

Explaining Canada-U. S. Differences in Annual Hours Worked

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ABSTRACT

Employed Canadians worked an average of 157 hours less per year than employed Americans during 1997-2004. This one month less per year spent on the job is a significant contributor to the difference in GDP per capita between Canada and the United States. This article provides a detailed examination of the factors underlying the Canada-United States gap in annual hours worked. We find that over 40 per cent of the gap can be explained by a higher propensity of Canadians to take full-weeks off, mainly for vacations. Furthermore, over a quarter of the intensity gap is explained by a higher incidence of part-time work in Canada, and much of this reflects the higher proportion of Canada's part-time workers who have difficulties finding full-time work. We find that Canada's higher union coverage rates and labour standards are more important factors to explain the hours gap than differences in marginal tax rates. Canada's less robust economy is also relevant. Finally, we find that high-income Canadians take considerably more weeks of vacation per year than their American counterparts and are less likely to work long work weeks.

WHILE CANADA'S ECONOMY IS STRONG, ranking among the most prosperous in the world, our economy has a significant prosperity gap with the United States. Worryingly, this gap has slowly and steadily widened over the past two decades. In 1981, Canada was only 10.3 per cent behind the United States in GDP per capita, but between 1981 and 1998 the prosperity gap more than doubled to 22.3 per cent, decreasing to 17.7 per cent in 2004 (Institute for Competitiveness and Prosperity, 2006a).

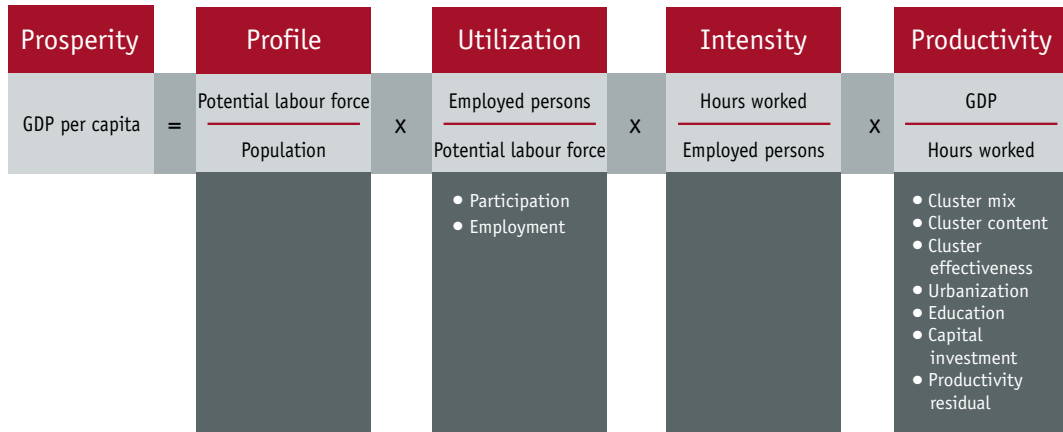
To understand the reasons for the prosperity gap and its recent trends, we disaggregate Canada's prosperity gap with the United States into four elements (Figure 1):²

- Profile — What proportion of the population are of working age?
- Utilization — What is the percentage of the working age population who are seeking and succeeding in finding work?
- Intensity — How many hours do employed workers spend, on average, on the job?

1 Alberto Isgut and Lance Bialas are researchers and James Milway is the Executive Director at the Institute for Competitiveness and Prosperity. This paper updates an earlier draft presented at the 2006 annual meeting of the Canadian Economics Association held at Concordia University, May 26-28, 2006. It also draws on the Institute's most recent working paper, *Time on the job: Intensity and Ontario's prosperity gap*. We thank Someshwar Rao, Andrew Sharpe, Dan Treffer, John Baldwin, J.P. Maynard, Andrew Heisz, and participants at the 2006 annual meeting of the Canadian Economics Association for useful comments, and Clairelle Poole, Sana Nisar, Ying Wang, Erik Tautkus, and Fernando Leibovici for research assistance. Email: a.isgut@competeproper.ca

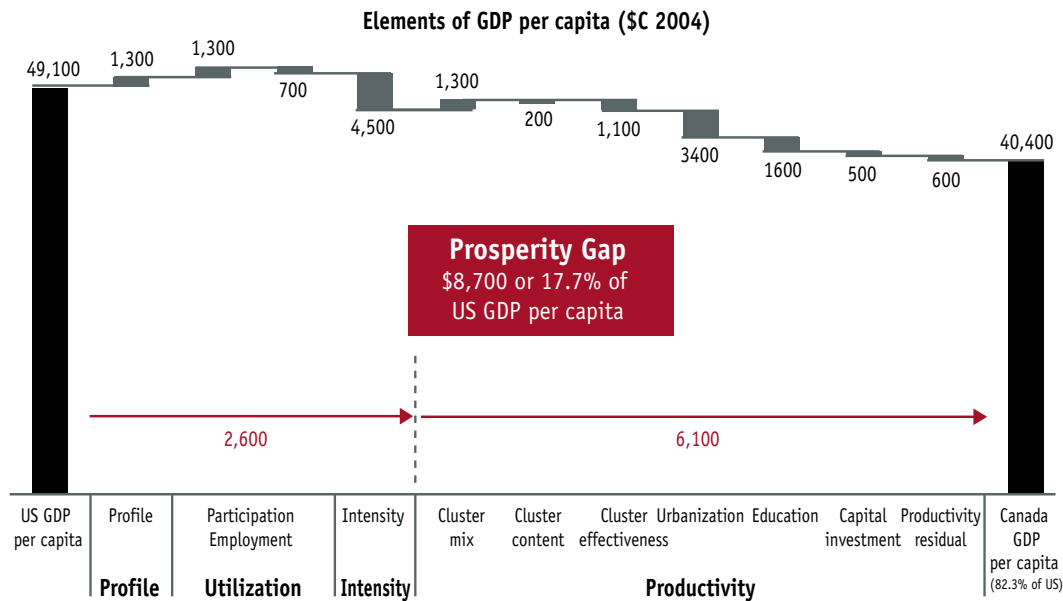
2 For further details, see Institute for Competitiveness and Prosperity (2004, 2005, 2006a).

Figure 1
Four Elements of Prosperity



Source: Institute for Competitiveness and Prosperity (2004, 2005, 2006a).

Chart 1
Decomposition of the Prosperity Gap for Canada, 2004



Source: Institute for Competitiveness and Prosperity (2006a).

- **Productivity** — How much value per hour worked do workers create?

The first three factors — profile, utilization, and intensity — add up to hours worked per capita. Combined, they measure the physical effort Canadians are expending to create economic value. The fourth factor — productivity — measures how effectively our labour effort translates

into products and services of value to customers in Canada and around the world. While Canada's lower productivity compared to the United States is the largest contributor to the prosperity gap, the contribution of labour supply factors has been mixed. In recent years, Canada has outperformed the United States in profile and utilization, but significantly under-performed in

intensity. Chart 1 shows that in 2004, the gaps in productivity and intensity represented, respectively, 70 and 52 per cent of that year's prosperity gap of \$ 8,700 (C\$ 2004).

During the period 1997-2004 Canadians worked an average of 1,721 hours per year, compared to 1,878 for their American counterparts. This difference of 157 hours translates into a labour intensity gap of over four weeks, or a full month, per year. The purpose of this paper is to examine the factors underlying this intensity gap. In the rest of this section we anticipate our main results. We then review the literature on hours worked comparisons and discuss briefly the relationship between hours worked, leisure, and happiness. Next, we discuss the data, and present the results of the analysis around six puzzling questions.

In sum, we find three main explanatory factors for the intensity gap:

- **Close to a quarter of the intensity gap is involuntary.**

More Canadians than their U.S. peers work part-time, and the most important reason for this is that they are unable to find full-time work. The evidence points to weaker demand for labour as the major determinant. Where and when unemployment is higher, involuntary part-time employment increases.

- **The intensity gap is wider among our more productive workers.**

Compared to their U.S. counterparts, Canadian workers with high levels of education and higher incomes take more weeks of vacation and are less likely to work long work weeks. Because the premium for higher educational attainment is lower in Canada — our economy does not reward more education as much as in the United States — incentives to work longer hours and the opportunity cost of vacation time are reduced.

- **The intensity gap is related to institutional differences.**

By our estimation, close to 40 per cent of the annual hours worked gap between Canada and the United States is explained by cross-country differences in labour standards. The other institutional factor, union coverage, accounts for 16 per cent of the gap. Our results also suggest that Canadian unions have been successful in reducing weeks worked.

Literature Review on International Differences in Hours Worked

International differences in work hours have attracted much attention from policymakers and academics. Variations in working hours across countries reflect a number of factors, including social conditions, employment practices, and government policies. Most academic work has focused on the widening hours-worked gap between the United States and Europe. The leading explanations are related to either labour supply or labour demand.

We have identified four labour supply theories used to explain this divergence. The first of these explains the divergence as the result of culture, particularly with respect to European-United States differences. Blanchard (2004) and others (Turner, 2003; Huberman *et al.*, 2005) argue that Europeans have taken the bulk of their long-term increase in income in more leisure and less work, while Americans have instead taken it in more consumption. They observe that Americans began working longer than Europeans sometime between the 1970s and the early 1980s, and that this reflects attitudinal differences towards the labour-leisure trade-off.

The second labour supply theory, developed primarily by Bell and Freeman (1995, 2001), attributes the trend toward diverging work hours between countries to differences in wage

inequality. Their hypothesis is that in countries where wages are less evenly distributed, those near the bottom of the wage distribution will be motivated to work longer hours in order to move up along the percentile distribution of earnings. The more unequally wages are distributed among workers, the greater the potential reward for working longer hours. On the other hand, in a country with a more equal distribution of earnings, potential marginal increases in earnings are less significant and thus the motivation to increase work hours is lessened. Bell and Freeman argue that, since U.S. earnings are among the most unequally distributed, workers have more incentive to work longer in order to gain promotions, wage increases and advance in the distribution of earnings. Recent work by Kuhn and Lozano (2005) supports this view. They argue that changes in U.S. firms' compensation practices over the last two decades have increased the marginal incentives for skilled, salaried workers to supply extra hours.

The third labour supply theory suggests that differences in working hours are the result of higher tax rates. Prescott (2004), using a dynamic model of investment and labour supply, concludes that all of the decrease in hours in Europe can be attributed to the increase in taxes. Like others, he has observed that, in the 1970s, hours worked per person in the United States and European countries, such as France and Germany, were very similar. However, in the 1990s, the average employed American worked 25 per cent to 30 per cent more hours than his German or French counterpart. Since the 1970s, the increase in marginal tax rates in European countries, compared to the United States, discouraged labour supply and gave people an incentive to devote more time to non-market activities. Prescott also observes that higher taxation provides the necessary funding for transfer payments to individuals. These government transfer payments create an income effect that

might provide a disincentive to more work hours and an incentive to more leisure time.

The fourth theory points to institutional factors such as unionization and labour market regulations as the cause for the international work hours difference. Alesina, Glaeser, and Sacerdote (2005) criticize Prescott's study on the grounds that the labour supply elasticity number he uses in his calculation is implausibly high compared to that usually found in studies using microdata. They argue that while taxes play a role, the dominant factor explaining differences in hours worked between the United States and Europe is differences in unionization and labour standards. In the United States, which the authors describe as being "less friendly to the policies of the left," fewer than 20 per cent of the labour force are covered by collective bargaining agreements, compared to more than 80 per cent in France, Germany and Sweden. Furthermore, the United States has no federally mandated vacation days. As a result, U.S. full-time workers spend an average of only 7.5 days of the year on vacation, compared to 21.8 days for their European counterparts (Alesina *et al.*, Table 4).

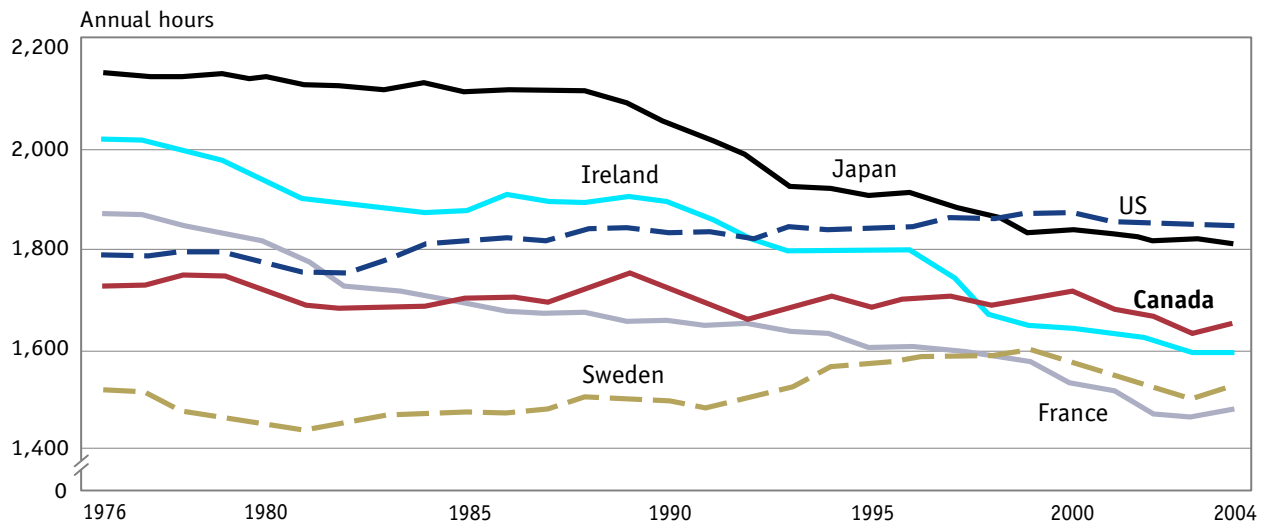
Alesina *et al.* conclude that observed attitudinal or cultural differences can be explained by institutional structures. They conclude that as working hours in Europe began to decline, the general appetite for vacation created a social multiplier effect that increased the utility for leisure. This effect results from the increasing utility of leisure attainable when a larger number of friends and family members are taking a vacation at the same time. In addition, when many are on vacation, the marginal productivity of work decreases as there are fewer workers who can interact with one another within and across firms and organizations.

Fortin (2003) shows that institutional structural differences between Canadian provinces explain regional differences in hours worked. He notes that while Canada's hours worked are

Chart 2

Labour Intensity in Selected OECD Countries, 1976-2004

Average hours worked per employed person



Note: Results for those 15 years and over except for Sweden (16+).

Source: Institute for Competitiveness and Prosperity based on Statistics Canada, *Labour Force Survey*; U.S. Bureau of Labor Statistics, *Current Population Survey*; OECD, *Productivity Database*.

between the U.S. and European levels, Ontario is closer to the U.S. level and Quebec is closer to that of the Europeans. To explain these regional differences, Fortin points to the work disincentives inherent in Canada's income security system and to differences in unionization rates. He also spells out the social multiplier effect we discussed above.

The leading labour demand explanation for differences in hours worked across countries is variations in labour demand conditions. Heisz and LaRochelle-Côté (2003) find a relationship between differences in Canada-United States hours worked and unemployment rates. Their study finds that the sluggish economic growth in Canada relative to the United States during most of the 1990s led to a reduced demand for labour, resulting in the hours-worked gap widening to Canada's disadvantage. Other Statistics Canada research by Drolet and Morissette (1997:3) has shown that, among workers who would like a change in their work week, 80 per cent would prefer to work more rather than

fewer hours. In their work, which is based on LFS supplement surveys, they observed a shift from "standard" jobs involving 35-40 hour work weeks to part-time, temporary and contract employment in the early 1980s and 1990s (periods of high unemployment rates). This shift in demand away from jobs requiring longer hours resulted in an involuntary polarization of work hours in Canada. The result was a growing number of dissatisfied Canadians who would prefer to work more hours for more pay rather than fewer hours for less pay.

This background of international and Canadian research provides a good set of hypotheses to test as we explore differences in hours worked between Canada and the United States.

Hours Worked and Leisure in Perspective

Across nearly all developed countries, the trend over the past thirty years has been to reduce the time workers spend on the job. European countries have led the downward trend in labour

intensity, but Japan and Korea have also seen reductions. The United States is a distinct outlier in that its hours worked results have been increasing slightly. Canada's experience has been in the middle, as hours worked have declined but less than in the European countries (Chart 2).

Many economic observers agree that reduced intensity is a natural outcome of rising prosperity. Generally, at lower income levels, workers prefer to work more hours rather than fewer. Even though they value non-working time, they desire the potential to consume more from working more. But this is only true up to a point. As wages grow higher and people consume more, the added worth or utility of more consumption declines relative to leisure and people choose to work less.³ It should come as no surprise then that, as countries prosper, those in the labour force work less.

Some observers and pundits deplore the increasing hours worked in the United States compared to Europe, concluding that happiness is higher among Europeans because they have a better sense of work-life balance. Undoubtedly, happiness comes from leisure as well as from the consumption afforded by paid work. However, working fewer hours does not necessarily lead to more leisure and happiness.

First, there is some evidence that Americans are gaining more true leisure than they used to from the hours they are not on the job. Aguiar and Hurst (2006) find that Americans are spending much less time on household tasks, such as shopping, cooking, running errands, and keeping house than they were forty years ago. Appliances, home delivery, the Internet, 24-hour shopping, and more varied and affordable domestic services have increased flexibility and freed up people's time for other pursuits.

At the same time, there is evidence that Europeans are not gaining as much true leisure time from their greater number of hours off the job. Freeman and Schettkat (2005) have calculated that European women spend ten hours more per week on cooking, cleaning, and childcare than American women. Further evidence of this difference can be found in the penetration of labour-saving devices in North America and Europe. For example, 54 per cent of Canadian and 53 per cent of U.S. households own a dishwasher versus 32 per cent of French and 34 per cent of German households. In Canada and the United States, 92 per cent and 86 per cent of households respectively own a microwave oven versus 19 per cent in France and 36 per cent in Germany. While penetration of clothes washers is very similar across the four countries at 81 to 90 per cent, clothes dryers are in 79 per cent of Canadian and 82 per cent of U.S. households, while they are in only 12 per cent of French and 17 per cent of German households (Statistics Canada, 2002:56; Cox and Alm, 1999:97).

Second, it is not clear that Europeans are more or less happy than Canadians and Americans. In the 1999/2000 World Values Survey,⁴ 96 per cent of Canadian respondents indicated they felt 'quite happy' or 'very happy', while 93 per cent of respondents in the United States and 91 per cent in France agreed. Fully 95 per cent of French respondents agreed that work was important in their life, while 89 per cent of Canadians and Americans agreed.

Finally, current public policy developments in Germany and France indicate that as they face high unemployment and stagnating living standards, the current balance between time on and off the job may not be right for them. Recent wage settlements in Germany are resulting in

3 When income increases, the opportunity cost of not working also increases, making leisure more expensive. But the net effect is typically that as incomes increase so does leisure.

4 European Values Study Group and World Values Survey Association, *World Values Survey, 1981-2004*, v.20060423, 2006. Available online: www.worldvaluessurvey.org.

longer working times (Sinn, 2005). Workers and management at Siemens, one of the world's largest electrical engineering and electronics companies, recently agreed to lengthen the work week from 35 to 40 hours — without compensating pay increases. Bavaria's government increased the work week from 38.5 to 40 hours for older workers and to 42 hours for younger workers, and Daimler-Chrysler increased work hours in its R&D centre from 35 to 40 hours. Similarly, France recently changed its work week, allowing employers to increase working hours from the 35-hour standard. Unlike in Germany, however, workers will be compensated for their extra hours on the job.

Thus it is not clear that public policy should focus on reducing intensity. Nor is it clear that public policy should seek to expand hours worked across the board. Clearly, Canada's intensity gap with our U.S. peers contributes significantly to our prosperity gap. Faced with this challenge, Canada has a chance to explore the potential of opportunities to change our current approaches to the time we spend working. We need to understand the patterns of work that are occurring.

Data on Hours Worked

Our primary sources of data for hours worked are Canada's Labour Force Survey (LFS) and the U.S. Current Population Survey (CPS). These are based on large monthly samples (50,000-60,000) of households. The LFS includes civilians of age 15 or older and the CPS includes labour market questions only for civilians of age 16 or older. In order to capture comparable populations in both countries, in our analysis we include an esti-

mate of the 15 year-olds in the CPS by doubling the sample weight of the 16 year-olds. Unless noted otherwise, the analysis is based on the 15 or older age group in both countries. Due to data availability, much of our analysis focuses on the 1997-2004 period.

The questions in the surveys refer to the week that preceded the interview, known as the survey week. In the CPS, the survey week always includes the 12th of each month, and in the LFS it includes the 15th.⁵

In both surveys, individuals are first asked about the number of hours they usually work at the job. Then, separate questions are asked to determine the actual hours worked in the survey week. If the respondent has more than one job, similar questions are asked about each job. Both surveys contain similar variables for demographic, occupational, industry, and other worker characteristics. While the categories for these variables often differ across surveys, most differences are trivial and where necessary we developed simple concordances. In only one important question, about the reasons for working part-time, do the statistical universes differ across surveys. In the CPS this question is asked to all individuals who *usually* work fewer than 35 hours in *all* jobs, but in the LFS it is asked to all individuals who *usually* work fewer than 30 hours in their *main* job. To ensure compatibility of answers to this question, we standardized the statistical universes by including individuals who usually work fewer than 30 hours in their main job *and* less than 35 hours in all jobs.

We estimate labour intensity as 50 times the product of (1) average weekly hours worked per employed person who worked in the survey

5 In the LFS, the survey week has often included Canada's holidays such as Thanksgiving in October, Remembrance Day in November and, less frequently, Easter in April. In the 96 monthly LFS surveys between January 1997 and December 2004, one of these holidays was included in the survey week on 17 occasions. In contrast, the CPS included a major holiday (Labor Day) only once. This problem can lead to a serious underestimate of actual hours worked in Canada and requires correction. Maynard (2005) explains how Statistics Canada adjusts the estimates of actual hours worked to expunge the effect of statutory holidays.

Table 1
Summary Statistics on Hours Worked, 1997-2004

	1997-2004		
	Canada	United States	Difference United States-Canada
1. Weekly hours worked per employed person who worked in survey week	37.35	39.15	1.80
2. Weekly hours worked per part-time employed person (0-29 hours) who worked in survey week	17.04	17.25	0.21
3. Weekly hours worked per full-time employed person (30+ hours) who worked in survey week	43.02	43.73	0.71
4. Employed who worked in survey week (per cent)	92.15	95.91	3.76
5. Weekly hours worked per employed person	34.42	37.55	3.13
6. Annual hours worked per employed person	1,720.90	1,877.60	156.70
7. Employed who worked 1-29 hours in survey week (per cent)	20.01	16.60	-3.40
8. Employed who worked 30-49 hours in survey week (per cent)	57.87	61.27	3.40
9. Employed who worked 50 or more hours in survey week (per cent)	14.27	18.04	3.77
10. Part-time workers who wish to work full-time (per cent) — official	27.41	17.29	-10.12
11. Part-time workers who wish to work full-time (per cent) — standardized	26.71	11.30	-15.41
12. Unionization coverage rate (per cent)	32.47	13.70	-18.77
13. Labour regulation index (1998)	64.20	49.70	-14.50
14. Marginal income tax rate (1997-2002) (per cent)	33.77	30.40	-3.37

Sources: Lines 1-12, Institute for Competitiveness & Prosperity based on Statistics Canada, *Labour Force Survey*, and U.S. Bureau of Labor Statistics, *Current Population Survey*; Line 13, Block *et al.* (2003); Line 14; Institute for Competitiveness & Prosperity based on National Bureau of Economic Research (2006) and Milligan (2006).

Notes: Lines 1, 4, 7-10, and 12 for Canada taken from CANSIM tabulations of the LFS; Line 10 for the United States based on employed persons of age 16 or more; all other numbers in Lines 1-12 based on employed persons of age 15 or more in both countries; Line 5 = Line 1 x Line 4; Line 6 = 50 x Line 5; Line 11 based on standardized statistical universes for the LFS and CPS (see text for details).

week and (2) average fraction of the employed who worked in the survey week. The product of (1) and (2) is an estimate of the average weekly hours worked per employed person. In order to arrive to an estimate of annual hours worked per employed, we multiply average weekly hours per employed person by 50, to factor in statutory holidays.⁶ As Table 1 shows, the intensity gap of 156.7 hours is due partly to the fact that Canadians work 1.8 fewer hours per week than their American counterparts when they are at the job. This weekly difference explains 57.4 per cent ($50 \times 1.8 / 156.7$) of the intensity gap. The remain-

ing 42.6 per cent of the gap is due to the fact that Canadians are more likely to be away from the job in any given week. Indeed, 7.9 per cent of Canadians are away from their jobs in a given week compared to 4.1 per cent of Americans.

As Table 1 shows, the distributions of weekly hours worked differs across countries. There are higher proportions of Canadians who work 0 hours and between 1 and 29 hours in the survey week and lower proportions of Canadians who work between 30 and 49 hours and 50 or more hours. Therefore, the incidence of part-time work is an important part

⁶ According to Alesina *et al.* (2005, Table 4), there are 12 holidays a year in the United States. Maynard (2005, Table 5) counts between 6 and 10 holidays a year in different Canadian provinces. Given this information an estimate of two weeks a year of holidays in each country seems reasonable.

of the explanation of the intensity gap, accounting for over one quarter of the gap in annual hours worked. Notice also that a significantly higher proportion of persons in Canada compared to the United States work part-time but would prefer to work full-time. According to the official statistics, these proportions were 27.4 per cent for Canada and 17.3 per cent for the United States on average for 1997-2004 (line 10). However, as mentioned above, the statistical universes for this question are different in the CPS and the LFS. If we standardize the statistical universes, the proportions drop to 26.7 and 11.3 per cent, respectively (Line 11).⁷

Pondering the Puzzles in Canada-United States Differences in Hours Worked

As we review the differences in Canada-United States hours worked some interesting questions emerge. In this section we first set out these questions and then review our findings to date. In summary,

- Why is the Canada-United States gap in hours worked widening? Over the past three decades, Canadians have reduced their annual working hours, though, as we have seen, the decline is less steep than in other OECD countries. In the meantime, U.S. workers are working more hours. The prosperity gap between Canada and the United States has widened partly because Canadians are working less and their U.S. counterparts working more. It is puzzling why U.S. workers are not taking more of their prosperity in greater leisure time.
- Why do Canadians take more weeks off? Over 40 per cent of the Canada-United States gap in hours worked is because

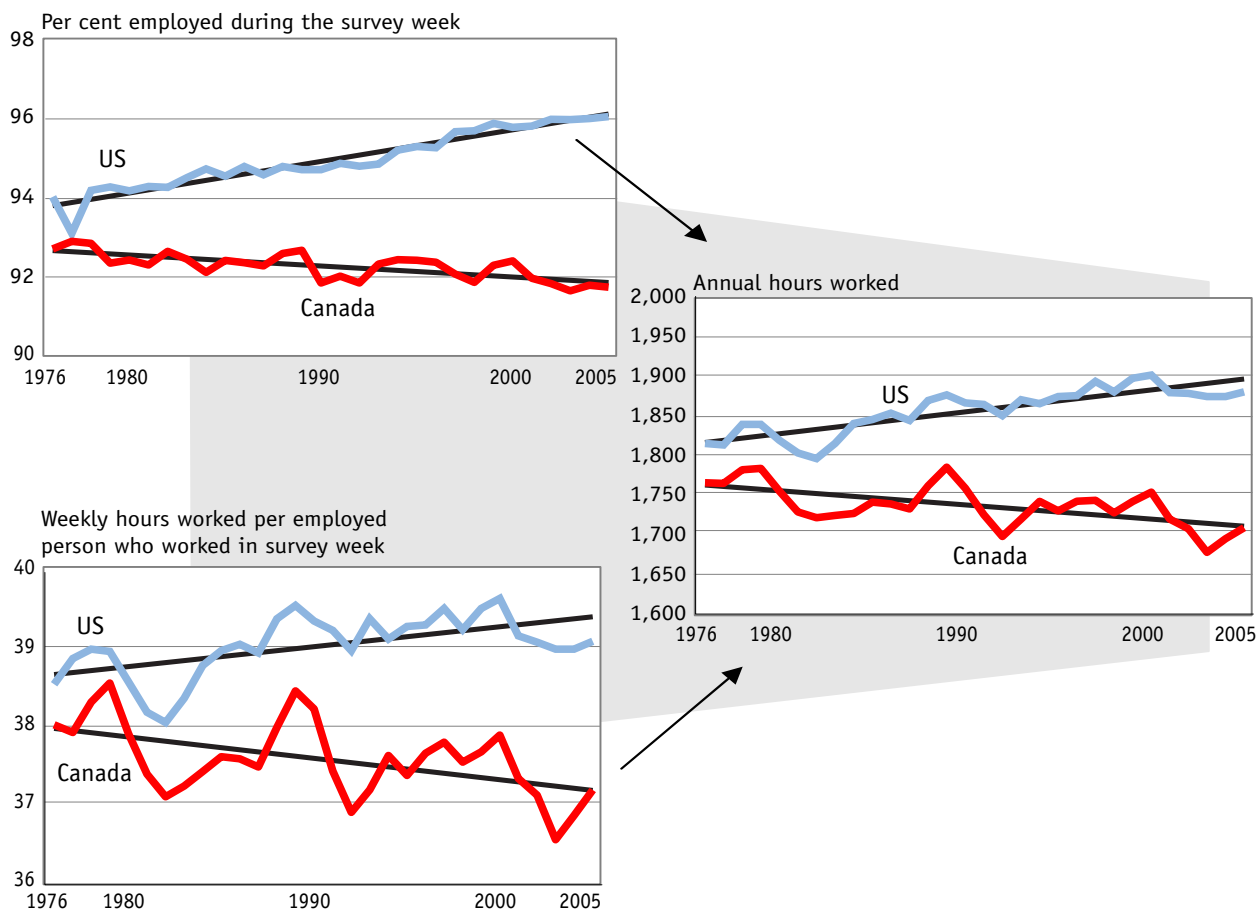
more Canadians are away from work in any given week. This translates into almost two fewer weeks of work annually. Why is the incidence of absence from work due to vacation, illness, and personal and family responsibilities greater in Canada than in the United States?

- Why are Canadians working more part-time? The greater proportion of Canadians working part-time compared to Americans explains over a quarter of the total gap in hours worked. An important question arising from this is whether or not Canadian part-time workers would prefer to work more hours. Results from questions in the CPS and the LFS indicate that a much higher percentage of Canadian part-time workers want more hours of work than U.S. part-time workers. What are the features of the Canadian economy that are giving rise to this apparently greater incidence of involuntary part-time work in Canada?
- Are attitudes towards hours of work different in Canada and the United States? Attitudinal research done by the Institute for Competitiveness and Prosperity (2003) in Ontario and 11 of the most populous states indicated minimal differences towards working extra nights or weekends to enhance standards of living. However, there are some statistically significant differences among those with higher income and education — U.S. respondents are more likely to agree that they are willing to work extra hours to increase their standard of living.
- Are hours worked differences related to marginal tax rates? Or are they related to labour standards and union coverage? Two different conclusions have been reached by

⁷ To standardize the statistical universes, in Canada we disregard the answers of workers who work less than 30 hours in their main job but 35 or more hours in all their jobs, and in the United States we disregard answers of workers who work between 30 and 34 hours in all their jobs. The latter are not considered part-time workers in Canada and thus not asked why they work part-time.

Chart 3

Trends in Weekly Hours, Weeks at Work, and Annual Hours, 1976-2005



Source: Institute for Competitiveness and Prosperity based on Statistics Canada, *Labour Force Survey*; U.S. Bureau of Labor Statistics, *Current Population Survey*.

researchers to explain differences between European and U.S. hours worked. Some argue that the differences are the result of marginal tax rates; others point to differences in regulations and union coverage. We have attempted to measure the impact of these variables on hours worked and conclude that stricter labour standards and union coverage are more important in explaining Canada-United States differences.

- Why do higher-income Americans not take more time off? While higher-income Canadians take substantially more vacation weeks than lower-income Canadians, higher-

income Americans take only slightly more vacation weeks than lower-income Americans. What is puzzling is why higher-income Americans are not choosing more leisure.

Turning to the first puzzle...

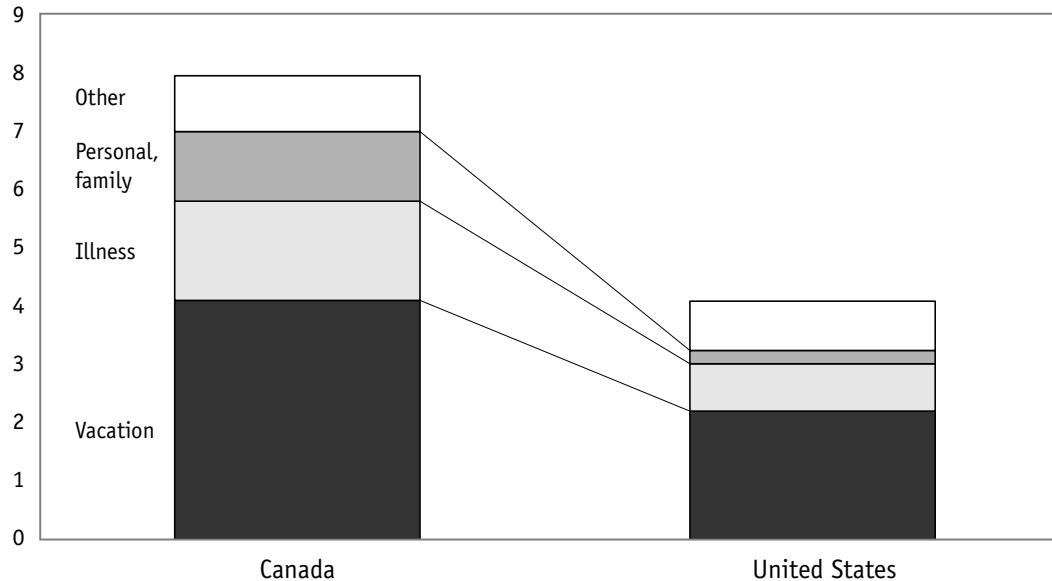
Why is the Canada-United States gap in hours worked widening?

The intensity gap increased from 140.4 in 1997 to a peak of 188.9 hours in 2003, before retreating to 172.5 hours in 2004 and 164.2 in 2005. Similarly, the gap in weekly hours worked increased from 1.5 to a peak of 2.3 hours between 1997 and 2003, declining to 2.0 in 2004

Chart 4

Reasons for Taking a Full Week Off, 1997-2004

Main reason for being absent from work for a full week, 1997-2004 average
(Per cent of employed individuals)



Note: "Personal, family responsibilities" includes childcare and family or personal family obligations. "Other" includes maternity/paternity leave, weather and training.

Source: Institute for Competitiveness and Prosperity based on Statistics Canada, *Labour Force Survey*; US Bureau of Labor Statistics, *Current Population Survey*.

and 1.8 in 2005. Finally, the gap in the per cent of employed persons who worked during the survey week increased from 2.0 per cent in 1997 to a peak of 4.3 per cent in 2004, decreasing slightly to 4.2 per cent in 2005.

In fact, the increase in the intensity gap is not a new phenomenon, as we can see in Chart 3. The top panel shows that the per cent of employed persons who, on average, worked during the survey week increased in the United States from 94.2 per cent in 1976-80 to 96.0 per cent in 2001-05 and decreased in Canada from 92.7 per cent to 91.9 per cent in the same period. The bottom panel shows that there has been a growing gap in weekly hours worked by those employed who worked in the survey week increasing from 38.6 to 39.3 between 1976 and 2005 in the United States and decreasing from 38.0 to 37.0 in Canada. With the combined effect of these trends, the gap in annual hours worked per employed person,

or labour intensity, increased substantially during the 1976-2005 period. In 1976-80, the difference in annual hours worked per worker was 51 hours; by 2001-05 this gap had grown to 168 hours.

Why are Canadians taking more full weeks off work?

More Canadians are absent from work during the entire survey week and, as we have seen, this gap has been widening over the last three decades. Both the LFS and CPS ask why respondents were away from work for the entire survey week (Chart 4). In any given week over the 1997-2004 period, 7.9 per cent of Canadian workers were off the job for the full week. Multiplying this number by 50 work weeks in a year, we estimate that the average Canadian worker is away from work during close to 4 full weeks. In the United States, only 4.1 per cent of workers were off the job for the full week. This 3.8 percentage point

Canada-United States difference in the likelihood of workers being at work in any given week translates into an annual gap of almost two full weeks. Of these two weeks, one week is explained by Canadians taking more vacations than Americans, half a week by illness, and another half week by personal responsibilities.⁸

A further look at the Canada-United States weeks-worked gap shows that it is pervasive across industries. This tendency is related to two factors: the greater unionization coverage rate in Canada than in the United States (32.5 per cent versus 13.7 per cent in 1997-2004) as unionized workers tend to take more full weeks off than non-unionized workers, and the greater success of Canadian unions in achieving more weeks off for their members than their U.S. counterparts.

Does the incidence of part-time employment explain the Canada-United States gap in hours worked?

Between 1976 and 2005, the proportion of Canada's employed workers who worked part-time has grown from 15.6 per cent to 20.2 per cent. In contrast, this proportion decreased slightly in the United States, from 17.5 per cent in 1976 to 16.3 per cent in 2005.⁹ The Canadian incidence of part-time work exceeded that of the United States in every year since 1980. And, as we have seen, the proportion of Canadian workers working zero hours in the survey week has also grown relative to the United States. As a counterpart of these distributional changes during this

period, the incidence of employed individuals working between 30 and 49 hours per week decreased in Canada from 65.1 per cent to 58.0 per cent and increased slightly in the United States from 61.7 per cent to 62.7 per cent. Finally, the proportion of employed workers who worked 50 or more hours a week has increased in both countries, but more so in the United States (from 15.0 per cent to 17.2 per cent) than in Canada (from 12.1 per cent to 13.7 per cent).

The proportion of Canadian men working part-time has increased since 1976. Economic conditions appear to contribute to this phenomenon. In the recessions of the early 1980s and 1990s, the incidence of part-time work among Canadians increased dramatically and did not fully return to pre-recession levels once the recession ended. This was also observed during the milder slowdown of the early 2000s. Among women, the gap has also widened, as a smaller proportion of U.S. women are working part-time, while the incidence is unchanged in Canada. Periods of economic slowdown are associated with growth in part-time work among women (Chart 5).

To what extent does the higher incidence of part-time work in Canada reflect a choice or an inability to find full-time work? Both the LFS and CPS ask the main reason for working part-time.¹⁰ As we have seen in Table 1, the official statistics show that the proportion of part-time workers who single out the inability to find full-time work was 10.1 percentage points higher in Canada than in the United States over the 1997-2004 period

8 These calculations consider only full-week absences. We found that Americans are slightly more likely than Canadians to be absent from work during part of the week (4.95 per cent against 3.75 per cent). Nevertheless, the effect of this difference in part-week absences on the intensity gap is small.

9 Recall that the official definitions of part-time work differ across surveys (see data section). In order to make the incidence of part-time work compatible across countries, we measure it here as the number of persons whose actual hours of work during the survey week were between 1 and 29 hours over the number of employed persons in the survey week (which includes those who did not work in the survey week). See Line 7 of Table 1.

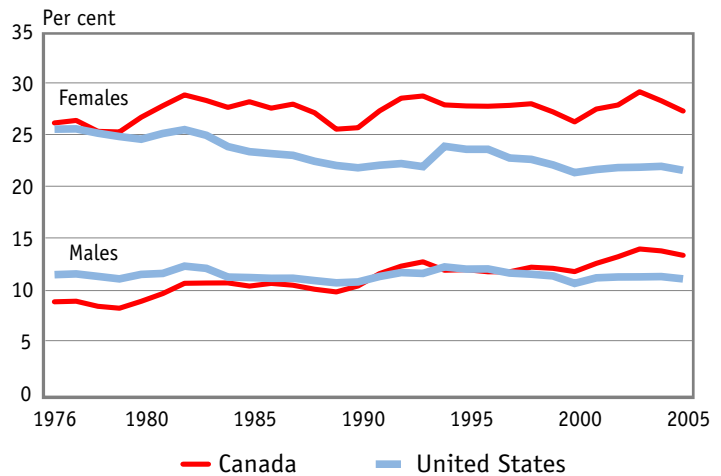
10 LFS question: "What is the main reason you usually work less than 30 hours per week at your main job?" CPS question: "Some people work part-time because they cannot find full-time work or because business is poor. Others work part-time because of family obligations or other personal reasons. What is your main reason for working part-time?" The numbers in Lines 10 and 11 of Table 1 and discussed in this paragraph refer to the per cent of persons who answer that they could not find full-time work, or that there was a lack of work, or that business conditions were bad.

(27.4 per cent versus 17.3 per cent). However, if we standardize the statistical universes so the answers are based on the same populations, the difference widens to 15.4 percentage points (26.7 per cent versus 11.3 per cent). Notice that these estimates include teenagers and college students, whose main reason for working part-time is that they are attending school. If we limit the sample to part-time workers of age 25 to 64 and continue standardizing the statistical universes, the gap widens even more to 17.3 percentage points (32.7 per cent against 15.4 per cent). In this case, the main reasons for working part-time given by American workers are “Childcare and other personal/family reasons” (50 per cent) and “Other reasons” (21 per cent). Among Canadians, only 23.9 per cent cite child care as the main reason for working part-time.¹¹

If Canada had the same proportion of full-time workers and part-time workers as in the United States, we estimate that the 1997-2004 gap in annual hours worked between the two countries would fall from 157 hours to 112 hours, or 28.6 per cent.¹² In other words, over a quarter of the intensity gap between the two countries is attributable to greater incidence of part-time work in Canada.

As noticed above, Canada has a significantly higher incidence of part-timers who claim that they

Chart 5
Incidence of Part-time Work, by Sex, 1976-2005
Per cent of employed working 1 to 29 hours in the survey week, 1976-2005



Source: Institute for Competitiveness and Prosperity based on Statistics Canada, *Labour Force Survey*; US Bureau of Labor Statistics, *Current Population Survey*.

work part-time because they cannot find full-time work. If we counterfactually assign to those workers, both in Canada and the United States, the average hours of workers who work 30 to 49 hours per week in their respective country, the gap would be reduced from 157 to 120 hours, or 23.5 per cent.¹³ As a robustness check, we perform the same counterfactual calculation, but using official numbers for the incidence of involuntary part-time work (Line 10 in

11 The LFS further asks part-time respondents who expressed a desire to work full-time if they looked for full-time work during the survey week. During 1997-2004 the per cent of involuntary part-time workers of age 25-64 who did was about 30 per cent. The CPS does not include this question.

12 We can express the Canada-US gap in annual hours worked as $Gap = 50[p_{1-29}^{US} \bar{H}_{1-29}^{US} + p_{30-49}^{US} \bar{H}_{30-49}^{US} + p_{50+}^{US} \bar{H}_{50+}^{US}] - 50[p_{1-29}^{CA} \bar{H}_{1-29}^{CA} + p_{30-49}^{CA} \bar{H}_{30-49}^{CA} + p_{50+}^{CA} \bar{H}_{50+}^{CA}]$, where p_{1-29} , p_{30-49} , and p_{50+} are the percentages of the employed who work, respectively, 1 to 29, 30 to 49, and 50 or more hours in the survey week (Table 1), and \bar{H}_{1-29} , \bar{H}_{30-49} and \bar{H}_{50+} are their respective weekly average hours worked. If we assume counterfactually that Canada has the same proportion of workers in the 1-29 hours group as the United States and transfer the difference to the 30-49 hours group, $Gap' = 50[p_{1-29}^{US} \bar{H}_{1-29}^{US} + p_{30-49}^{US} \bar{H}_{30-49}^{US} + p_{50+}^{US} \bar{H}_{50+}^{US}] - 50[p_{1-29}^{US} \bar{H}_{1-29}^{CA} + (p_{30-49}^{CA} \cdot (p_{1-29}^{CA} - p_{1-29}^{US})) \bar{H}_{30-49}^{CA} + p_{50+}^{CA} \bar{H}_{50+}^{CA}]$. In that case, the gap would drop by $Gap - Gap' = 50[(p_{1-29}^{CA} - p_{1-29}^{US})(\bar{H}_{30-49}^{CA} - \bar{H}_{1-29}^{CA})]$. Our estimates of \bar{H}_{1-29}^{CA} and \bar{H}_{30-49}^{CA} are 17.04 and 38.95.

13 Using a logic similar to that in footnote 12, we can calculate the contribution of involuntary part-time to the gap as $50[p_{INV}^{US}(\bar{H}_{30-49}^{US} - \bar{H}_{1-29}^{US}) - p_{INV}^{CA}(\bar{H}_{30-49}^{CA} - \bar{H}_{1-29}^{CA})]/Gap$, where p_{INV} is the proportion of the employed who work 1 to 29 hours but would like to work full-time work. We estimate p_{INV} from Lines 7 and 11 of Table 1 as 20.01 per cent x 26.11 per cent = 5.34 per cent for Canada and 16.6 per cent x 11.3 per cent = 1.88 per cent for the US. Our estimates of \bar{H}_{1-29}^{US} and \bar{H}_{30-49}^{US} are 17.25 and 39.47.

Table 2
Attitudes of Ontarians and Americans Towards Working More

For each of the following situations, would you please tell me which, if any, you would be prepared to do in order to achieve a higher standard of living for yourself and/or your family	General public		Business community	
	Ontario (n=500) per cent	US (n=800) per cent	Ontario (n=250) per cent	US (n=675) per cent
Would work late at least occasionally	92	92	99	99
Would work late 3 out of 5 nights a week	56	61	68	76*
Would not work late even occasionally	7	8	1	1
Would work weekends at least occasionally	84	86	91	92
Would work 3 out of 4 weekends	43	47	41	52*
Would not work weekends even occasionally	15	13	9	8

* Significantly different from zero at the 5 per cent level.

Source: Institute for Competitiveness and Prosperity analysis (2006b:31). The business community includes middle managers and owners of businesses within traded clusters. See Institute for Competitiveness and Prosperity analysis (2003) for more details.

Table 1). The result is a smaller decrease of the intensity gap between 157 to 129 hours, or 17.8 per cent. We believe that this figure is an underestimate because it implicitly assumes that there are no Canadians working between 30 and 34 hours who would like to work 35 or more hours (refer to footnote 7). It nevertheless confirms that the higher incidence of involuntary part-time in Canada is an important contributor to the intensity gap.

Are attitudes towards hours of work different in Canada and the United States?

One of the usual explanations for international differences in hours worked is attitudinal or cultural — people in some societies place a higher value on leisure than in others. The Institute of Competitiveness and Prosperity (2003) studied the differences in attitudes between Ontarians and their counterparts in 11 of the more populous U.S. states related to issues of competitiveness, innovation, risk taking, and others. Overall we were struck by the similarities in attitudes between Ontarians and their U.S. counterparts. We asked two questions related to people’s willingness to invest more work time to advance in prosperity. Among the

general public we found no statistically significant differences in respondents’ willingness to work extra hours to achieve a higher standard of living for themselves or their family (Table 2). While this finding does not address directly the overall cultural attitudes towards work and leisure, it does indicate that Ontarians do not have dramatically different attitudes towards extra work for economic advancement.

However, when we break down the survey results by respondent groups, we find that there are some statistically significant differences among the business community as well as for university educated and higher income people. In Ontario, 48 per cent of respondents with a graduate degree agreed that they were willing to work three out of five nights a week to improve their standard of living while 63 per cent of their U.S. counterparts expressed this willingness (Institute for Competitiveness and Prosperity, 2006b). This difference is statistically significant at the 1 per cent level. Similarly, 25 per cent of respondents with a graduate degree in Ontario indicate a willingness to work three out of four weekends versus 45 per cent of their U.S. peers, a difference that is also statistically significant at the 1 per cent level.

Given the overlap between education and income it is not surprising to see analogous results for higher income respondents. In Ontario 55 per cent of respondents earning \$100 thousand or more annually report a willingness to work three out five weeknights to advance their standard of living versus 65 per cent of their U.S. counterparts (significant at the 5 per cent level). This difference is also seen among those earning between \$75 and \$100 thousand annually. On the other measure — willingness to work three of four weekends — we see no statistical difference between Ontarians and their U.S. counterparts on the basis of income.

Are hours worked differences related to marginal tax rates? Or are they related to labour standards and union coverage?

To assess the impact of the various factors used to explain differences in hours worked, we conducted a multiple regression analysis. Our dependent variables are annual hours worked, the per cent of the employed that are at work during the survey week, and the per cent of part-time workers that would like to work full-time.¹⁴ We drew on annual data for each of the 61 jurisdictions in Canada and the United States (50 states and the District of Columbia) for each of the 25 years from 1978 to 2002. Our regressions account for fixed province and state effects. Due to data availability, we limit the sample to the 1997-2002 period for the regression for the per cent of part-time workers that would like to work full-time. Our explanatory variables are

- the marginal income tax rate,

- the percentage of workers covered by a union contract,
- the labour standards index proposed by Block *et al.* (2003),¹⁵
- the unemployment rate,
- the per capita GDP,
- and a Canada dummy variable to capture unspecified national differences.

We computed our measure of marginal tax rates on labour as weighted averages — for each province, state and year — of statutory income tax rates for singles with no dependents at each income level between \$1,000 and \$200,000. We included payroll taxes, such as Employment Insurance and Canada Pension Plan in Canada and Social Security and Medicare in the United States. The weights were estimated on the basis of the Canadian distribution of employee earnings from the LFS and applied to all provinces and states.¹⁶ Using a single set of weights for all jurisdictions enables us to focus on the differences in tax structures across jurisdictions. Table 1 in the data section shows simple averages across states and provinces of marginal income tax rates, unionization, and the labour standard index.

The results indicate that a robust economy is a very important factor in explaining the labour intensity gap between Canada and the United States, accounting for close to 50 per cent of the gap in annual hours (31.2 per cent related to Canada’s higher unemployment rate and 18.4 per cent related to our lower GDP per capita) and just over 60 per cent of the gap in the percentage of involuntary part-timers (Table 3). By our estimation, close to 40 per cent of the annual hours worked gap between Canada and the United States is explained by

14 We also used weekly hours worked as the dependent variable, but the results were similar to those for annual hours worked.

15 The labour standards index combines 10 different subindices (minimum wage, overtime, paid time off, UI/EI, workers’ compensation, collective bargaining, employment equity, unjust discharge, occupational safety and health, and advance notice). Each subindex is adjusted by the extent to which the labour force is covered by the corresponding labour standard. See Block *et al.* (2003) for details.

16 We estimate annual earnings of employees as hourly wages times usual weekly hours times 52.

Table 3
Results from the Regression Analysis

	Per cent of employed who work in survey week	Annual hours worked	Per cent of part-time who want full-time work
Period	1978-2002	1978-2002	1997-2002
Canadian average	92.4	1,756	28.5
US average	95.0	1,852	7.9
Gap (percentage points, hours)	-2.6	-96	20.6
Per cent of Canada disadvantage explained by			
Canada's higher labour standards index	-4.0	39.3*	15.3*
Canada's higher unionization coverage rate	39.4*	16.4*	4.6*
Canada's higher unemployment rate	2.3	31.2*	28.6*
Canada's higher marginal income tax rates	0.0	10.7*	0.3
Canada's lower GDP per capita	10.9*	18.4*	31.6*
Unspecified national differences	51.3*	-16.0	19.7*
Observations	1,525	1,525	366
R2	0.89	0.86	0.98

* Statistically significant at the 1 per cent level.

Note: The Canadian and U.S. averages are unweighted averages of, respectively, province and state figures. The numbers under the 'Per Cent of Canada disadvantage' heading are estimated regression coefficients multiplied by the average Canada-United States difference of each explanatory variable and divided by the average Canada-United States difference in the dependent variable. For example, the estimated coefficient of the unemployment rate in the annual hours worked regression is -7.13, which multiplied by the average gap in unemployment between Canada and the United States over 1978-2002 (4.2) and divided by the gap in annual hours over the same period (96) gives the 31.2 figure in the table. The regressions were estimated using a three-step procedure that allows us to identify time-invariant variables, such as the labour standard index and a U.S. dummy variable, while controlling for fixed province and state effects (Plümer and Vera E. Troeger, 2005).

differences in labour regulations. The other institutional factor, union coverage, accounts for 16 per cent of the gap.

Prosperity as measured by GDP per capita is positively correlated with hours worked. More than 18 per cent of our hours worked gap is related to our prosperity gap. We cannot conclude which drives which. But this result indicates that, over the 1978-2002 period within North America, higher prosperity is not associated with reductions in hours worked.

Canada's higher marginal taxes on labour have a small influence on intensity, accounting for about 11 per cent of the gap in annual hours worked.

Interestingly, the two factors that explain the bulk of the differences in annual hours worked,

the robustness of the economy and labour regulations, are not relevant to explain the gap in the per cent of employed workers who work in the survey week. This component of the intensity gap, which is largely representative of vacation time, is explained mostly by Canada's higher unionization coverage rate (39 per cent) and by unspecified national differences (51 per cent). As discussed in Institute for Competitiveness and Prosperity (2006b), Canadian unions have placed a high priority on reducing weeks worked; the regression results indicate that these efforts have been successful. The unspecified national differences indicate that attitudes or cultural norms play a significant role in explaining the differences in vacation time across the two countries.

Why do high income Americans not take more time off?

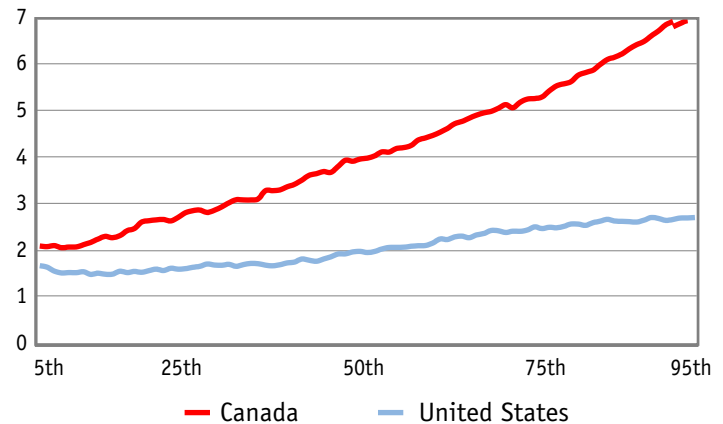
The Canada-US gap in annual hours worked widens slightly as one goes up the income scale. The top ten per cent of wage earners in the United States work an average of 2,047 hours annually¹⁷ versus 1,850 hours among the same cohort in Canada on average over the 1997-2004 period. This 197-hour gap represents a 11.3 per cent difference, compared to the overall gap of 141.5 hours annually, or 8.1 per cent more hours by U.S. workers. However, this increase in the gap in annual hours for higher income groups conceals two very different relationships.

The Canada-United States difference in weekly hours worked for those who were at the job during the survey week is relatively small and decreases as income increases. However, the difference in weeks worked widens significantly as income increases. In Canada, as income grows more workers are absent from work for a full week. In the United States, the pattern is similar but not nearly as pronounced. Higher income Americans are almost as unlikely to be away from work for a full week as lower income Americans. Clearly high income U.S. workers are not taking more weeks off work. The main reason for being away a full week is vacation. For Americans, the likelihood of taking a full-week vacation during the survey week increases from 1.6 per cent at the 5th income percentile to 2.6 per cent at the 95th income percentile. For Canadians, the likelihood rises from 2.3 per cent to 7.4 per cent (Chart 6).

We find a similar phenomenon when we examine the relationship between the incidence of long work weeks (50 or more hours per week) and income. At low levels of income this incidence is similar for Canadian and American workers, but as income increases, significant differences appear. For Canadians, the incidence of long work weeks increases from 4.1 per cent at

Chart 6
Vacation Time and Income in Canada and the United States, 1997-2004

Full-week vacations by hourly wage percentile, (Per cent of employees taking a full-week vacation in the survey week)



Note: Excludes self-employed.

Source: Institute for Competitiveness and Prosperity based on Statistics Canada, *Labour Force Survey*; US Bureau of Labor Statistics, *Current Population Survey*.

the 5th income percentile to 16.4 per cent at the 95th income percentile. For Americans, the incidence rises from 5.3 per cent to 26.7 per cent.

Conclusion

Canadians with a job worked an average of 157 hours less per year than Americans during the 1997-2004 period. This labour intensity gap of four weeks, or a month, is a significant contributor to Canada's prosperity gap with the United States. In this paper we show that the intensity gap widened considerable over the last thirty years, as Canadians reduced their annual hours worked while Americans increased them. We find that over 40 per cent of the intensity gap can be explained by a higher propensity of Canadians to take full-weeks off, mainly for vacations but also for personal and family responsibilities and for illness. We also find that over a quarter of the intensity gap is explained by a higher incidence of part-time work in Canada. Moreover,

¹⁷ Excluding 100th percentile. This analysis excludes self-employed workers.

Canada's part-time workers are substantially more likely than their American counterparts to cite difficulties in finding full-time work as the main reason why they work part-time. We estimate that if all the involuntary part-timers in Canada and the United States were able to work full-time, the intensity gap would also drop by close to a quarter.

We find that among higher income and more highly educated Ontarians, as well as among the business community, attitudes towards the desirability of extra work for economic gain diverge from their peer state counterparts. We find little evidence that higher taxes are significantly reducing hours workers spend on the job. Coincidentally with Alesina *et al.* (2005), we find that unionization and labour standards are more important factors to explain hours worked. Equally important are demand factors, captured in the regression analysis by the unemployment rate and per capita GDP. Finally, we find that as their income increases, Canadians take dramatically more weeks of vacation per year than their American counterparts and are less likely to work long work weeks.

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