its main trading partners, we can see that Quebec lags relatively far behind, and this performance translates into a lower standard of living.

The first edition of *Productivity and Prosperity in Quebec*, in 2009, showed that Quebec's lower standard of living could be largely attributed to its labour productivity. That analysis also showed that Quebec's economic performance was unsatisfactory not only compared with other players in North America. When we analyze its performance in a broader context, we can see that Quebec's standard of living is generally lower than those in the main industrialized countries. Improving its economic performance must remain a priority for Quebec, for it is key to maintaining Quebecers' quality of life.

This second edition of *Productivity and Prosperity in Quebec* marks the first anniversary of the *Centre for Productivity and Prosperity*. In addition to monitoring Quebec's performance in terms of productivity and prosperity, this second edition allows the Centre to fulfil a key part of its mandate, i.e. to focus debate in Quebec on the crucial issue of productivity as our main source of prosperity and hence of our quality of life.

Drawing on historical and contemporary data, this *2010 Overview* seeks to identify current and future obstacles that Quebec must overcome in order to guarantee Quebecers a high and lasting quality of life.

In this year's edition we will be examining the impact of the slowdown in the world economy on Quebec's economic performance. We will see how the Quebec economy weathered the recent recession better than did its main trading partners.

A historical analysis of Quebec's performance in terms of labour productivity makes it possible to identify the root causes of its current situation. Among other conclusions, we will see that Quebec's productivity gap is linked primarily to failures in general efficiency rather than to specific characteristics of its industrial structure.

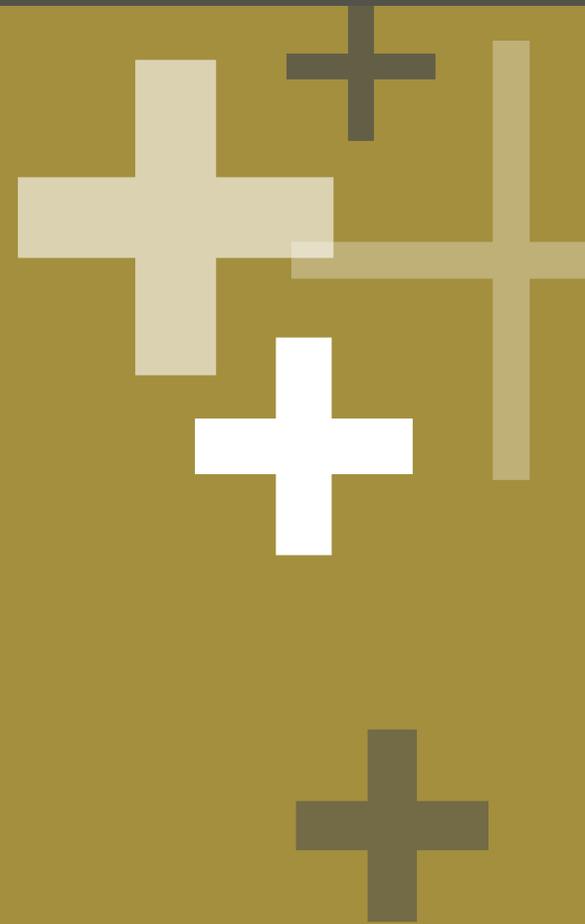
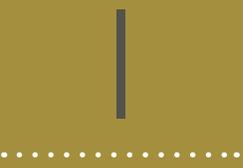
This second edition also offers a forward-looking analysis of the impact of Quebec's ageing population on its economic performance. The analysis, based on the latest demographic forecasts, concentrates on the impact of the greying population on Quebecers' standard of living.

Lastly, this edition includes a special section looking at a factor that could improve labour productivity: foreign direct investment (FDI). In it we focus on the mechanisms by which FDI can improve labour productivity. It also shows that reducing the restrictions limiting the proportion of Canadian companies that can be held by foreign interests in the air transport and telecommunications sectors would greatly benefit the Canadian economy.

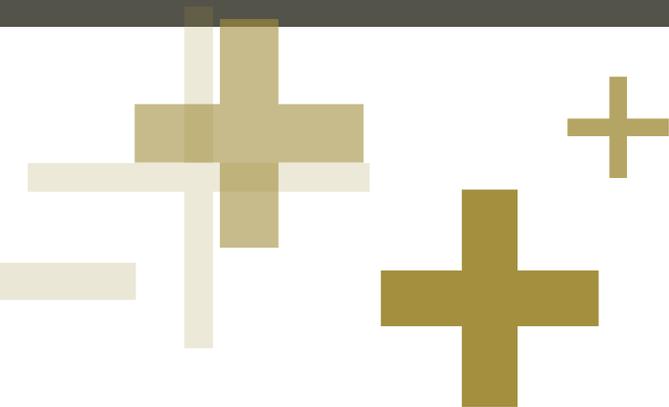
All these data and the calculation methods used in this report are described in detail in a methodological appendix available at www.hec.ca/cpp. The appendix also lists the different sources of the data used.

The first section of the *2010 Overview* presents Quebec's economic situation in comparison with those of the member countries of the Organisation for Economic Co-operation and Development (OECD). Section 2 discusses the factors underlying Quebec's economic gap. The contribution of Quebec's different industrial sectors to labour productivity growth is analyzed in section 3. Section 4 discusses the impact of Quebec's greying population on its economic development. Finally, this *2010 Overview* ends with the special section on FDI.

**Improving its economic performance
must remain a priority for Quebec, for
it is key to maintaining Quebecers'
quality of life.**



QUEBEC IN THE WORLD



Gross domestic product (GDP) per capita is the most commonly used indicator for measuring and comparing societies' standards of living. It is defined as the ratio between the market value of all final goods and services produced in an economy over the course of one year and the total population. In other words, it represents the average disposable income of a country's inhabitants that they can spend on maintaining their standard of living and quality of life.

Table 1 shows the ranking of the 23 OECD member countries with the highest standards of living in 2009. With a GDP per capita of \$38,611.84, Quebec ranked between numbers 19 and 20, behind Spain. This position put it more than 25% behind the six most prosperous OECD economies, and in particular nearly 50% behind the United States.



TABLE I

GROSS DOMESTIC PRODUCT PER CAPITA FOR QUEBEC AND OECD MEMBER COUNTRIES, 2009

(2008 Canadian dollars and percentages)

Rank	Country	GDP p.c. 2009	2008 rank	2008-2009 growth (%)
1.	Luxembourg	103,837.25	1	-5.16
2.	Norway	73,548.06	2	-2.88
3.	United States	56,109.06	3	-3.47
4.	Switzerland	54,101.69	4	-2.57
5.	Netherlands	50,687.08	6	-4.49
6.	Ireland	49,540.77	5	-7.62
7.	Australia	47,527.72*	9	-
8.	Austria	47,077.95	7	-4.19
9.	Canada	46,242.79	10	-3.65
10.	Sweden	45,527.32	8	-6.01
11.	Denmark	44,998.88	12	-5.41
12.	Iceland	44,724.37	11	-6.46
13.	Belgium	43,894.03	16	-3.75
14.	Germany	43,663.90	15	-4.65
15.	United Kingdom	43,497.88	14	-5.51
16.	Finland	42,472.72	13	-8.46
17.	France	41,366.54	17	-3.16
18.	Japan	39,550.02	18	-5.12
19.	Spain	38,886.80	19	-4.34
	Quebec	38,611.84	19-20	-1.99
20.	Italy	38,011.90	20	-5.72
21.	Greece	36,536.88	21	-2.17
22.	New Zealand	35,460.94	22	-1.68
23.	South Korea	33,109.50	23	-0.09
	OECD average	42,517.69		-3.98
	G7 average	48,660.67		-3.10

*2008 data.

Between 2008 and 2009, the standards of living of all the countries in the ranking declined, owing to the global recession. In fact, the average decline reported by OECD member countries was 3.98%, or 2.00% more than the 1.99% experienced in Quebec. In other words, Quebec seems to have weathered the recession more successfully. Yet, despite its milder economic slowdown, Quebec's relative position in the ranking did not change. Its standard of living remained lower than those of most OECD members.

As the 2009 edition of *Productivity and Prosperity in Quebec* clearly showed, standard of living growth is closely linked to labour productivity growth, measured by the ratio of GDP to the number of hours worked. Figure 1, showing Quebec, Ontario and 20 OECD member countries for which data were available, illustrates this relationship. The figure shows that high labour productivity growth is generally associated with high growth in GDP per capita.

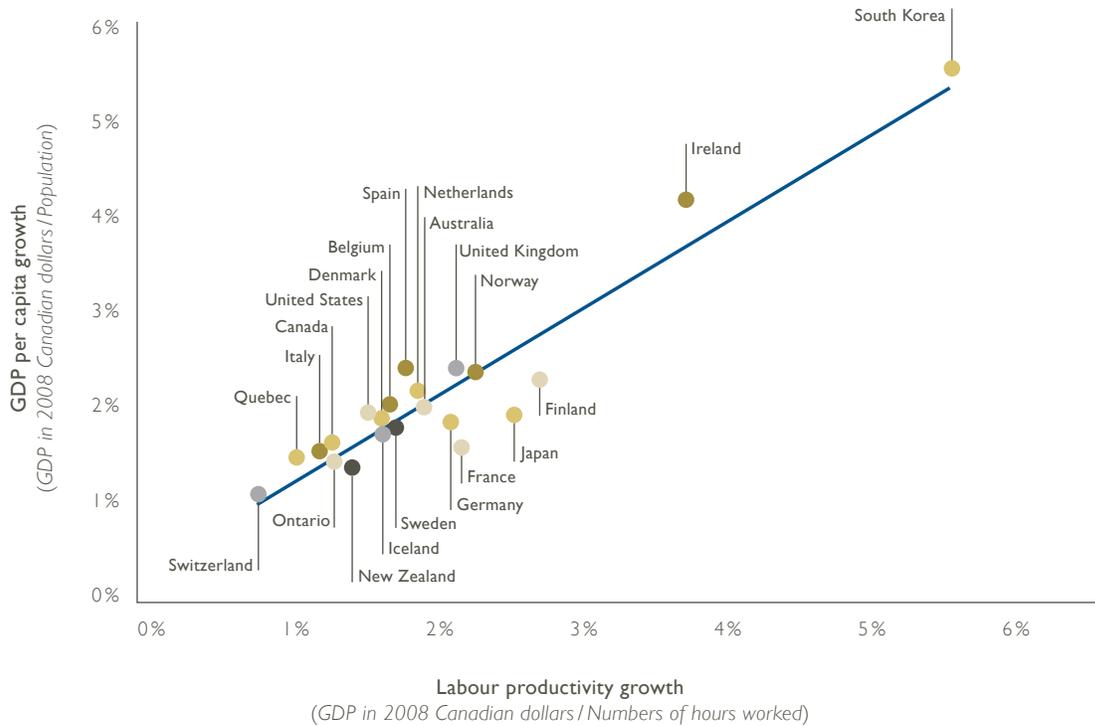
It was because of their very healthy labour productivity growth between 1981 and 2009 that countries like Ireland and South Korea were able to shrink the gap between their standards of living and those of the more prosperous OECD members. Quebec's standard of living is one of the lowest when compared with most OECD member countries, so it could be expected to grow more quickly than elsewhere if Quebec were catching up. As Figure 1 shows, however, this is not the case. This situation can be explained largely by low labour productivity growth. Between 1981 and 2009, of the 20 countries in the figure, only Switzerland showed average growth in labour productivity and GDP per capita lower than Quebec. This can be explained by Switzerland's historically very high standard of living; as a result, it has no need to play economic catch-up.

**The average decline reported by
OECD member countries was
3.98%, or 2.00% more than the
1.99% experienced in Quebec.**

FIGURE I

GROWTH IN LABOUR PRODUCTIVITY AND GDP PER CAPITA, 1981-2009

(Annual averages)



As for labour productivity, Table 2 below shows that in 2009 Quebec was still behind more than half of all OECD member countries, with labour productivity of \$48.56 per hour worked. This means that Quebecers must work more hours to generate wealth equivalent to the OECD average. Inversely, workers in a country like France, where labour productivity is much higher than in Quebec, can afford to work fewer hours and still enjoy a slightly higher standard of living than their Quebec counterparts.

Labour productivity in Quebec grew by 1.44% between 2008 and 2009, yet slipped by one position in the ranking, to between 19th and 20th place. This can be explained largely by Iceland's exploding labour productivity, at 4.88%, allowing it to surpass Quebec.

It may seem odd that despite the global recession, labour productivity could still grow as strongly as it has in Iceland, the United States and Ireland. During a recession, both GDP and hours worked, the two variables that determine labour productivity, normally fall. Increased labour productivity in this context occurs when the number of hours worked falls more than GDP.

TABLE 2

LABOUR PRODUCTIVITY FOR QUEBEC AND OECD MEMBER COUNTRIES, 2009

(2008 Canadian dollars and percentages)

Rank	Country	GDP p.c. 2009	Rank 2008	Growth 2008-2009 (%)
1.	Norway	96.83	2	-0.25
2.	Luxembourg	91.61	1	-7.18
3.	Ireland	72.53	4	2.74
4.	Netherlands	70.23	3	-2.34
5.	Belgium	68.76	5	-1.51
6.	France	66.98	6	-1.30
7.	United States	64.91	8	2.93
8.	Germany	63.87	7	-2.20
9.	Austria	59.05	10	-0.70
10.	Sweden	58.90	9	-2.32
11.	Switzerland	56.81	12	-2.05
12.	United Kingdom	56.64	11	-2.50
13.	Spain	56.63	16	3.17
14.	Denmark	56.63	13	-1.29
15.	Australia*	56.05	15	-
16.	Finland	55.28	14	-3.51
17.	Canada	53.79	17	0.88
18.	Italy	52.00	18	-1.47
19.	Iceland	49.58	19	4.88
	Quebec	48.56	18-19	1.44
20.	Japan	46.59	20	-0.44
21.	Greece	41.73	21	-0.97
22.	New Zealand	40.40	22	1.39
23.	Portugal	37.31	24	1.47
28.	South Korea	30.63	27	1.07
	OECD average	55.12		0.08
	G7 average	61.50		0.50

*2008 data.

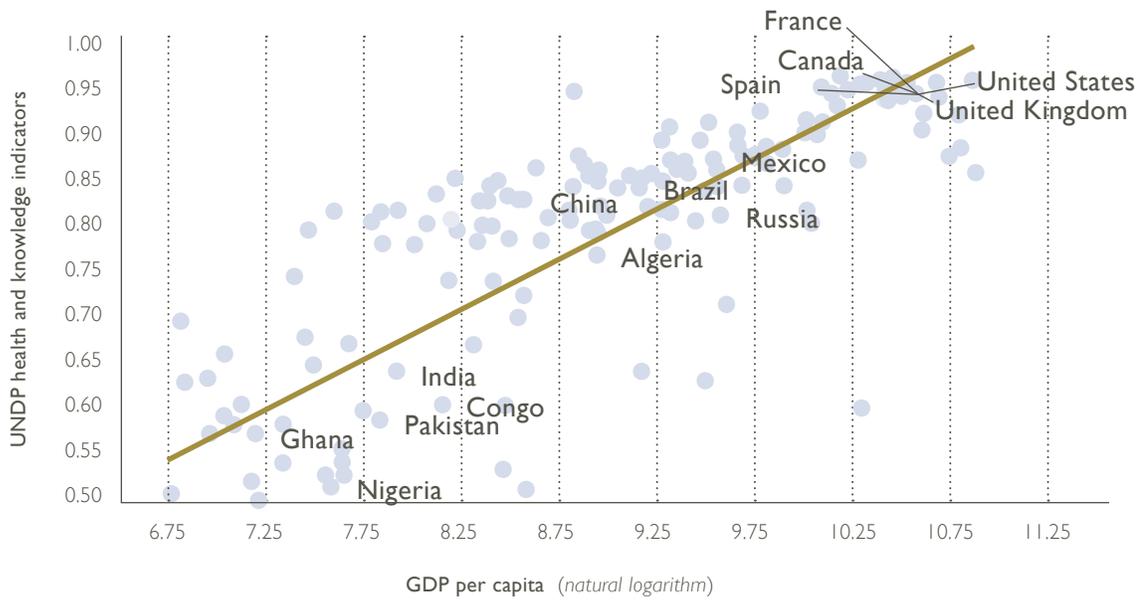
This means that Quebec still lags far behind most OECD economies in terms of its standard of living, despite having weathered the 2009 recession fairly well. To better explain this gap and the changes that affected it between 2008 and 2009, the following section gives a comparison with our immediate neighbours, i.e. Ontario, Canada as a whole and the United States.

DEFINITION OF THE STANDARD OF LIVING

GDP per capita has the advantage of being an objective indicator for making international comparisons. The standardization of national accounting systems means that GDP per capita is measured in much the same way from one country to another. Nonetheless, GDP per capita does not take account of inequities in wealth distribution; rather, it measures the income available for redistribution. Indeed, it is by drawing on this revenue that a society can offer public services (health, education, etc.) and the infrastructure it needs.

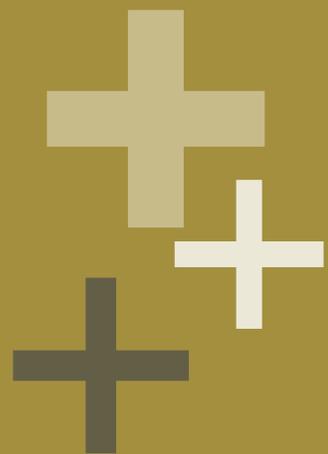
GDP per capita is closely linked to many economic and social development indicators. The human development index (HDI) developed by the United Nations Development Program (UNDP) for 175 countries is the most widely used. The index has three dimensions: health, knowledge and income. These dimensions are measured by life expectancy at birth, level of education and GDP per capita. The HDI is therefore correlated with GDP per capita, since the latter is part of the index. To avoid this bias, it is best to measure the correlation between GDP per capita and the average of the indicators corresponding to the first two components, i.e. health and knowledge. This correlation is shown in the figure opposite. It can be seen that there is a strong correlation between these two variables. Countries with a high GDP per capita generally have higher life expectancies and levels of education than countries where GDP per capita is lower. In addition to being an objective and comparable measurement from one country to another, economic prosperity as measured by GDP per capita is a factor contributing to a country's social development. Thus it is legitimate to use this measurement to determine and compare standards of living from one country to the next.

GROSS DOMESTIC PRODUCT PER CAPITA AND LONGEVITY AND KNOWLEDGE INDICATORS FROM THE UNITED NATIONS DEVELOPMENT PROGRAM IN 2007



2

THE
ROOT CAUSES
OF QUEBEC'S
LAGGING
STANDARD
OF LIVING



The previous edition of *Productivity and Prosperity in Quebec* clearly showed that, over the period from 1981-2008, the standard of living gaps between Quebec and its immediate neighbours widened. The difference between Quebec's standard of living and that of Canada as a whole, excluding inflation, grew from \$4,731.20 in 1981 to \$8,599.55 in 2008. Over this same period, the gap between Quebec and the United States more than doubled, from \$7,944.96 to \$18,729.86 (2008 Canadian dollars).

It is possible, however, that the global recession triggered by the financial crisis starting in 2007 may have somewhat altered this picture. What was the impact of the 2009 recession on the standard of living and labour productivity in Quebec as compared with its neighbours? Can this recession be compared with other periods of negative GDP growth that Quebec has experienced over the past three decades? These are two questions well worth analyzing, given the ongoing uncertainty concerning the global economy.

Figure 2 shows trends in standard of living as measured by GDP per capita in Quebec, Ontario, Canada as a whole and the United States between 1981 and 2009. First of all, it can be seen that GDP per capita in Quebec peaked in 2008, while its neighbours reached their highest levels in 2007 and then slipped back over the next two years. The recession, as shown in the figure by the decline in GDP per capita in recent years, hit Quebec later than its neighbours. It can also be seen that the extent of the decline in GDP per capita varied considerably from one region to the next.



FIGURE 2

TRENDS IN GROSS DOMESTIC PRODUCT PER CAPITA, 1981-2009

(2008 Canadian dollars)

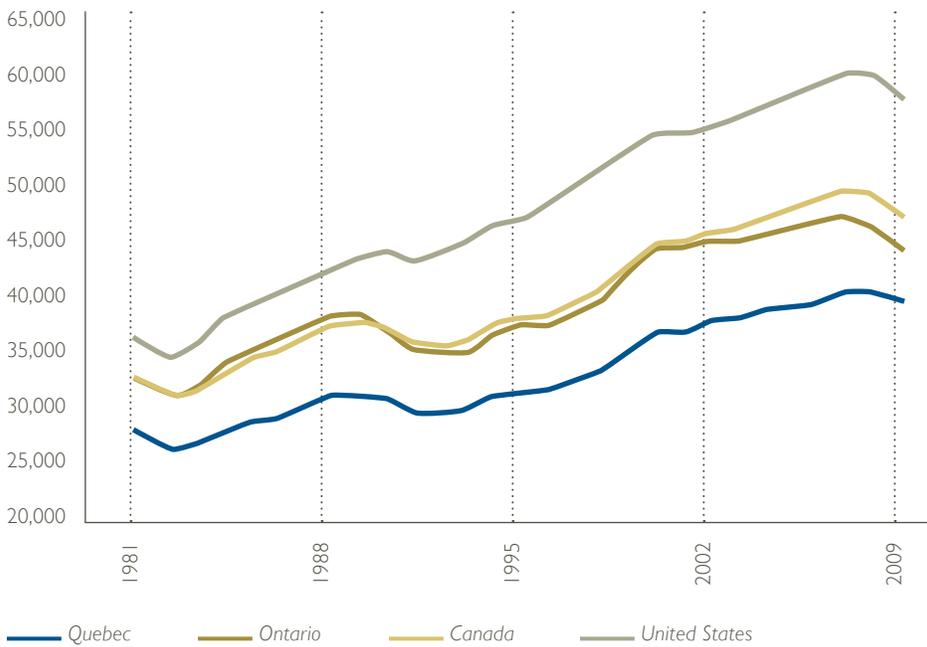


Table 3 shows GDP per capita in Quebec, Ontario, Canada as a whole and the United States in 2008 and 2009 and their respective variations. GDP per capita fell the least in Quebec, by 1.99%. Ontario was harder hit, as its GDP per capita dropped by 3.99%. The declines in Canada as a whole and in the United States were relatively similar, at 3.65% and 3.47%, respectively.

Quebeckers' standard of living emerged relatively unscathed from the recent recession, as compared with those of its neighbours.

TABLE 3

GROSS DOMESTIC PRODUCT PER CAPITA, 2008 AND 2009

(2008 Canadian dollars and percentages)

	GDP per capita		Variation	
	2008	2009	\$	%
Quebec	39,397.33	38,611.84	-785.49	-1.99
Ontario	45,286.38	43,479.19	-1,807.19	-3.99
Canada	47,996.87	46,242.79	-1,754.08	-3.65
United States	58,127.19	56,109.06	-2,018.13	-3.47

Quebeckers' standard of living emerged relatively unscathed from the recent recession, as compared with those of its neighbours. Given the province's comparatively good performance during the recession, did the gap between its standard of living and those of its neighbours change substantially between 2008 and 2009?

Table 4 shows the differences in the standard of living between Quebec and Ontario, Canada as a whole and the United States for 2008 and 2009. Note that in all cases, the gaps shrank considerably. The gap between Quebec and Ontario declined the most (17.35%), from \$5,889.05 to \$4,867.35.

TABLE 4

DIFFERENCES IN GDP PER CAPITA BETWEEN QUEBEC, ONTARIO, CANADA AS A WHOLE AND THE UNITED STATES, 2008 AND 2009

(2008 Canadian dollars and percentages)

	Difference		Variation	
	2008	2009	\$	%
Ontario	5,889.05	4,867.35	-1,021.70	-17.35
Canada	8,599.55	7,630.94	-968.60	-11.26
United States	18,729.86	17,497.21	-1,232.64	-6.58

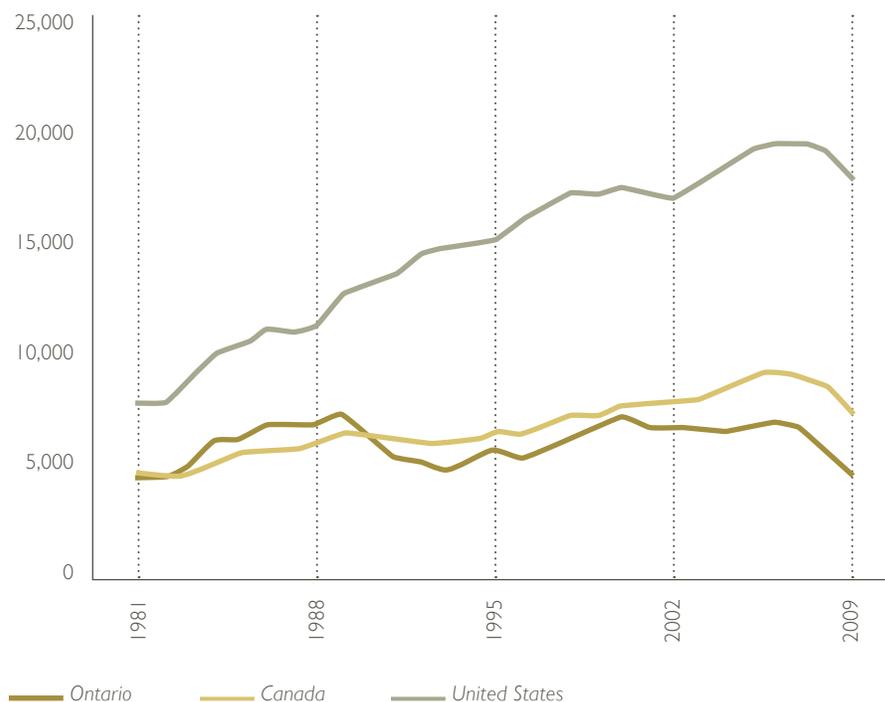
This may seem like good news for Quebec. But if neighbouring economies recover more quickly than Quebec in the next few years, it is entirely possible that the smaller gaps observed in 2008 and 2009 may be only temporary. Since we know that this is not the first recession to affect the Quebec economy, perhaps we can draw some lessons about past recoveries from historical data.

Data on Quebecers' standard of living over the past 30 years point to certain trends in the behaviour of the Quebec economy during a recession. In the 1981 recession, the standard of living gaps between Quebec and its immediate neighbours did not change significantly. Between 1982 and 1984, however, as the economy was recovering, Quebec was unable to rebound as quickly as its immediate neighbours. During this short period, the standard of living gaps widened by over \$1,500 with Ontario, \$600 with Canada as a whole and nearly \$2,000 with the United States, as shown in Figure 3.

FIGURE 3

TRENDS IN THE STANDARD OF LIVING GAPS BETWEEN QUEBEC AND ONTARIO, CANADA AS A WHOLE AND THE UNITED STATES, 1981-2009

(2008 Canadian dollars per capita)



During the next recession, between 1989 and 1992, GDP per capita declined less in Quebec than in Ontario and Canada as a whole, and the standard of living gap shrank by over \$2,000 with Ontario and more than \$400 with Canada as a whole. Just as with the previous recession, however, Quebec was unable to make a strong recovery. Consequently, the province's advantage quickly evaporated and Quebecers' relative standard of living fell to its initial level of several years earlier.

Historically, then, the Quebec economy has not been able to pull itself out of recessionary periods with enough economic momentum to close the standard of living gap during periods of growth. Consequently, the narrower standard of living gap observed between 2008 and 2009 is not necessarily a sign that the Quebec economy has made lasting gains. Since we know that something similar happened in previous recessions, it is quite possible that history may repeat itself once again.

TRENDS IN LABOUR PRODUCTIVITY DURING THE RECESSION

Since labour productivity has a major impact on the standard of living, it makes sense to look at how it was affected by the recession. Table 5 shows labour productivity in Quebec, Ontario, Canada as a whole and the United States for 2008 and 2009.

TABLE 5

LABOUR PRODUCTIVITY, 2008 AND 2009

(2008 Canadian dollars per hour worked and percentages)

	Labour productivity		Variation	
	2008	2009	\$	%
Quebec	47.87	48.56	0.69	1.44
Ontario	49.68	50.12	0.43	0.87
Canada	53.32	53.79	0.47	0.89
United States	63.07	64.91	1.84	2.93

First of all, we can see that labour productivity in Quebec remained the lowest of all the jurisdictions studied. With 1.44% growth, Quebec nonetheless outpaced Ontario and Canada as a whole. The United States racked up considerable labour productivity growth, of 2.93%. These improvements in labour productivity may seem surprising, given the recession at the time. During a recession, output falls and the unemployment rate rises. In this case, this situation resulted in lower GDP and fewer hours worked in Quebec and its immediate neighbours. Consequently, for labour productivity to go up, the number of hours worked must fall more than GDP. That is exactly what happened in all these regions, as shown in Table 6.

TABLE 6

VARIATION IN GROSS DOMESTIC PRODUCT AND HOURS WORKED BETWEEN 2008 AND 2009

(Percentages)

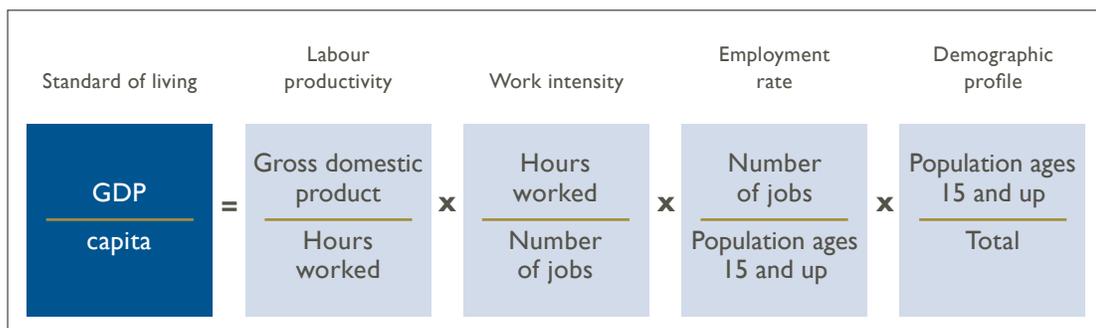
	Variation between 2008 and 2009 (%)	
	GDP	Hours worked
Quebec	-1.04	-2.45
Ontario	-3.00	-3.83
Canada	-2.46	-3.32
United States	-2.63	-5.40

Thus the marked 5.40% reduction in hours worked in the United States, as compared with the smaller decline in GDP (2.63%), clearly explains why labour productivity rose so strongly south of the border.

UNDERSTANDING THE STANDARD OF LIVING GAP

Aside from labour productivity, many other factors also go into determining the standard of living. GDP per capita can be broken down into four separate elements: labour productivity, work intensity, the employment rate and the demographic profile. This breakdown is shown below:

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Although there are many factors that can increase GDP per capita and this is a simplified and highly integrated approach to measuring the concept of the standard of living, this breakdown has the advantage of assigning a specific monetary value to each of these components.

Using this breakdown, we can then calculate the proportion of the standard of living gaps between Quebec and its immediate neighbours that is explained by each of these components, as shown in Table 7. This allows us to identify which of these components are responsible for the largest share of the standard of living gaps between Quebec and Ontario, Canada as a whole and the United States.

TABLE 7

SOURCES OF THE STANDARD OF LIVING GAP BETWEEN QUEBEC AND ONTARIO, CANADA AS A WHOLE AND THE UNITED STATES, 2009

(Percentages and 2008 Canadian dollars per capita)

		Labour productivity	Work intensity	Employment rate	Demographic profile	Total
Ontario	%	26.54	32.72	52.54	-11.81	100.00
	\$	-1,292.02	-1,592.82	-2,557.35	574.83	-4,867.35
Canada	%	56.70	18.73	30.35	-5.78	100.00
	\$	-4,326.85	-1,429.28	-2,315.89	441.08	-7,630.94
United States	%	77.65	27.48	9.00	-14.12	100.00
	\$	-13,585.81	-4,807.73	-1,574.37	2,470.70	-17,938.17

Labour productivity

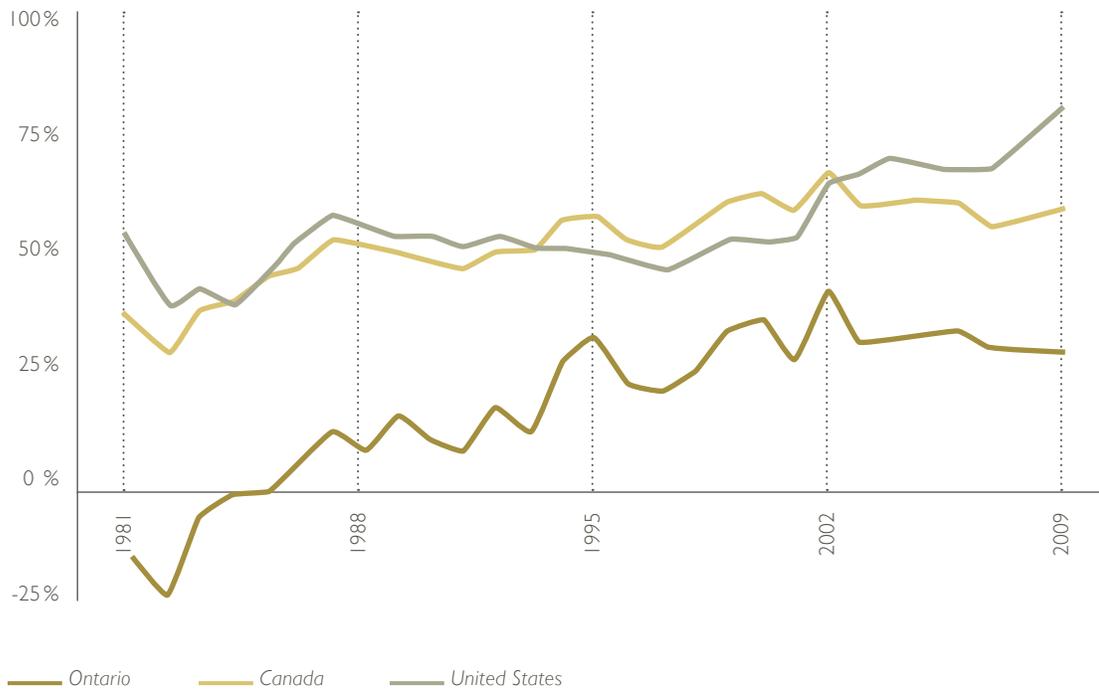
The first column in Table 7 shows that labour productivity remains one of the main sources of these standard of living gaps. For 2009, it explains over 25% of the standard of living gap with Ontario, nearly 60% with Canada as a whole and close to 80% with the United States. This means that low labour productivity in Quebec exacerbates the standard of living gaps with these regions by \$1,292.02, \$4,326.85 and \$13,585.81, respectively.

Has labour productivity always been the main factor explaining these standard of living gaps? Figure 4, illustrating trends in the share of the standard of living gaps between Quebec and its neighbours explained by labour productivity between 1981 and 2009, helps to answer this question. It clearly shows that labour productivity has not always been a major source of the standard of living gap with Ontario. In the early 1980s, labour productivity in Quebec was marginally higher than in Ontario, helping to reduce the standard of living gap between the two provinces. The situation has changed significantly since then. Today, Quebec's lower labour productivity as compared with Ontario explains much of the standard of living gap between the two provinces. In fact, labour productivity has almost always been the main source of the standard of living gaps between Quebec and the rest of Canada and the United States.

FIGURE 4

TRENDS IN THE PROPORTION OF THE STANDARD OF LIVING GAPS EXPLAINED BY LABOUR PRODUCTIVITY, 1981-2009

(Percentages)



Work intensity

Work intensity, i.e. the number of hours worked annually per job, is also an important factor in explaining these standard of living gaps. In 2009, it was responsible for over one-quarter of Quebec's standard of living gaps with Ontario and the United States, as shown in the second column of Table 7. That can be explained by the much lower work intensity in Quebec as compared with Ontario, Canada and the United States. More specifically, in 2009 Quebec workers worked 65, 56 and 178 fewer hours, on average, than workers in Ontario, Canada as a whole and the United States. The difference in hours worked per job between Quebec and the United States amounted to five 35-hour weeks.

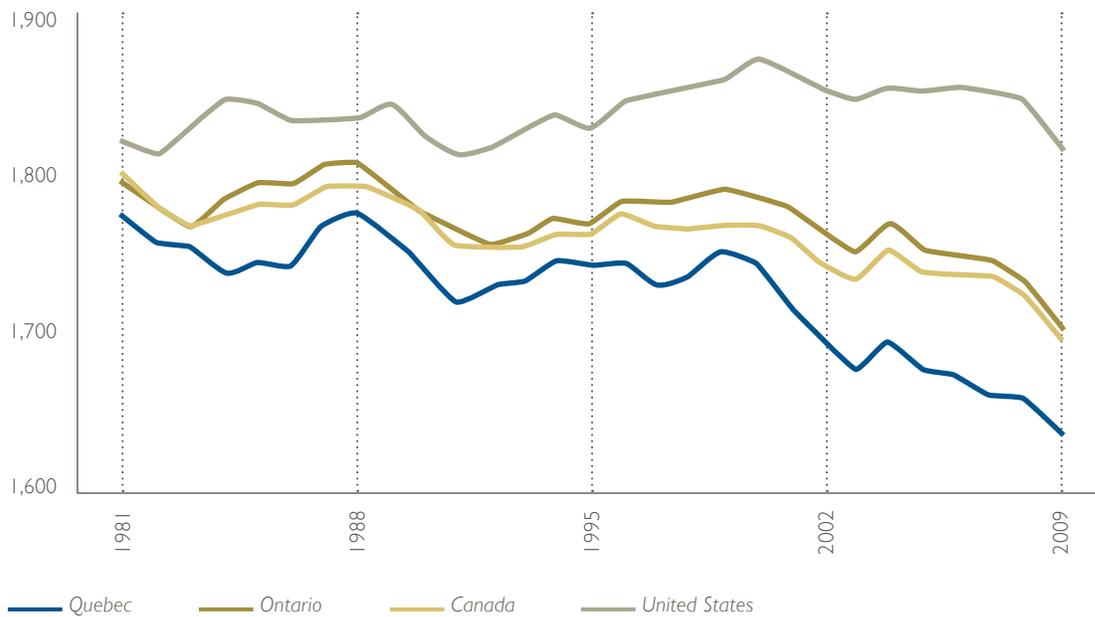
This disparity between work intensity in Quebec and that of its neighbours is not recent, but has swelled considerably in the past three decades. As shown in Figure 5, in the early 1980s, work intensity in Quebec was similar to that in the other three economies, meaning about 1,800 hours per job. Between 1981 and 2009, however, hours worked in Quebec declined more drastically than elsewhere, to 1,643 hours per job in 2009.

This has inevitably had an impact on the overall wealth generated by the economy and Quebecers' standard of living. The larger decrease in hours worked in Quebec than elsewhere has led to a substantial widening of the standard of living gaps with the other three jurisdictions as explained by work intensity. This proportion rose from less than 10% in 1981 to over 25% on average, for 2009.

FIGURE 5

TRENDS IN WORK INTENSITY, 1981-2009

(Hours worked per job)



Employment rate

The employment rate, measured by the ratio of the number of jobs to the working-age population (15 and up), has historically always been an important factor in explaining the standard of living gaps between Quebec and its immediate neighbours. Although its weight has decreased over the past

30 years, it still explains more than 50% of the gap with Ontario, 30% with Canada as a whole and 9% with the United States (Table 7, column 3).

The recession very slightly changed the contribution of the employment rate to the standard of living gaps with Ontario and Canada. However, the sharp reduction in the employment rate in the United States means that this component accounts for less of the standard of living gap with Quebec. The share of the gap explained by the difference in the employment rate between Quebec and the United States fell from 15.69% to 9.00% between 2008 and 2009.

Demographic profile

In terms of the demographic profile, which measures the percentage of the total population of working age (15 and up), Quebec currently has an advantage over its neighbours. Unlike the other components, the province's demographic profile is helping to reduce the standard of living gaps with Ontario, Canada and the United States by 11.81%, 5.78% and 14.12%, respectively. This is explained by the fact that Quebec has a larger proportion of working-age individuals than elsewhere.

By breaking down the standard of living into its various components we have been able to show that labour productivity today remains one of the main sources of the standard of living gaps between Quebec and its immediate neighbours. The proportion of the gaps explained by this component has actually increased significantly over the past 30 years. Nonetheless, labour productivity is not only the result of efficiency in producing goods and services, but also depends on the distribution of activity in the different sectors of the economy. In other words, part of the province's poor labour productivity may be due to economic activity being concentrated in sectors recognized as having lower productivity.

**Labour productivity today
remains one of the main sources
of the standard of living gaps
between Quebec and its
immediate neighbours.**

DECOMPOSITION OF LABOUR PRODUCTIVITY

Comparisons of labour productivity in different jurisdictions do not take account of the fact that their industrial structures may be different. In other words, it is possible that a labour productivity gap may be due to one of the jurisdictions having a higher proportion of its economic activity concentrated in sectors with lower productivity. The productivity gap may conceal a structural problem. The following example more clearly explains how industrial structure can have an impact on the overall measurement of labour productivity.

Let us take two countries, 1 and 2, whose labour productivity is \$48/hour worked and \$50/hour worked, respectively. Now assume that these two countries consist of two industrial sectors, A and B. In both countries, labour productivity is higher in sector A than in sector B. Let us also assume that labour productivity in country 1 is higher than in country 2, in both sector A and sector B. This situation is illustrated in the table below. Oddly enough, it can be seen that even though country 1 is ahead of country 2 in both sectors, the overall economy in country 2 is stronger than in country 1.

THE EFFECT OF STRUCTURAL COMPOSITION ON LABOUR PRODUCTIVITY LEVELS

	Industry	GDP (\$000)	Hours (000)	Labour productivity (\$/hour worked)
Country 1	A	150,000	2,500	60
	B	450,000	10,000	45
	Total	600,000	12,500	48
Country 2	A	220,000,000	4,000,000	55
	B	80,000,000	2,000,000	40
	Total	300,000,000	6,000,000	50

This situation can be explained by the differences observed in the two countries' industrial structure. While 80% of the hours worked in country 1 are in the least productive sector, sector B, most of country 2's economic activity is concentrated in the more productive sector, sector A. Consequently, overall productivity in country 2 is higher than in country 1. This example illustrates the reason for decomposing labour productivity into two separate elements: the structural effect and net productivity.

Table 8 decomposes the standard of living gap between Quebec and Ontario and Canada as a whole by isolating the effects of differences in industrial structure on labour productivity (the structural effect). By removing the structural effect from labour productivity, we obtain net productivity.

TABLE 8

SOURCES OF THE STANDARD OF LIVING GAP BETWEEN QUEBEC AND ONTARIO, CANADA AS A WHOLE AND THE UNITED STATES, 2009

(Percentages and 2008 Canadian dollars per capita)

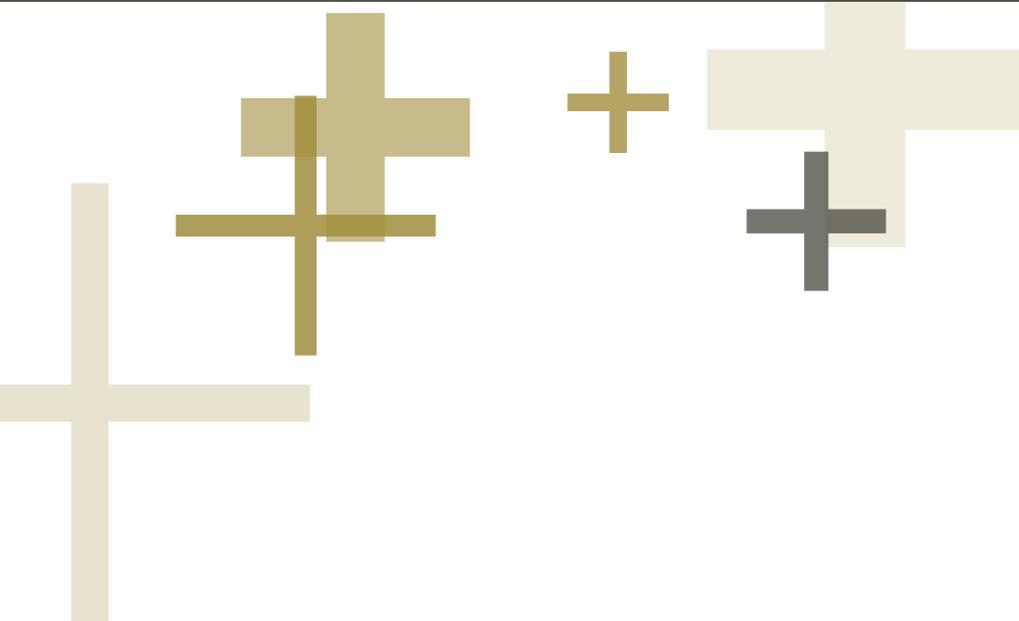
		Labour productivity		Work intensity	Employment rate	Demographic profile	Total
		Net productivity	Structural effect				
Ontario	%	21.93	4.61	32.72	52.54	-11.81	100.00
	\$	-1,067.56	-224.46	-1,592.82	-2,557.35	574.83	-4,867.35
Canada	%	68.33	-11.63	18.73	30.35	-5.78	100.00
	\$	-5,214.27	887.41	-1,429.28	-2,315.89	441.08	-7,630.94

In 2009, we can see that net productivity was responsible for a standard of living gap of \$1,067.56 per capita, or 21.93% of the total, between Quebec and Ontario. Quebec's shortfall in terms of its standard of living is due, then, to lower net productivity. In comparison with Canada as a whole, the net productivity gap is \$5,214.27 per capita or 68.33% of the total gap. In addition, the structural effect is to Quebec's advantage in comparison with Canada, reducing the standard of living gap by about 11.63%. In other words, Quebec's economic activity is slightly more concentrated in more productive sectors than is economic activity in Canada on average. The structural effect remains relatively unimportant, however, in explaining the total gap.

3



WHAT
CAUSES
LABOUR
PRODUCTIVITY
GROWTH?



Inasmuch as about 5% of the standard of living gap between Quebec and Ontario can be attributed to the structural effect, this means that a certain proportion of that gap between the two provinces is attributable to the fact that Quebec's industrial structure is more oriented toward lower-productivity sectors than is Ontario's.

While the structural effect may seem to provide part of the answer, it must be remembered that the largest proportion of Quebec's productivity gap with Ontario is due to its lower net productivity, i.e. given the differences in their industrial compositions (structural effect).

The situation is no different if we compare Quebec's performance with that of Canada as a whole. In this case, it can be seen that Quebec's productivity gap is invariably attributable in very large part to the province's lower net productivity, rather than to its industrial structure. Since this lagging performance is not a temporary or new phenomenon, we must seek to identify its origin.

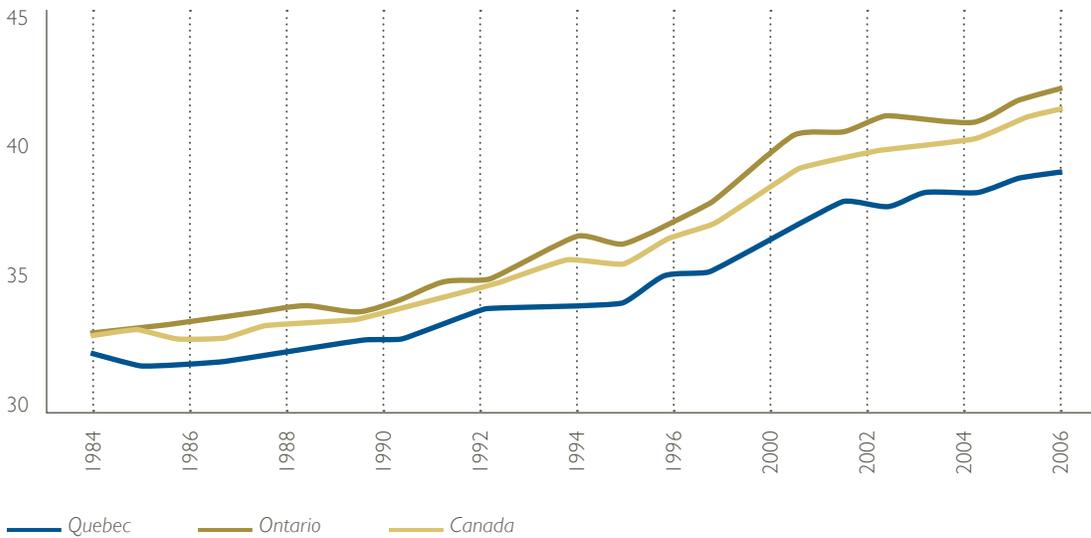
Figure 6 traces trends in labour productivity (including the structural effect) in Quebec, Ontario and Canada since 1984.¹ It can be seen, first of all, that Quebec, Ontario and Canada as a whole were more or less on a par at first. Quebec's labour productivity at the time represented 97.2% of Ontario's and 97.5% of the national productivity level. Thus Quebec's performance in terms of labour productivity today is not a result of historically lower productivity.

¹ In view of the availability of data, the analysis in this section covers the period from 1984 to 2006.

FIGURE 6

TRENDS IN GROSS DOMESTIC PRODUCT PER HOUR WORKED, 1984-2006

(2002 Canadian dollars per hour worked)



It seems fairly clear that Quebec's current lagging labour productivity results from the low growth observed since the mid 1980s.

In fact, looking at Quebec's performance throughout this period, it can be seen that labour productivity growth in Quebec (22.5%) was substantially lower than in Ontario (28.5%) and across Canada (26.7%). Consequently, it seems fairly clear that Quebec's current lagging labour productivity results from the low growth observed since the mid 1980s.

Given this finding, in this section we will try to identify sector contributions to labour productivity growth so as to identify the industrial sectors that may have contributed – or failed to contribute – to overall labour productivity growth since 1984.

DECOMPOSING LABOUR PRODUCTIVITY GROWTH BY SECTOR

The method used in this section to decompose growth² allows us to differentiate between two types of effects that contribute to overall labour productivity growth.

An industrial sector can contribute first of all to improving overall labour productivity because labour productivity in that sector increases (or vice versa). In that case we refer to a pure productivity effect. An industrial sector can also contribute to improving overall labour productivity if the sector's labour productivity grows and its relative size in the economy increases. This is the size effect, where the size of a sector is measured by the ratio of hours worked in that sector to the total hours worked in the entire economy.

The sum of these two effects (pure productivity effect and size effect) makes it possible to determine how much a given sector contributes to overall labour productivity growth. In practice, there are many interactions between these two effects. For instance, an industrial sector may see its labour productivity rise without actually contributing to overall labour productivity growth if the sector's relative size shrinks substantially during the period studied. On the other hand, an industrial sector may see its labour productivity rise only marginally and yet make a large contribution to overall labour productivity growth if its relative size expands substantially.

² The method used in this section to decompose labour productivity growth was proposed by Tang, Jianmin and Weimin Wang (2004), "Sources of Aggregate Labour Productivity Growth in Canada and the United States," *Canadian Journal of Economics* 37(2), pp 421-444.

DECOMPOSITION OF LABOUR PRODUCTIVITY GROWTH BY MAIN INDUSTRIAL SECTOR IN QUEBEC

First of all, we can divide the Quebec economy into three main sectors:

- the goods production sector, consisting of industries producing tangible goods,
- the service sector, which consists of industries producing marketable services, and
- the non-commercial sector, which essentially consists of government operations and activities by non-profit organizations.

Remember, first of all, that overall labour productivity growth, i.e. for the economy as a whole, rose by 22.5% between 1984 and 2006 in Quebec. The third column in Table 9, below, shows how each of the three main sectors contributed to overall growth in labour productivity. It can be seen that the total contribution of the goods production sector (1.53%) and the non-commercial sector (2.50%) was positive, albeit small. The largest proportion of overall labour productivity growth came from the service sector: this sector's contribution was 18.45%, or over 80% of overall growth between 1984 and 2006.

TABLE 9

DECOMPOSITION OF LABOUR PRODUCTIVITY GROWTH IN QUEBEC, GOODS, SERVICES AND NON-COMMERCIAL SECTORS, 1984–2006

	Pure productivity effect	Size effect	Total contribution to aggregate productivity
Goods production sector	11.54%	-10.01%	1.53%
Service sector	10.11%	8.34%	18.45%
Non-commercial sector	13.83%	-11.33%	2.50%
TOTAL ECONOMY			22.48%

The first column in Table 9 (pure productivity effect) shows first of all that the contributions by the three sectors in terms of pure productivity were relatively high: 11.54% for the goods production sector; 10.11% for the service sector and 13.83% for the non-commercial sector. Each sector considerably improved its labour productivity between 1984 and 2006.

It is noteworthy that the contribution by the service sector in terms of pure productivity was lower than in the rest of the economy, although this sector was responsible for the largest proportion of overall growth. This can be explained by the change in the relative sizes of the three sectors. Despite satisfactory performances in terms of pure productivity, the relative sizes of the goods production sector and the non-commercial sector shrank considerably, and this in turn substantially reduced their total contribution to overall labour productivity growth.

For example, the goods production sector represented 31.10% of all hours worked in the economy in 1984. Because of the tertiarization of the Quebec economy, though, this proportion was only 23.41% in 2006. Thus the size effect in this sector was negative (-10.01%). The second column in Table 9 shows that the size effect was also negative in the non-commercial sector (-11.33%). The total contribution by these sectors was low, despite their relatively large gains in pure productivity.

On the other hand, structural changes in Quebec since the 1980s have fostered growth in the service sector. This meant that the size effect in this sector was high (8.34%), explaining why this sector's total contribution to overall labour productivity growth was much greater than those of the goods production and non-commercial sectors.

The largest proportion of overall labour productivity growth came from the service sector: this sector's contribution was 18.45%, or over 80% of overall growth between 1984 and 2006

DECOMPOSITION OF LABOUR PRODUCTIVITY GROWTH BY INDUSTRY

Labour productivity growth in the goods production and service sectors can in turn be decomposed into the various industries making up these two sectors.

Goods production sector

As we have just seen, Quebec's goods production sector has contributed very little to overall labour productivity growth since the mid-1980s. Tables 10A, B and C show that the industries in this sector have generally made a small, albeit positive, total contribution. It can be seen that the manufacturing industry's gains in terms of pure productivity (10.92%) offset the impact of the marked decrease in its relative size (-10.02%).

The situation in Ontario and the rest of Canada is slightly different. Note, first of all, that the total contribution of the goods production sector in Ontario was negative (-2.32%). Despite a high pure productivity effect (14.87%), the size effect in this sector (-17.18%) offset the pure productivity gains, wiping out this sector's contribution to overall labour productivity growth. Just as in Quebec, this situation is largely attributable to the significant reduction in the relative size of the manufacturing sector in Ontario.

The contribution by the goods production sector across Canada (3.34%) was greater than in Quebec, in particular thanks to the total contribution of the construction industry (2.18%). It can also be seen that the primary sector³ in Canada made a positive contribution to labour productivity growth nationwide (1.50%), while this sector's total contribution was negative in Quebec (-0.50%) and Ontario (-1.12%).

³ Includes industries related to agriculture, forestry, fishing, hunting and trapping, and mining, in particular.



TABLE 10A (Quebec)

DECOMPOSITION OF LABOUR PRODUCTIVITY GROWTH IN QUEBEC, ONTARIO AND CANADA AS A WHOLE BY MAIN INDUSTRIES, 1984–2006

Quebec	Pure productivity effect	Size effect	Total contribution to aggregate
GOODS PRODUCTION SECTOR	11.54%	-10.01%	1.53%
Primary industries	2.18%	-2.68%	-0.50%
Utilities	-1.44%	1.72%	0.29%
Construction	-0.13%	0.97%	0.84%
Manufacturing	10.92%	-10.02%	0.90%
SERVICE SECTOR	10.11%	8.34%	18.45%
Wholesale trade	1.55%	0.11%	1.66%
Retail trade	3.49%	-1.99%	1.49%
Transport'n & warehousing	0.24%	-0.22%	0.02%
Information and cultural industries	-0.07%	3.75%	3.67%
Finance, insurance and real-estate services	4.46%	-0.62%	3.84%
Professional, scientific and technical services	0.75%	2.16%	2.92%
Administrative, support, waste management and remediation services	0.11%	2.04%	2.15%
Arts, entertainment and recreation	-0.32%	0.75%	0.44%
Accommodation and food services	-0.31%	0.68%	0.36%
Other services	0.20%	1.70%	1.90%
NON-COMMERCIAL SECTOR	13.83%	-11.33%	2.50%
TOTAL ECONOMY			22.48%



TABLE 10B (Ontario)

DECOMPOSITION OF LABOUR PRODUCTIVITY GROWTH IN QUEBEC, ONTARIO AND CANADA AS A WHOLE BY MAIN INDUSTRIES, 1984–2006

Ontario	Pure productivity effect	Size effect	Total contribution to aggregate
GOODS PRODUCTION SECTOR	14.87%	-17.18%	-2.32%
Primary industries	1.16%	-2.27%	-1.12%
Utilities	0.15%	-0.30%	-0.16%
Construction	-0.33%	2.57%	2.25%
Manufacturing	13.89%	-17.18%	-3.29%
SERVICE SECTOR	14.93%	13.47%	28.40%
Wholesale trade	6.71%	-2.97%	3.74%
Retail trade	2.44%	-0.89%	1.55%
Transport'n & warehousing	0.66%	0.39%	1.05%
Information and cultural industries	0.07%	4.42%	4.49%
Finance, insurance and real-estate services	4.00%	4.10%	8.11%
Professional, scientific and technical services	1.02%	3.17%	4.18%
Administrative, support, waste management and remediation services	0.10%	2.54%	2.64%
Arts, entertainment and recreation	-0.18%	0.71%	0.53%
Accommodation and food services	-0.31%	0.55%	0.24%
Other services	0.41%	1.47%	1.88%
NON-COMMERCIAL SECTOR	15.30%	-12.96%	2.34%
TOTAL ECONOMY			28.42%

TABLE 10C (Canada)

DECOMPOSITION OF LABOUR PRODUCTIVITY GROWTH IN QUEBEC, ONTARIO AND CANADA AS A WHOLE BY MAIN INDUSTRIES, 1984–2006

Canada	Pure productivity effect	Size effect	Total contribution to aggregate
GOODS PRODUCTION SECTOR	12.44%	-9.10%	3.34%
Primary industries	3.72%	-2.22%	1.50%
Utilities	-0.19%	-0.08%	-0.27%
Construction	-0.45%	2.63%	2.18%
Manufacturing	9.36%	-9.43%	-0.07%
SERVICE SECTOR	13.15%	6.35%	19.50%
Wholesale trade	3.56%	-0.94%	2.61%
Retail trade	1.65%	-0.09%	1.56%
Transport'n & warehousing	0.95%	-0.39%	0.56%
Information and cultural industries	2.39%	-1.19%	1.20%
Finance, insurance and real-estate services	4.05%	1.31%	5.37%
Professional, scientific and technical services	0.53%	2.81%	3.34%
Administrative, support, waste management and remediation services	0.04%	2.09%	2.13%
Arts, entertainment and recreation	-0.17%	0.61%	0.44%
Accommodation and food services	-0.05%	0.41%	0.35%
Other services	0.21%	1.72%	1.93%
NON-COMMERCIAL SECTOR	6.87%	-2.71%	4.15%
TOTAL ECONOMY			27.00%

Service sector and non-commercial sector

Just as in Quebec, most of the labour productivity growth in Ontario and across Canada was attributable to the service sector.

The labour productivity gains in this sector were generally high. The pure productivity effect was weaker in Quebec (10.11%) than in Ontario (14.93%) or Canada (13.15%). In addition, the size effect in Quebec (8.34%) in the service sector was slightly higher than in Canada as a whole (6.35%) but lower than in Ontario (13.47%).

Overall, the total contribution of the service sector in Quebec (18.45%) was significantly weaker than in Ontario (28.40%) and, to a lesser extent, across Canada (19.50%). A detailed analysis of the sector makes it possible to identify the industries at the root of this situation.

It can be seen, first of all, that the total contribution by the wholesale trade industry was lower in Quebec (1.66%) than in Ontario (3.74%) and Canada (2.61%). Although Quebec is the only economy to have seen a positive size effect in this industry, the pure productivity gains in Quebec (1.55%) were considerably smaller than in Ontario (6.71%) and Canada (3.56%), meaning that this industry made a smaller total contribution in Quebec.

Although slightly weaker than in Ontario or Canada, Quebec's relative performance in industries related to wholesale trade, i.e. transportation and retail trade, was similar to those of Ontario and Canada.

Quebec was also slightly outperformed by Ontario in terms of the information and cultural industries, as the total contribution by these industries was 3.67% in Quebec as opposed to 4.49% in Ontario. In both cases, the increase in the relative size of these industries meant that they made a significant contribution to overall labour productivity growth, even though their contribution in terms of pure productivity was practically nil. Canada as a whole turned in a poorer performance, with a total contribution of 1.20% for these two industries.

The finance industry in Quebec made a considerably smaller total contribution (3.84%) than in Ontario (8.11%) and, to a lesser extent, in Canada as a whole (5.37%). Despite the fact that this sector's contribution in terms of pure productivity was slightly higher in Quebec (4.46%) than in Ontario (4.00%) or Canada (4.05%), the smaller relative size of the finance industry in Quebec reduced its total contribution to overall productivity growth. On the other hand, the size effects observed in Ontario and Canada in this sector increased the finance industry's total contribution to overall labour productivity growth.

Note, also, that industries related to finance made a smaller total contribution in Quebec than in Ontario or Canada. For example, the total contribution of the professional, scientific and technical services industry was 2.92% in Quebec, as compared with 4.18% in Ontario and 3.34% across Canada. The gap in the contribution by these industries explains almost all the difference in the contribution between the Quebec and Ontario service sectors.

The situation is different when we compare Quebec with Canada as a whole. Despite the substantial differences in the contribution by certain industries, the differences between industries in Quebec and Canada tend to even out when the entire service sector is considered. This explains why the total contribution of the service sector in Quebec (18.45%) was close to that for Canada nationwide (19.50%).

Quebec's lagging performance as compared with Canada as a whole in terms of overall labour productivity growth cannot be fully attributed to the lower contribution by the service sector; in other words, in addition, if there is a gap in the goods production sector, it explains only part of the lagging overall labour productivity growth.

The rest of the difference in overall growth between Quebec and Canada comes from the contribution by the non-commercial sector. Between 1984 and 2006, this sector's contribution in Quebec was 2.50% as opposed to 4.15% in Canada. Surprisingly though, the pure productivity effect in this sector was higher in Quebec (13.83%) than in Canada (6.87%). The size effect in Quebec (-11.33%) was greater than in Canada (-2.71%), so that the sector's total contribution was much larger in Canada.

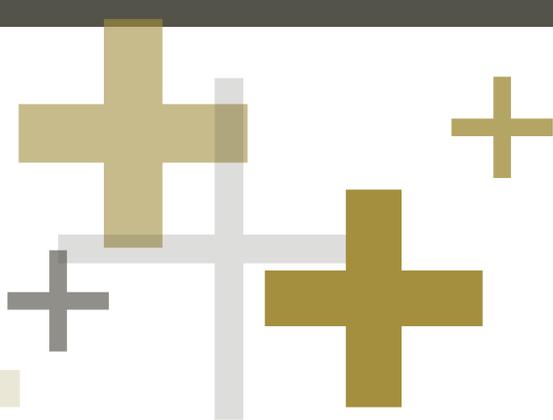
While section 2 showed that a small proportion of the labour productivity gap between Quebec and Ontario can be attributed to the structural effect, decomposing the growth observed between 1984 and 2006 has shown that most of this gap is due to lagging service industry growth. The decomposition of overall labour productivity growth illustrated that a substantial proportion of the difference in the overall growth was attributable to Quebec's performance in the finance and related industries.

On the other hand, by decomposing growth we saw that the difference in growth between Quebec and Canada was due essentially to the smaller contribution by goods production industries and the non-commercial sector.

Just as in Quebec, most of the labour productivity growth in Ontario and across Canada was attributable to the service sector.

4

DEMOGRAPHICS AND THE STANDARD OF LIVING



Like most industrialized societies, Quebec has seen fundamental changes in its demographic structure since the post-war baby boom. Given its low birthrate, the province's demographic situation has been substantially transformed, and the latest forecasts tend to show that the impact of the greying population will be felt very soon. Thus, demographic shock is not a myth, but a reality that Quebec will have to face.

This section analyzes the impact of the greying population on Quebec's economic performance. Based on the latest demographic projections published by the *Institut de la statistique du Québec*,⁴ this section looks more closely at the interactions between economic performance, demographic shifts and labour productivity.

WHAT ARE DEMOGRAPHIC SHIFTS?

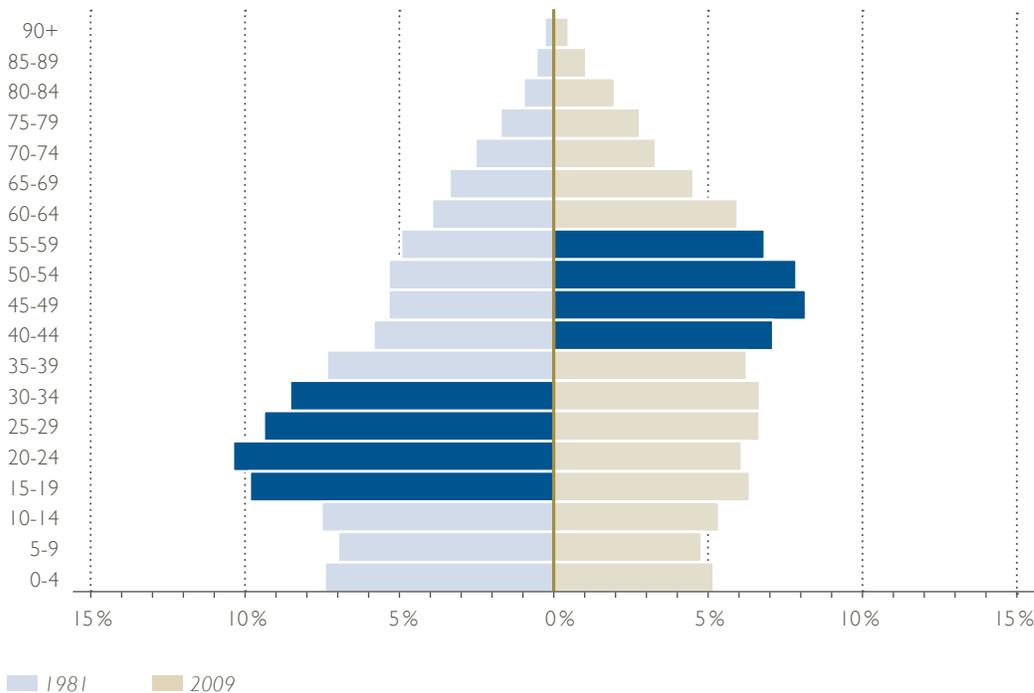
Figure 7 illustrates the changes in Quebec's demographic structure by age since the early 1980s. In 1981, over one-third (37.7%) of the population was between 15 and 34, essentially the result of the post-war baby boom. Then, because of the declining birth rate, the province's demographic structure gradually changed so that, by 2009, the largest age category was the 40-59 segment (30.5%). These shifts produced a new demographic "pyramid" for the province.

⁴ Institut de la statistique du Québec (2009), *Perspectives démographiques du Québec et des régions 2006-2056*. The statistics refer to the reference scenario.

FIGURE 7

DEMOGRAPHIC STRUCTURE BY AGE IN QUEBEC, 1981 AND 2009

(Percentage of the total population)



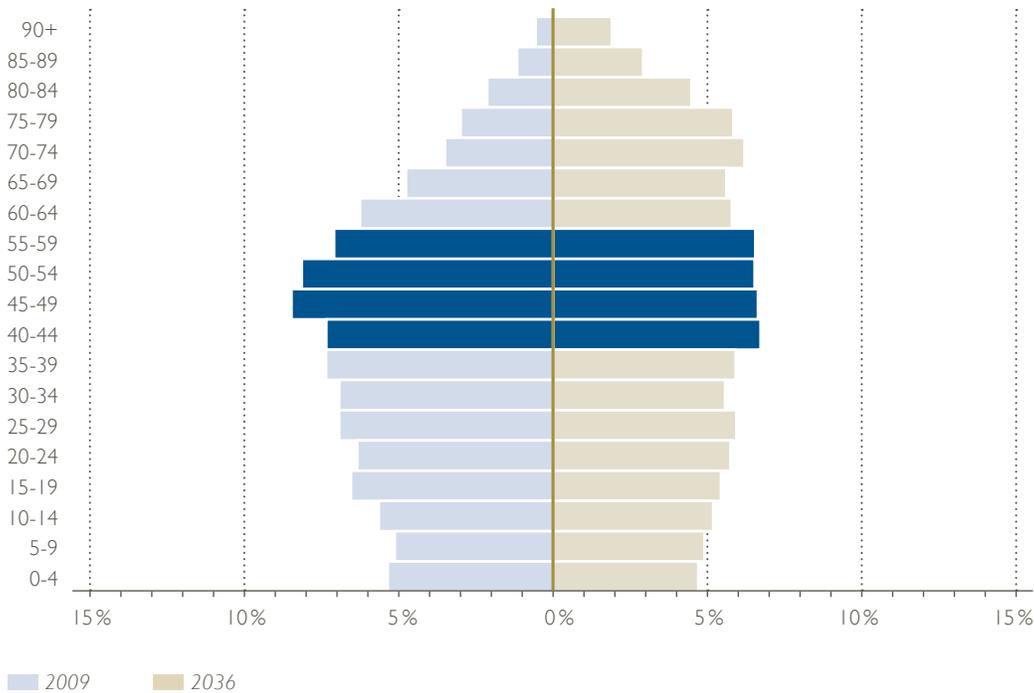
While it is true that this brief analysis shows that the greying population is already apparent, it provides only a partial picture of the demographic transformation underway. To properly grasp the extent of these shifts, we need to look into the future and anticipate coming changes to Quebec's demographic structure. Figure 8 shows the current demographic projections for Quebec, giving us an overall portrait of the greying population.

Although the 40-59 age category will still account for the largest share of Quebec's population in 2036, current projections point to a fundamental shift in its demographic structure. While in 1981 the 64 and up segment of the population was considerably smaller than the under 15 segment (8.75% vs. 21.5%), today there are almost as many Quebecers over age 64 as there are under age 15. In fact, by 2011 the proportion of people over 64 will outweigh those under 15. By the end of the forecast period, i.e. in 2036, these proportions will be 26% (over 64) and 14% (under 15), respectively.

FIGURE 8

DEMOGRAPHIC STRUCTURE BY AGE IN QUEBEC, 2009 AND 2036

(Percentage of the total population)



Because of the drop in the birth rate, there has been a substantial decline in the number of young people participating in the economy. At the other end of the scale, natural ageing inevitably reduces the proportion of the population of working age. These demographic changes have a significant impact on the number of people entering and leaving the labour market.

In 2036, the proportion of the population most likely to withdraw from the labour market, i.e. those over age 64, will be nearly twice as large as the proportion that could conceivably join the labour market, i.e. those under 15. Consequently, there will be very little potential to add new active labour force participants. This demographic shift will have a direct impact on the ability of the economy to generate income from the pool of potentially active workers.

IMPACT ON THE LABOUR MARKET

To properly identify the nature of the changes in terms of people entering and leaving the labour market, we will decompose Quebec's demographic structure into three categories. The first category consists of individuals under age 15, that is those representing potential labour market entrants. The second category consists of individuals between 15 and 64, those who are potentially active in the economy. The third consists of those over 64, i.e. individuals most likely to leave the labour market.

First of all, we must change the way we measure the demographic profile, to more accurately represent potential activity on the labour market.⁵ We will now measure the demographic profile using the ratio of ages 15 to 64 to the total population. This will help us to more precisely target the population category that is potentially active on the labour market. With this new measurement, 2009 employment statistics show that over 98% of jobs are held by individuals between 15 and 64.

Figure 9 illustrates the trends in the redefined demographic profile. It shows that, between 1981 and 2009, Quebec's demographic profile remained relatively stable, as a result of the post-war baby boom.

FIGURE 9

QUEBEC'S DEMOGRAPHIC PROFILE, 1971-2036

(Population 15 to 64/total population)



⁵ In the past the demographic profile was measured by the ratio of individuals ages 15 and up as compared with the total population.

Quebec will experience a substantial decrease in its pool of potential workers, and this could reduce the ability of the labour market to support the entire economy.

The last cohort of baby boomers entered the labour market in the early 1980s, generating high potential economic activity. The demographic profile then remained stable until the mid-2000s, when the first cohorts from the post-war baby boom began to retire, leaving the labour market.

According to the latest demographic projections, Quebec's demographic profile will shrink substantially over the next several years. Since 2007 the proportion of 15 to 64 year olds has begun declining and projections now available show that it will fall from over 69% in 2009 to under 60% by 2036. In other words, Quebec will experience a substantial decrease in its pool of potential workers, and this could reduce the ability of the labour market to support the entire economy.

The deteriorating demographic profile also assumes that each worker potentially active on the labour market will have to support more inactive individuals, meaning those under 15 or over 64. The demographic dependency rate, measured by the ratio of dependent individuals (under 15 or over 64) to potentially active workers on the labour market (15 to 64), is a tool for evaluating this situation.

Just like its demographic profile, Quebec's demographic dependency rate was relatively stable between 1981 and 2009, as shown by Figure 10. Starting in 2010, Quebec's demographic dependency rate will increase substantially, meaning that each potentially active worker will have to support a larger number of inactive individuals. While the demographic dependency rate was 0.44 in 2009, it will rise to 0.69 in 2036. By that time, Quebec will have nearly 7 potentially inactive people for every 10 potentially active ones on the labour market. By way of comparison, Quebec had just over 4 potentially inactive people for every 10 potentially active ones in 1981.

FIGURE 10

QUEBEC'S DEMOGRAPHIC DEPENDENCY RATE, 1971-2036

(Population under 15 and over 64 / population from 15 to 64)



One observation clearly emerges from this analysis: the greying population will have a significant impact on the numbers of people entering and leaving the labour market, and hence on the ability of Quebec's economy to generate wealth from its pool of potentially active workers. These shifts will have repercussions on the ability of the labour market to support the economy, and this could in turn drastically affect Quebecers' standard of living.

IMPACT OF THESE DEMOGRAPHIC SHIFTS ON QUEBECKERS' STANDARD OF LIVING

In view of the above conclusions, we have to try to identify the impact of these demographic shifts on Quebec's economic performance. The standard of living index, thus far used to explain standard of living gaps between Quebec and Ontario, Canada and the United States, will be used to assess the economic consequences of demographic shifts.

As we saw earlier, the standard of living, measured by the gross domestic product to population ratio, can be broken down into four factors: labour productivity, work intensity, the employment rate and the demographic profile. Economic and demographic projections for Quebec can be inserted in this equation in order to evaluate the impact of these demographic changes on Quebec's economic performance.

In order to properly measure the potential ability of the labour market to generate economic activity, we are now measuring the demographic profile using the ratio of the population ages 15 to 64 to the total population. The employment rate is measured by the ratio of the number of jobs to the working-age population between 15 and 64. Forecasts concerning demographics and employment are drawn from the *Institut de la statistique du Québec*⁶ and the *Conference Board of Canada*,⁷ respectively. The work intensity component has been set to the average number of hours worked per job as observed between 1999 and 2008, i.e. 1,697 hours per job.

Considering the demographic shifts that will be taking place in Quebec over the coming years, it is estimated that Quebec will have to increase its labour productivity growth rate by half if it wants to maintain the average annual growth in its standard of living observed since the early 1980s (1.42%). While the average annual labour productivity growth rate was 1.05% between 1981 and 2008, it will have to increase to 1.61% between 2009 and 2026. If this were to happen, Quebecers would see their standard of living rise to \$50,783 per capita by 2026, as compared with \$39,397 per capita in 2008.

While at first glance this seems like a substantial increase, it would not mean that Quebec would catch up with the standards of living of the main industrialized countries. Even if Quebec managed to increase its labour productivity growth by half in the years to come, it would not be enough to raise Quebec's relative standard of living in comparison with Ontario or Canada, a direct consequence of the coming demographic shifts.

Figure 11 shows the results in terms of labour productivity. Starting in 2013, Quebec will have to substantially boost its labour productivity if it wishes to continue increasing its standard of living despite the coming demographic shifts

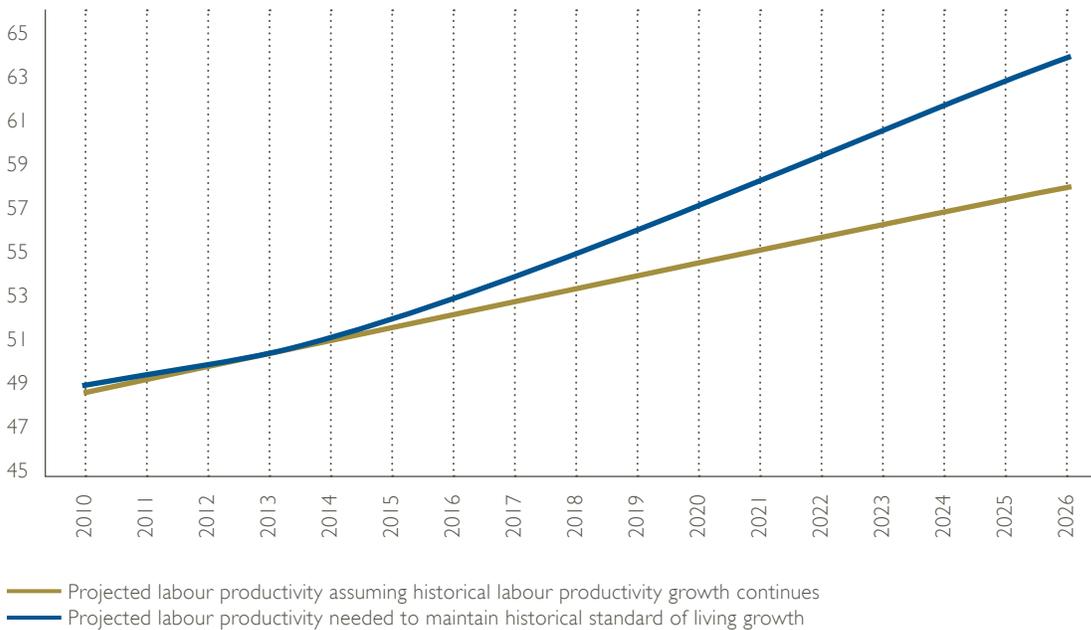
⁶ Institut de la statistique du Québec (2009). *Perspectives démographiques du Québec et des régions 2006-2056*. 2009 edition. The statistics refer to the reference scenario.

⁷ Conference Board of Canada. *Provincial forecast data and analysis*. Data extracted in May 2010.

FIGURE 11

DEMOGRAPHIC SHIFTS AND LABOUR PRODUCTIVITY, 2010-2026

(2008 Canadian dollars per hour worked)

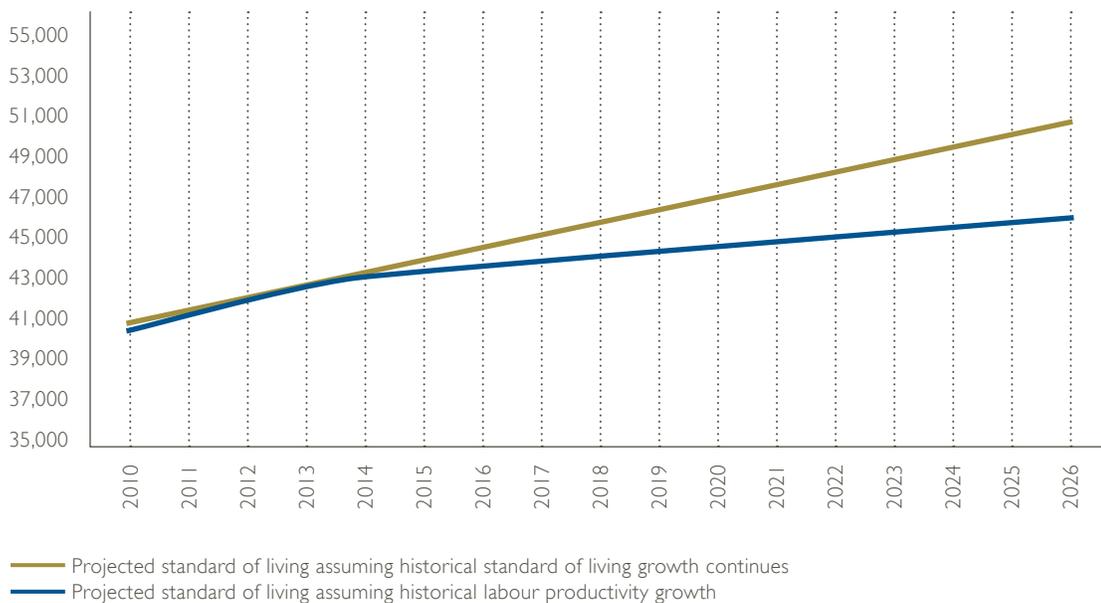


The standard of living index can also be used to identify the potential economic consequences for Quebec if its labour productivity continues to grow at the same rate as between 1981 and 2008 (1.05%). If it does, it is estimated that average annual growth in GDP per capita between 2009 and 2026 will be only 0.86%, as compared with historical annual average annual growth of 1.42%. Quebecers' standard of living would then be \$45,991 per capita by 2026, or nearly \$5,000 per capita less than if the average annual growth in the standard of living were similar to that between 1981 and 2008 (1.42%). This situation is clearly illustrated in Figure 12.

FIGURE 12

DEMOGRAPHIC SHIFTS AND STANDARD OF LIVING, 2010-2026

(2008 Canadian dollars per capita)



These forecasts show just how important it is that Quebec's labour productivity improve if Quebecers are to maintain their current standard of living. The Quebec economy will not be the only one that has to come to grips with these demographic shifts, however. So we must put the economic consequences of the greying population into context. Considering that all of Canada will be affected by the ageing population, the next part of this section will compare Quebec's forecast economic performance with those of Ontario and Canada as a whole.

IMPACT OF DEMOGRAPHIC SHIFTS ON THE STANDARD OF LIVING GAPS BETWEEN QUEBEC AND ONTARIO AND CANADA AS A WHOLE

The methodology used in section 2 to decompose the standard of living gap is used here to assess the consequences of the greying population. Demographic and economic projections for Quebec, Ontario and Canada are inserted in the decomposition of the standard of living gap in order to assess Quebec's relative performance in the coming years.

Demographic projections for Ontario and Canada are drawn respectively from the *Ontario Ministry of Finance* and *Statistics Canada*, and those for Quebec are published by the *Institut de la statistique du Québec*.⁸ Employment projections for the three economies come from the *Conference Board of Canada*.⁹ The work intensity components for Quebec, Ontario and Canada were determined using the average number of hours worked per job as observed between 1999 and 2008, i.e. 1,697 hours per job for Quebec, 1,762 hours per job for Ontario and 1,747 hours per job for Canada as a whole. We also assume that the labour productivity of the three economies will continue to grow at the same pace as between 1981 and 2008. Given these assumptions, we can assess the impact of the status quo on labour productivity, in view of the demographic shifts to take place between now and 2026. Table 11 summarizes the observed and projected values of the standard of living index used in decomposing the standard of living gap.

TABLE 11

OBSERVED AND PROJECTED VALUES OF COMPONENTS IN THE STANDARD OF LIVING INDEX, QUEBEC, ONTARIO AND CANADA

		Labour productivity (GDP/hour)	Work intensity (hours/job)	Employment rate (job/pop 15-64)	Demographic profile (pop 15-64/total pop)
Quebec	1981	36.08	1770.86	0.60	0.70
	2010	48.88	1697.45	0.70	0.69
	2026	57.79	1697.45	0.77	0.61
Ontario	1981	35.35	1791.81	0.73	0.68
	2010	50.95	1761.91	0.73	0.69
	2026	62.34	1761.91	0.82	0.63
Canada	1981	38.04	1798.23	0.68	0.68
	2010	54.67	1746.91	0.73	0.69
	2026	66.78	1746.91	0.80	0.62

⁸ Institut de la statistique du Québec (2009). *Perspectives démographiques du Québec et des régions 2006-2056*. 2009 edition.

⁹ Conference Board of Canada: *Provincial forecast data and analysis and Canadian forecast data and analysis*. Data extracted in May 2010.

The results of this decomposition speak volumes: If Quebec does not raise its labour productivity, the standard of living gaps with Ontario and Canada will grow substantially by 2026. In that connection, Table 12 shows that the standard of living gap with Ontario will be twice as wide as the current gap. While Quebec's standard of living represented nearly 87% of its neighbour's in 2009, Quebec's relative standard of living in comparison with Ontario will fall to just under 81% by 2026. The standard of living gap will then be \$10,947 per capita, meaning that on average each Ontarian will have \$10,947 more in income than each Quebecker (in 2008 dollars).

TABLE 12

SOURCES OF THE STANDARD OF LIVING GAP BETWEEN QUEBEC AND ONTARIO*

(2008 Canadian dollars per capita and percentages)

		Labour productivity (GDP/hour)	Work intensity (hours/job)	Employment rate (job/pop 15-64)	Demographic profile (pop 15-64/total pop)	Total
1981	%	-12.94	7.38	117.19	-11.63	100.00
	\$	601.66	-343.23	-5447.41	540.49	-4,648.48
2010	%	34.61	31.09	29.27	5.03	100.00
	\$	-1,770.78	-1,590.58	-1,497.66	-257.49	-5,116.50
2026	%	35.48	17.46	30.77	16.29	100.00
	\$	-3,884.48	-1,911.00	-3,368.57	-1,783.22	-10,947.26

* Labour productivity growth based on average annual growth observed between 1981 and 2008

If Quebec does not raise its labour productivity, the standard of living gaps with Ontario and Canada will grow substantially by 2026.

Table 13 also shows that Quebec's standard of living gap vis-à-vis Canada will rise to \$12,306 per capita by 2026. The province's relative standard of living as compared with Canada will fall from just over 83% in 2009 to just under 79% by 2026.

TABLE 13

SOURCES OF THE STANDARD OF LIVING GAP BETWEEN QUEBEC AND CANADA AS A WHOLE*

(2008 Canadian dollars per capita and percentages)

		Labour productivity (GDP/hour)	Work intensity (hours/job)	Employment rate (job/pop 15-64)	Demographic profile (pop 15-64/total pop)	Total
1981	%	32.54	9.47	72.46	-14.48	100.00
	\$	-1,539.54	-448.21	-3,428.40	684.96	-4,731.20
2010	%	62.16	15.96	18.68	3.21	100.00
	\$	-4,923.54	-1,264.01	-1,479.34	-254.00	-7,920.89
2026	%	60.96	12.11	17.89	9.04	100.00
	\$	-7,501.64	-1,490.72	-2,201.42	-1,112.40	-12,306.18

* Labour productivity growth based on average annual growth observed between 1981 and 2008

Tables 12 and 13 also show that a high proportion of Quebec's standard of living gap will remain attributable to lower productivity than elsewhere in Canada. By 2026, over 35% of the gap with Ontario will be due to Quebec's poor performance in terms of labour productivity, while nearly 61% of the standard of living gap with Canada as a whole will be due to lower labour productivity.

Lastly, this decomposition allows us to unequivocally illustrate the economic impact of the coming demographic shifts. While Quebec's demographic profile was initially to the province's advantage, the situation will have radically altered by 2026. By the end of our forecast period, the demographic profile will be responsible for more than 15% of the standard of living gap with Ontario and 9% of the gap with Canada as a whole.

This altered picture can be explained largely by the impact of the greying population on the number of people entering and leaving the labour market. Since Ontario and Canada will have more advantageous demographic profiles, they will have larger pools of potential workers than does Quebec, giving them an economic edge over Quebec.

CONCLUSION

Our analysis of the latest data confirms the growing role of labour productivity in explaining Quebec's standard of living gaps with Ontario, Canada as a whole and most OECD member countries. The same observation applies when Canada is compared with OECD members.

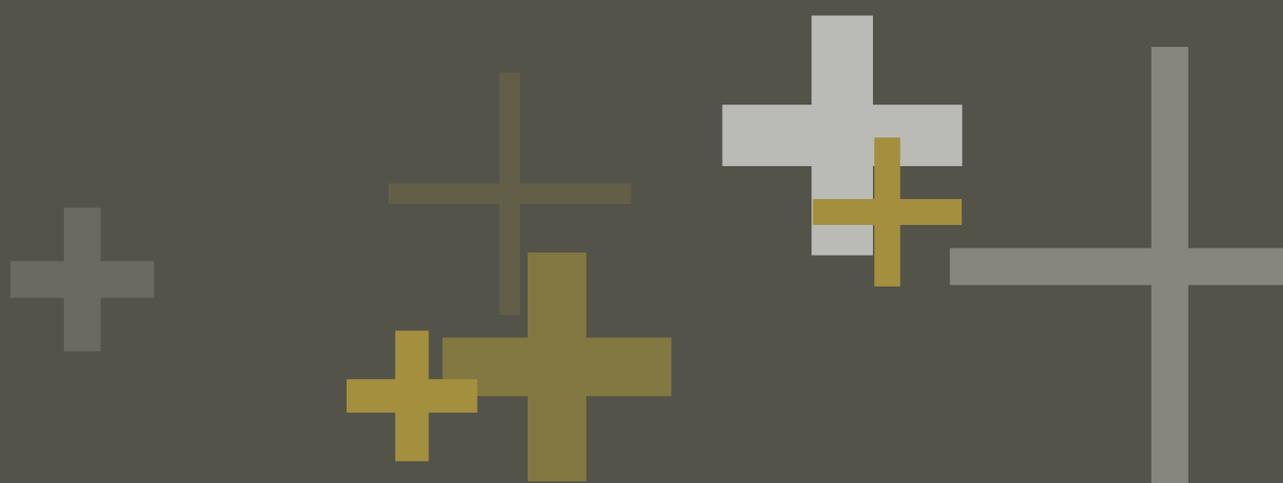
This 2010 Overview allows us to discard one possible explanation for the standard of living gaps observed, i.e. the marked differences in the industrial structure of the economies compared, which we refer to as the structural effect. Our analysis very clearly shows that, in all cases, the structural effect plays only a marginal role in explaining the standard of living gaps.

Moreover, the economic recession that we are only now putting behind us might have been expected to have a greater impact on the overall situation in Canada, given the Quebec economy's relatively strong performance in the past two years and the much more serious difficulties encountered by Ontario. However, it seems clear that all these economic ups and downs have had very little impact on the relative rankings of Quebec and the rest of Canada as compared with OECD member countries, in terms of both standards of living and labour productivity.

In fact, it emerges clearly from this *2010 Overview* that the factors underlying the observed gaps in both standards of living and labour productivity are due more to structural factors than to economic fluctuations and that Quebec's recent economic performance changed nothing fundamental. Quebec's economy trails other industrialized economies and this gap unfortunately does not appear to be shrinking. It is due mainly to historically poorer labour productivity growth in Quebec in the service sector, in particular in wholesale trade, transportation and warehousing and financial services. It can also be explained by Quebecers' labour market participation, historically lower than in Ontario and elsewhere in Canada.

Quebec's greying population and its impact on the labour market represent a much more serious threat to the province's economic future than do economic fluctuations such as those weathered during the recent recession. Quebec's population is ageing faster than elsewhere and this will soon place serious pressure on the labour market. Improving the province's labour productivity represents the only way to compensate for this unfavourable demographic trend, without calling Quebecers' chosen lifestyle into question. If Quebec does not manage to significantly improve its labour productivity, it will have to expect to see its greying population have an impact on its standard of living and, eventually, its quality of life.

OPENNESS TO
FOREIGN
DIRECT
INVESTMENT AND
PRODUCTIVITY
IN CANADA



INTRODUCTION

Growth in labour productivity is essential to improve a society's standard of living. Yet for the past three decades, Quebec and Canada as a whole have turned in rather unenviable performances compared with the other members of the Organisation for Economic Co-operation and Development (OECD). Indeed, according to the annual review on productivity in Quebec and Canada,¹ Italy and Switzerland were the only other major industrialized countries to show weaker labour productivity growth than Canada between 1981 and 2009.

To prevent the gap in the standard of living from widening any further, it is important to identify the factors that contribute to labour productivity growth. One of these is international trade, which has long been recognized for its positive effects on productivity and economic growth: it promotes access to foreign markets, spurs the competition that helps businesses evolve, and encourages the adoption of innovative technologies. While most people generally associate international trade with exports and imports, it is worth noting that it also includes foreign direct investment (FDI). FDI is an investment made by an individual or a company with the intention of exerting significant influence in a company located in another country.

Canada's FDI policy is not as open as its attitude to exports and imports. On the one hand, Canada is signing more and more free trade agreements (FTA) with such trading partners as Panama, Colombia and the European Free Trade Association, thus boosting exports and imports with these countries. On the other hand, we continue to impose certain restrictions on foreign direct investment here. According to OECD recommendations for 2010, relaxing such restrictions on foreign ownership should be a priority for Canada. The OECD contends that FDI in Canada is subject to tighter restrictions than in most OECD countries, particularly in telecommunications and air transport.²

From this perspective, one may wonder whether Canada, by maintaining FDI restrictions, is failing to reap some of the potential benefits of international trade. More specifically, would it be possible to accelerate Canada's productivity growth by opening the door further to FDI? The goal of this special section is to answer these questions. To do so, we will first present the ways in which FDI can contribute to productivity growth. Next, a comparison of FDI restrictions between Canada and other OECD countries will be made, focussing on the telecommunications sector, given the significant barriers inward FDI faces here.

¹ Centre for Productivity and Prosperity (2010). *Productivity and Prosperity in Quebec - 2010 Overview*.

² OECD (2010). "Economic Policy Reforms: Going for Growth." *Structural Policy Indicators, Priorities and Analysis*. P. 98.

FDI: CONCEPTS AND DEFINITIONS

Foreign direct investment (FDI): FDI “allows an investor to have a significant voice in the management of an enterprise operating outside his or her own economy.”³ In practice, direct investment is deemed to occur when a company owns at least 10% of the voting equity in a foreign enterprise. FDI can be made in one of two ways: by investing in the financial capital (share capital and reinvested earnings) of an existing enterprise or by investing in the establishment of a new business in another country.

Inward and outward FDI: Inward FDI refers to investments made by foreigners in Canadian enterprises, while outward FDI refer to investments made by Canadians or Canadian enterprises in foreign enterprises.

FDI flows: FDI flows refer to direct foreign investment transactions during a given period (quarter, year). These transactions are recorded at their market value applied at the moment they occur and are combined to establish FDI flow measurements. FDI flows can be characterized as inward or outward.

FDI stock: FDI stock refers to the total value of equity, long-term debt and short-term debt held abroad by Canadian enterprises. FDI stock can be characterized as inward or outward.

FDI AND PRODUCTIVITY

LINKS BETWEEN FDI AND PRODUCTIVITY GROWTH

FDI can be made in one of two ways: either by establishing a new enterprise or by modifying an existing enterprise’s ownership status. Changing an existing enterprise’s ownership status is done through mergers and acquisitions, which consist in buying or selling existing shares by non-residents; they represent the majority of global inward FDI. In 2007, a record year for inward FDI, nearly 88% stemmed from mergers and acquisitions, i.e. US\$1.4 billion out of a total US\$1.6 billion worldwide.⁴

³ Statistics Canada (2000). *Canada's Balance of International Payments and International Investment Position, Concepts, Sources, Methods and Products*. Balance of Payments Division. Ottawa. P. 95.

⁴ OECD (2010). “Global Investment Activity Stagnates into 2010.” *OECD Investment News*. March 2010, No. 12.

Mergers and acquisitions are carried out largely by multinational enterprises. They have considerable advantages over local enterprises, because they bring with them their technologies, their marketing skills and their ability to exploit the comparative advantages of the different countries in which they do business.⁵ Given these substantial strengths, it comes as no surprise that foreign multinationals generally have higher productivity than local enterprises. Numerous studies conducted on businesses operating in Canada confirm this fact.^{6,7,8,9} Thus, the unique role foreign multinationals play in our economy as a result of FDI helps increase the productivity in the industries in which they operate.

The spillovers of foreign multinationals on the host country's productivity doesn't stop there, though. Their presence can also contribute directly to improving local enterprises' productivity.

HORIZONTAL AND VERTICAL SPILLOVERS

These positive spillovers can be broken down into two categories: "horizontal" and "vertical," as shown in Figure 1. Horizontal (intra-industry) spillovers are created within an industry in which local and foreign enterprises compete with each other. Vertical (inter-industry) spillovers occur right on the production line and can thus affect different industries. They derive from the supplier or customer relationships that connect local enterprises to multinationals. In the literature, a clear distinction is made between the relationships multinationals have with their suppliers and those they have with their clients.

On the one hand, spillovers can result from "backward linkages," which relate to multinationals' relationships with their local suppliers. The quality standards required by multinationals for the inputs they buy can lead local enterprises to improve their production processes and help improve their productivity. What's more, as suppliers, local enterprises can benefit from the skills and technical assistance of multinationals.¹⁰

⁵ Blomström, M., A. Kokko, et al. (2000). *Foreign Direct Investment: Firm and Host Country Strategies*. New York: St. Martin's Press.

⁶ Gliberman, S., J. Ries, et al. (1994). "The Economic Performance of Foreign Affiliates in Canada." *Canadian Journal of Economics* 27: 143-156.

⁷ Baldwin, J. R. and N. Dhaliwal (2001). "Heterogeneity in Labour Productivity Growth in Manufacturing: Differences between Domestic and Foreign-Controlled Establishments." *Productivity Growth in Canada*. Ottawa: Statistics Canada.

⁸ Rao, S. and J. Tang (2005). "Foreign Ownership and Total Factor Productivity." *Governance, Multinationals and Growth*. L. Eden and W. Dobson, Edward Elgar: 100-121.

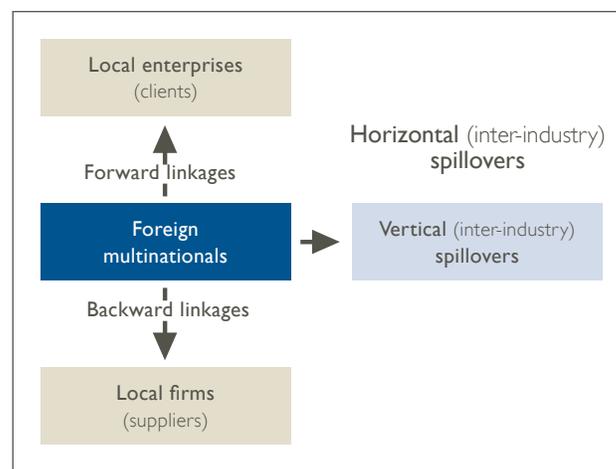
⁹ Baldwin, J. R. and W. Gu (2005). *Global Links: Multinationals, Foreign Ownership and Productivity Growth in Canadian Manufacturing*. Statistics Canada, Micro Economic studies and Analysis Division.

¹⁰ Blomström, M. and A. Kokko (1998). "Multinational Corporations and Spillovers." *Journal of Economic Surveys* 12(2).

Alternatively, spillovers can come from “forward linkages” emerging from interactions between multinationals and local clients who, among other things, can benefit from superior quality inputs. Furthermore, this business relationship exposes them to new technologies and innovations brought in by multinationals.¹¹

FIGURE I

PRODUCTIVITY SPILLOVERS FROM MULTINATIONALS TO LOCAL ENTERPRISES



Source: Centre for Productivity and Prosperity, with the help of Blomström and Kokko (1998) and Leshner and Miroudot (2008).

MECHANISMS AT WORK

Horizontal and vertical spillovers can occur via four key mechanisms: imitation, competition, skills transfer and access to new markets.^{12, 13, 14}

¹¹ Driffield, N., M. Munday, et al. (2002). “Foreign Direct Investment, Transactions Linkages and the Performance of the Domestic Sector.” *International Journal of the Economics of Business* 9(3): 335-351.

¹² Blomström, M., A. Kokko, et al. (2000). *Foreign Direct Investment: Firm and Host Country Strategies*. New York: St. Martin’s Press.

¹³ Görg, H. and D. Greenaway (2004). “Much Ado about Nothing? Do Domestic Firms Really Benefit from Foreign Direct Investment?” *The World Bank Research Observer* 19(2): 171-197.

¹⁴ OECD (2002). *Foreign Direct Investment for Development: Maximising Benefits, Minimising Costs*.

Imitation

Local enterprises can improve their productivity by imitating a multinational's production processes, technologies, management practices and marketing techniques. This may occur when a local enterprise interacts with a multinational as a supplier or as a client.

Competition

The increased competition created by the arrival of multinationals may lead to greater productivity at local enterprises. Such competition spurs local enterprises to make more effective use of their technologies and pushes them to adopt new ones sooner.

Skills transfer

Multinationals are recognized for investing more in manpower training than local enterprises. Employees trained by multinationals who obtain a new job with a local enterprise bring their acquired knowledge with them, a benefit that may lead to greater productivity.

Access to new markets

Lastly, the presence of multinationals may pave the way for local enterprises to tap into the export business, given multinationals' know-how in international marketing strategies and established global distribution network. These advantages could allow local enterprises to break into similar export markets.¹⁵ Exporting can enhance the productivity of local enterprises, allowing them to increase their sales and production volume and thus achieve economies of scale, which are sources of productivity gains.

EFFECTS OF FDI ON PRODUCTIVITY

Manufacturing sector

Several studies have focussed on FDI spillovers for domestic manufacturing firms. The findings confirm the presence of both horizontal (intra-industry) and vertical (inter-industry) spillovers.

¹⁵ Blomström, M. and A. Kokko (1998). "Multinational Corporations and Spillovers." *Journal of Economic Surveys* 12(2).

The existence of horizontal spillovers was first mentioned in a study published in 1979, which played a large role in initiating the discussion concerning the effects of FDI on the Canadian economy.¹⁶ According to those findings, labour productivity in domestic enterprises correlates positively with the percentage of enterprises under foreign control operating in the same sector.

More recently, studies carried out by Industry Canada and Statistics Canada have reached similar conclusions, finding that the presence of businesses under foreign control contributes to reducing production costs and boosting productivity at local enterprises.^{17,18,19} More specifically, a 10% increase in annual labour productivity growth at manufacturing firms under foreign control is linked to a 5% increase at Canadian manufacturing firms.²⁰ According to these studies, the presence of multinationals stimulates competition within industries and contributes to more intensive use of technologies by domestically controlled enterprises.

Other studies have also confirmed the existence of vertical (inter-industry) spillovers as a result of the relationships established by multinationals with their local suppliers and clients. A Statistics Canada study²¹ reveals that the growth in labour productivity in domestically controlled businesses correlates positively with a rise in foreign control of industries that supply these local businesses. According to another study,²² the relationships maintained by local enterprises both as suppliers and clients of multinationals have a positive effect on their productivity as well as on their chances of survival in their industry.

Service sector

Most of the studies conducted on FDI spillovers on local enterprises concentrate on the manufacturing sector, because more high-quality data are available. Nevertheless, the mechanisms described above have the added potential of contributing to productivity growth in the service sector. In that connection, a major study recently looked into FDI spillovers on the overall economies of 17 OECD

¹⁶ Globerman, S. (1979). "Foreign Direct Investment and "Spillover" Efficiency Benefits in Canadian Manufacturing Industries." *Canadian Journal of Economics* 12(1): 42-56.

¹⁷ Gera, S., W. Gu, et al. (1999). *Foreign Direct Investment and Productivity Growth: The Canadian Host-Country Experience*. Industry Canada.

¹⁸ Baldwin, J. R. and W. Gu (2005). *Global Links: Multinationals, Foreign Ownership and Productivity Growth in Canadian Manufacturing*. Statistics Canada, Micro Economic studies and Analysis Division.

¹⁹ Rao, S. and J. Tang (2005). "Foreign Ownership and Total Factor Productivity." *Governance, Multinationals and Growth*. L. Eden and W. Dobson, Edward Elgar: 100-121.

²⁰ Baldwin, J. R. and W. Gu (2005). *Global Links: Multinationals, Foreign Ownership and Productivity Growth in Canadian Manufacturing*. Statistics Canada, Micro Economic Studies and Analysis Division.

²¹ Lileeva, A. (2006). *Global Links: The Benefits to Domestically-controlled Plants from Inward Direct Investment - The Role of Vertical Linkages*. Statistics Canada.

²² Wang, Y. (2010). "FDI and Productivity Growth: The Role of Vertical Linkages." *Canadian Journal of Economics* (Publication scheduled for November 2010).

countries.²³ According to the findings, the service sector is the one that benefits the most from positive FDI spillovers. The study reports that the vertical (inter-industry) spillovers generated via the relationships established by multinationals with their local suppliers (backward linkages) are the most evident in this sector. One of the report's three recommendations is "Encouraging foreign presence in the services sectors can generate strong positive productivity effects in the economy."²⁴

Encouraging FDI in the service sector could also have positive spillovers on the manufacturing sector.²⁵ All manufacturing firms should be using basic services such as telecommunications and banking facilities. Consequently, potential productivity gains in the service sector resulting from new FDI can mean improved service quality and reliability. What's more, the presence of multinationals in the service sector can also help introduce new services not otherwise available.

Thus manufacturing firms can obtain a wider range of services at lower cost, resulting in enhanced productivity. In fact, studies in France, the Czech Republic, India and Chile confirm that FDI in the service sector increases productivity in the manufacturing sector.^{26,27,28,29}

As a result of spillovers from multinationals to local enterprises, inward FDI has the potential to contribute to productivity growth and, consequently, to domestic economic growth. This spillovers can occur within the multinational's industry as a whole and among its local suppliers and clients. Several studies have confirmed the existence of such spillovers stemming from different mechanisms, including imitation and skills transfer.

These conclusions are crucial for Canada, because our country still maintains numerous restrictions limiting access to new FDI in the service sector. These restrictions are not without consequences for Canadians. Indeed, the major source of productivity growth in Canada and other industrialized countries is the service sector. The restrictions prevent the service sector from fully realizing its potential for greater productivity through FDI spillovers, with adverse consequences for growth in Canadians' standard of living.

²³ Leshner, M. and S. Miroudot (2008). "Foreign Direct Investment Spillovers and their Inter-relationships with Trade." *OECD Investment Policy Perspectives 2008*. OECD.

²⁴ Ibid. P. 26.

²⁵ Javorcik, B. S. (2008). "Can Survey Evidence Shed Light on Spillovers from Foreign Direct Investment?" *The World Bank Research Observer* 23(2): 139-159.

²⁶ Forlani, E. (2010). *Competition in the Service Sector and the Performances of Manufacturing Firms: Does Liberalization Matter?* Mimeo.

²⁷ Arnold, J., B. S. Javorcik, et al. (2007). *Does Services Liberalization Benefit Manufacturing Firms? Evidence from the Czech Republic*. World Bank Policy Research Working Paper 4109.

²⁸ Chakraborty, C. (2008). "Economic Reforms, FDI, and Economic Growth in India: A Sector Level Analysis." *World Development* 36(7): 1192-1212.

²⁹ Fernandes, A. M. and C. Paunov (2008). "Foreign Direct Investment in Services and Manufacturing Productivity Growth: Evidence for Chile." *Policy Research Working Paper*. World Bank.

RESTRICTIONS ON INWARD FDI

IS CANADA LESS OPEN TO FDI THAN OTHER OECD COUNTRIES?

Before describing the forms restrictions on FDI may take in Canada, it is important to examine our position in comparison with other OECD countries. According to the FDI Regulatory Restrictiveness Index published by the OECD in 2003 and revised in 2006, Canada was the second³⁰ and fifth³¹ most restrictive OECD member, respectively. In the 2006 ranking, only Austria, Mexico, Australia and Iceland had more restrictive FDI policies than Canada.

This index looks at three kinds of barriers to FDI, i.e. limitations on foreign ownership, screening procedures, and restrictions on foreign personnel. Limitations on foreign investment consist of "limiting the share of companies' equity capital in a target sector that non-residents are allowed to hold, or even prohibiting any foreign ownership."³²

As for screening procedures, they are defined as "stipulations that foreign investors must show economic benefits."³³

Such stipulations can increase the cost of entry and therefore discourage foreign capital inflow. Lastly, constraints on foreign personnel include limitations on the ability of foreign nationals either to manage or to work in affiliates of foreign companies. In calculating the Restrictiveness Index, statutory state monopolies are considered tantamount to a ban on foreign investment.³⁴

Restrictions on FDI in OECD countries are concentrated in the service sector and primarily affect telecommunications, airlines, electricity and financial services. The manufacturing sector, on the other hand, is practically entirely open to FDI in all OECD countries. The reasons given to justify the presence of major restrictions in the service sector often have less to do with economics than with the protection of national security and sovereignty.³⁵

Telecommunications networks and electricity are part of a country's basic infrastructure. Consequently, foreign ownership in these vital sectors could be considered a threat to national security. Moreover, smaller countries could worry about becoming dependent on foreign countries for essential services.

³⁰ Golub, S. S. (2003). "Measures of Restrictions on Inward Foreign Direct Investment for OECD countries." *OECD Economic Studies* No. 36.

³¹ Koyama, T. and S. Golub (2006). "OECD's FDI Regulatory Restrictiveness Index: Revision and Extension to More Economies." *Working Papers on International Investment*. OECD.

³² OECD (2003). "Foreign direct investment restrictions in OECD countries." *OECD Economic Outlook* No. 73, p.2

³³ *Ibid.* p.3

³⁴ *Ibid.*

³⁵ Golub, S. S. (2009). "Openness to Foreign Direct Investment in Services: An International Comparative Analysis." *The World Economy* 32(8): 1245-1268.

Other concerns connected with protecting cultural identity, consumers and local enterprises may be at the root of restrictions on FDI in the service sector.

Table 1 shows the change in the Restrictiveness Index in the telecommunications, finance, airline and electricity sectors between 1991 and 2005 for the OECD average and for Canada.³⁶ The Index can range from 0 to 1, with 0 indicating complete openness for inward FDI and 1 for no entry at all.

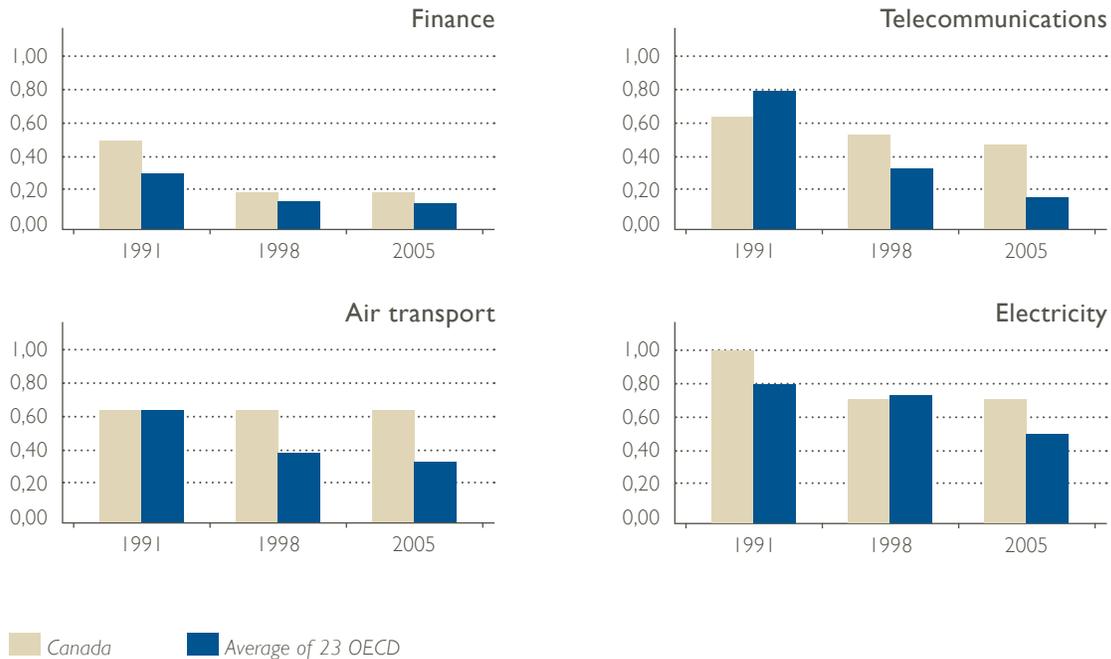
Despite the concerns surrounding foreign investment in the service sector, restrictions on FDI have dropped considerably since the end of the 1990s, following the conclusion of the General Agreement on Trade in Services (GATS). Only the electricity sector still has substantial barriers to FDI. The most important reduction in barriers to foreign investment has been in the telecommunications sector. While FDI in this sector was extremely restricted in the early 1990s, it is now more welcome in most OECD countries.

The restrictions prevent the service sector from fully realizing its potential for greater productivity through FDI spillovers, with adverse consequences for growth in Canadians' standard of living.

³⁶ Golub, S. S. (2009). "Openness to Foreign Direct Investment in Services: An International Comparative Analysis." *The World Economy* 32(8): 1245-1268.

TABLE I

CHANGE IN THE FDI RESTRICTIVENESS INDEX IN DIFFERENT SERVICE SECTORS IN CANADA AND 23 OECD COUNTRIES



The index values range from 0 to 1; 0 - No restrictions to FDI; 1 = sector closed to FDI

Source: Data from Golub (2009) obtained directly from the author.

The other sectors included in this index are professional services, construction, distribution and tourism.

In 2005, Canada posted a higher restrictiveness index than the OECD average in all sectors affected by restrictions. In fact, it scored particularly poorly in the telecommunications and air transport sectors. However, these sectors are on the verge of opening up to greater foreign investment. On the one hand, a bill aiming to reduce FDI restrictions in the Canadian air transport industry has recently been adopted. More on this subject is provided in a box later in this section. On the other hand, the Canadian government is currently studying different options to allow greater foreign investment in the telecommunications sector.

RESTRICTIONS ON FDI IN THE DOMESTIC TELECOMMUNICATIONS SECTOR

Telecommunications services can be divided into two major categories: fixed and mobile. These services and the related infrastructures are crucial to the day-to-day operation of every organization. Studies have shown that investments in telecommunications infrastructures have a positive and significant effect on the economic growth of OECD countries.^{37,38} In this situation, it becomes even more important to encourage investments in these infrastructures, and one way of doing so is to open the telecommunications sector to foreign investment. According to an Industry Canada study, eliminating the current barriers to foreign investment in this sector would allow the country's real GDP per working age person to increase by 1.7% over a ten-year period.³⁹ But just what are these barriers to FDI still existing in Canada?

FDI in the domestic telecommunications sector has been limited ever since the *Telecommunications Act* was adopted in 1993. According to the Act, for a Canadian carrier to be eligible to operate as a telecommunications common carrier it "must be a Canadian-owned and controlled corporation incorporated or continued under the laws of Canada or a province."⁴⁰

To meet this requirement, 80% of the board of directors of the corporation must be Canadian, and Canadians must beneficially own, directly or indirectly, 80% of the corporation's voting shares.

In 1994, a rule on indirect ownership was added to previous requirements following the adoption of the *Canadian Telecommunications Common Carrier Ownership and Control Regulations*. Its aim was to establish a minimum Canadian ownership level for holding companies with voting shares in a Canadian carrier. This was set at 66.6% of the holding company's voting shares. Consequently, a foreign enterprise may invest no more than 33.33% in a holding company with interests in a telecommunications carrier.

Consequently, a foreign enterprise holding 20% of a Canadian carrier's voting shares is eligible to invest 33.33% in a holding company possessing the remaining 80% of the carrier in question. By multiplying 33.33% by 80% and by adding the 20% in direct investment, we obtain a result of 46.67%, the limit regularly quoted in the media for direct and indirect foreign ownership in a telecommunications carrier.⁴¹

³⁷ Röller, L.-H. and L. Waverman (2001). "Telecommunications Infrastructure and Economic Development: A Simultaneous Approach." *American Economic Review* 91(4): 909-923.

³⁸ Datta, A. and S. Agarwal (2004). "Telecommunications and Economic Growth: A Panel Data Approach." *Applied Economics* 36: 1649-1654.

³⁹ Chen, Z. (2006). "Liberalization of Trade and Investment in Telecommunication Services: A Canadian Perspective." *Services Industries and the Knowledge-Based Economy*, R. Lipsey, Calgary: University of Calgary Press. P. 496.

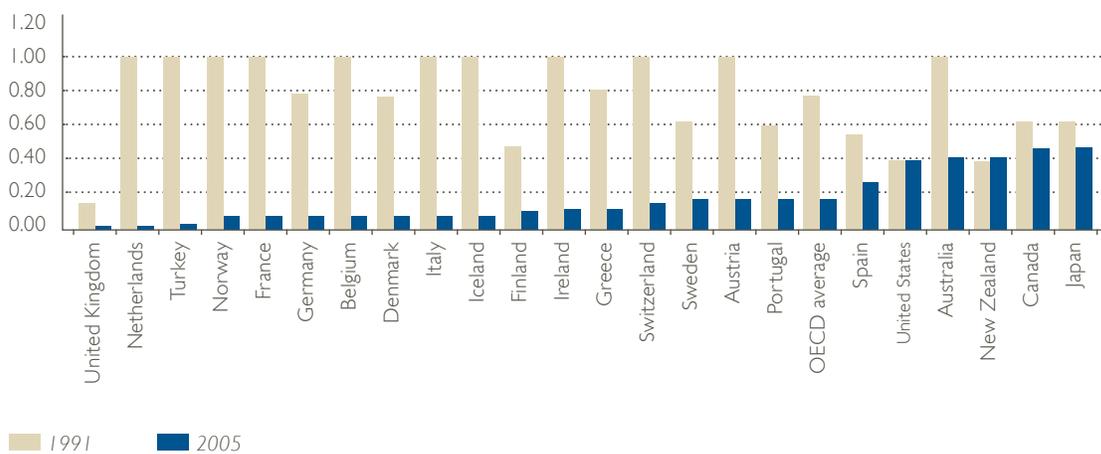
⁴⁰ Department of Justice (2010). *Telecommunications Act*. S.C. 1993, c. 38.

⁴¹ Standing Committee on Industry, Science and Technology (2003). "Foreign investment restrictions applicable to the telecommunications industry." *Opening Canadian Communications to the World*. Ottawa: House of Commons.

Table 2 shows the Restrictiveness Index for the telecommunications sector in 1991 and 2005 for 23 OECD countries. Nearly half the countries went from being totally closed to being nearly free from any restrictions on FDI in the telecommunications sector. However, because of Canada's foreign investment limitations, it ranked as the second most restrictive country in this sector, behind Japan.

TABLE 2

FDI RESTRICTIVENESS INDEX IN THE TELECOMMUNICATIONS SECTOR IN 1991 AND 2005 FOR 23 OECD COUNTRIES



Source: Data from Golub (2009) obtained directly from the author.
Scale between 0 and 1. 0 = no FDI restrictions; 1 = closed to FDI

OPENNESS TO FOREIGN INVESTMENT IN SIGHT

Restrictions on FDI have many negative effects on our economy. First, by making access to foreign capital more difficult for Canadian carriers, restrictions on foreign investment increase their capital cost.^{42,43,44} This can hinder the sector's innovation and growth in Canada. Second, by preventing foreign enterprises from offering their telecommunications services here, the restrictions limit competition.

⁴² OECD (2002). "Regulatory Reform in the Telecommunications Industry." *Regulatory Reform in Canada: From Transition to New Regulation Challenges*. Paris.

⁴³ McFetridge, D. G. (2008). *The Role of Sectoral Ownership Restrictions*. Paper prepared for the Competition Policy Review Panel.

⁴⁴ Standing Committee on Industry, Science and Technology (2003). "Foreign investment restrictions applicable to the telecommunications industry." *Opening Canadian Communications to the World*. Ottawa: House of Commons.

Less competition can slow the spread of new technologies and modern telecom services.⁴⁵ Numerous reports have noted these negative effects and recommended that Canadian government considerably reduce, if not totally eliminate current foreign ownership restrictions in this sector.^{46, 47, 48}

Further to these recommendations, Canada is now preparing to reduce its restrictions. In fact, the Throne Speech of March 3, 2010, mentioned that the government will “open Canada’s doors further to venture capital and to foreign investment in key sectors, including the satellite and telecommunications industries, giving Canadian firms access to the funds and expertise they need.”⁴⁹ In addition, in his speech on June 7 at the 2010 Canadian Telecom Summit, the Honourable Tony Clement, Minister of Industry, repeated Canada’s commitment to opening the telecommunications industry to greater foreign investment.⁵⁰

As part of this commitment, the government is currently looking at three options:⁵¹

- a) increase the limit for foreign direct investment in broadcasting and telecommunications common carriers to 49 percent;
- b) lift restrictions on telecommunications common carriers with a 10% market share or less, by revenue; or
- c) remove telecommunications restrictions completely.

The federal government held a public consultation period between mid-June and late July 2010 in order to collect the public’s comments on the above-mentioned options. If the government chooses one of the first two options, Canada will very likely remain one of the most restrictive countries for FDI in the telecommunications sector. Given this possibility, Canada will not be able to benefit from all the spillovers that FDI could have not only on the carriers’ productivity but also on the productivity of the enterprises that use their services. Consequently, only the last option, that of fully removing all restrictions, would have the potential of maximizing FDI productivity spillovers. This option would also considerably lower the FDI Restrictiveness Index in this sector.

Having delayed reducing the restrictions on FDI in the service sector compared to most other OECD countries, Canada is now ready to follow suit. On the one hand, restrictions in the telecommunications sector will soon be reduced. However, the extent of the reductions is still to be determined. On the other hand, the airline industry, also extremely sensitive to restrictions in OECD countries, will also soon be benefiting from more FDI in the near future.

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Telecommunications Policy Review Panel (2006). Final report 2006. Industry Canada.

⁴⁸ Competition Policy Review Panel (2008). *Compete to Win* - Final report June 2008. Government of Canada.

⁴⁹ Government of Canada. (2010, March 3, 2010). “Speech from the Throne. A Stronger Canada. A Stronger Economy.” Consulted June 11, 2010 at: <http://www.speech.gc.ca/eng/media.asp?id=1388>

⁵⁰ Clement, T. (2010). Speaking Notes. 2010 Canadian Telecom Summit Toronto, Industry Canada.

⁵¹ Industry Canada (2010). “Government of Canada Consults with Canadians on Foreign Investment in the Telecommunications Industry.” Consulted June 17, 2010 at: <http://www.ic.gc.ca/eic/site/ic1.nsf/eng/05650.html>

INCREASED FOREIGN INVESTMENT FOR THE AIR TRANSPORT INDUSTRY

According to recommendations made by the OECD for Canada for 2010, restrictions on foreign investment in the air transport industry should be drastically reduced.⁵² Until the late 1970s, the skies were dominated by government-owned Air Canada, leaving smaller operators with only a paltry share of the market. The adoption of the *Air Canada Act of 1977* opened the door to airline deregulation, which became official with the coming into force of the *National Transportation Act, 1987*.⁵³

Although this Act was designed to promote competition and reduce the level of regulation, it also introduced a ceiling on foreign ownership of domestic airlines, of 25% of voting shares.⁵⁴ This limit was adopted primarily to apply the same rule as the United States. The *National Transportation Act, 1987* was replaced in 1996 by the *Canadian Transportation Act*, still in force today, and with that cap on foreign investment unchanged.⁵⁵

Since the early 1990s, many countries have reduced FDI restrictions in the air transport industry, as shown in Table 4. We can see that, having maintained the status quo in foreign investment restrictions, Canada was ranked second to most restrictive in this area in 2005, behind Japan.

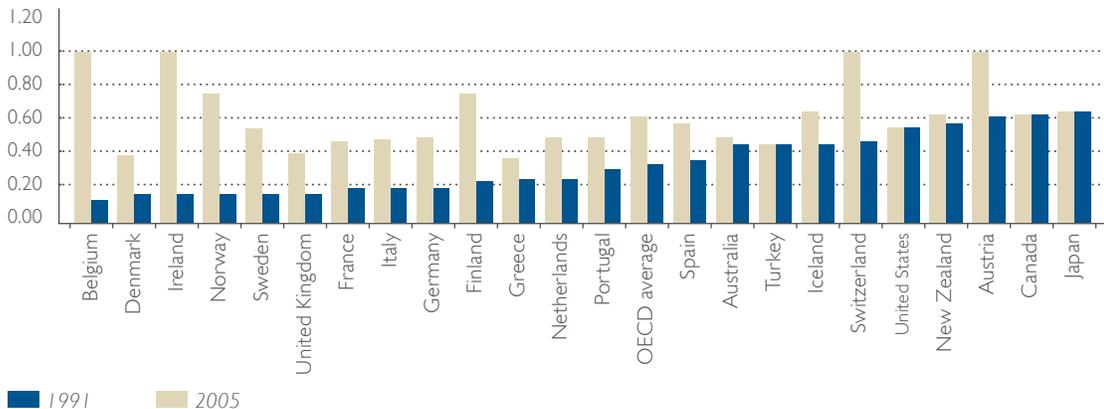
⁵² OECD (2010). *Economic Policy Reforms: Going for Growth*. Structural Policies Indicators Priorities and Analysis.

⁵³ Christopher, J. and J. P. Dion (2002). *Le transport aérien au Canada*. Parliamentary Research Branch. Ottawa: Library of Parliament.

⁵⁴ Ibid.

⁵⁵ Department of Justice (2010). *Canadian Transportation Act*. S.C. 1996 ch.10.

FDI RESTRICTIVENESS INDEX IN THE AIR TRANSPORT SECTOR IN 1991 AND 2005 FOR 23 OECD COUNTRIES



Source: Data from Golub (2009) obtained directly from the author.
Scale between 0 and 1.0 = no FDI restrictions; 1 = closed to FDI

However, this situation is about to change. Since the early 2000s, recommendations have been made that this limit be increased to 49%, and they have now been heard.^{56,57} Bill C-10 received Royal Assent on March 12, 2009, and raises the maximum ownership by non-Canadians to 49%.⁵⁸ Nevertheless, this new provision has not yet come into force as “the regulation must first be developed.”⁵⁹ In fact, as of September 3, 2010, this new provision was still showing in the “Amendments not in force” section of the *Canadian Transportation Act*.⁶⁰ Nevertheless, this higher foreign ownership will have a negligible impact on the Restrictiveness Index, lowering it by a mere 0.1.⁶¹ While the index will drop to 0.525 instead of 0.625, it will still be higher than in most OECD countries.

⁵⁶ Konrad von Finckenstein (2000). *Canada’s Airline Restructuring Legislation*. Standing Committee on Transport. Ottawa: Competition Bureau.

⁵⁷ Competition Policy Review Panel (2008). *Compete to Win - Final report* June 2008. Government of Canada. P. 49.

⁵⁸ Department of Finance (2009). *An Act to implement certain provisions of the budget tabled in Parliament on January 27, 2009 and related fiscal measures*.

⁵⁹ Canadian Transportation Agency. (2009). *Réglementation sur la propriété étrangère*. Consultation paper. Consulted June 30, 2010, at: http://www.otc-cta.gc.ca/aux_bin.php?auxid=1465

⁶⁰ Department of Justice (2010). *Canadian Transportation Act*. S.C. 1996 ch.10.

⁶¹ The reduction in the restrictiveness index was estimated based on weighting of each type of restriction. Details are available in Golub (2009).

CONCLUSION

Inward FDI can help improve productivity and have a positive impact on the standard of living. This is made possible in part by the spillovers from multinationals to local enterprises, as a result of four key mechanisms:

- imitation by local enterprises of multinationals' technologies, management techniques and production processes;
- transfer of skills from multinationals to local enterprises;
- greater competition due to multinationals arriving on the scene;
- access to new markets for local enterprises due to relationships with multinationals.

These spillovers have been observed in many countries, including here. For it to happen, inward FDI cannot be hindered by major restrictions. An analysis of the Restrictiveness Index on inward FDI in the service sector revealed that Canada ranks among the most restrictive countries in the OECD. These restrictions can have profound consequences on the Canadian economy, since the service sector is the main source of productivity growth here and in industrialized countries. Restrictions prevent the service sector from benefiting from FDI spillovers, and hence limit productivity growth. In the end, this interferes with gains in the standard of living.

These adverse consequences can prove to be quite significant, because Canada's restrictions affect the telecommunications sector, a key player in the economy. Telecom services are vital to every organization's operations, be it public or private. Therefore, by reducing the potential of FDI spillovers, these restrictions hinder the distribution of new technologies and access to higher quality services at lower cost.

The federal government is taking steps to reduce current restrictions. But of the three options put forth, only the removal of restrictions to foreign investment would allow Canada to harmonize its policies with those of most OECD countries and, as a result, maximize its productivity gains. Indeed, inward FDI would be beneficial not only for common carriers, but also for enterprises using their services. If current limits on foreign investment are maintained, it is quite likely that growth in Canada's productivity and standard of living will suffer.



