Demographic Shifts and Labour Force Participation Rates in Canada

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"Demographics explain about two-thirds of everything."
— David K. Foot, Boom, Bust & Echo, 1996

The labour force participation rate underwent an unprecedented fall during the last recession and the subsequent slow recovery, declining three percentage points from peak to trough. In all likelihood, this decline reflects a combination of cyclical and structural factors.

The extent to which this fall is structural has major policy implications. In the short term, it will have an impact on the estimated output gap and, hence, the appropriate conduct of monetary and fiscal policies. A lower structural participation rate will also mean the economy has less room to grow over the short to medium term before running against its sustainable, non-inflationary level of output, and the unemployment rate will fall more quickly in response to stronger employment growth.

Longer-term, a continued decline in the participation rate because of structural factors will exert downward pressures on potential output, the employment ratio and gross domestic product per capita. It is relatively well known that the ageing of the baby-boom generation over the next decades will tend to significantly depress source population growth and, hence, potential output growth, while increasing dependency ratios. At issue here is the strong possibility these downward pressures on growth will be compounded by a falling participation rate.

The key is to know how much of the downturn is purely cyclical and how much is structural. To highlight this issue, we use a simple, accounting framework that combines plausible trend participation rates for 16 demographic groups with source population data to estimate an aggregate structural participation rate for the Canadian economy. This not only enables us to assess the current structural participation rate, but also its prospects over the next four decades.

Our study updates the work of MacGregor and Mang (1996) and highlights the impact demographic shifts had on the aggregate participation rate in the 1990s and will continue to have in coming decades. In contrast to the conventional wisdom that the ageing of the population will start to dampen the aggregate participation rate only when baby-boomers start to retire in a few decades, our results show the ageing of the population has already started to exert downward pressures on the aggregate participation rate. This results from a trend toward increased life expectancy, which translates into a trend increase in the proportion of the working-aged population aged 65 and over. Although this trend was masked by the entry of baby boomers into the labour market in the 1970s and early 1980s, since the mid-1980s the underlying downward pressures associated with an older society have again dominated the overall participation trend. As a result, baby boomers' retirement will not start but rather intensify a downward trend in aggregate participation.

An Accounting Approach

MacGregor and Mang (1996) suggest a simple accounting framework to calculate the trend participation rate at the aggregate level. The approach is based on the idea that changes in the aggregate participation rate reflect changes in the participation rate of individual age-sex cohorts as well as changes in the importance of each of these cohorts in the source population. More formally, we have:

$$(1) \quad PR_t = \sum_{i=1}^{j} w_{i,t}\, PR_{i,t}$$

$$(2) \quad w_{i,t} = SP_{i,t} / SP_t$$

where PR_t is the aggregate participation rate in year t, PR_{it} is the participation rate of cohort i in year t, and w_{it} is the share of cohort i in total source population, SP_t, in year t. The trend aggregate participation rate (PRT_t) in year t is defined as:

$$(3) \quad PRT_t = \sum_{i=1}^{j} w_{i,t}\, PRT_{i,t}$$

where PRT_{it} is the trend participation rate of cohort i in year t.

This paper uses the framework described by (3) to estimate the aggregate trend participation rate since the mid-1970s, the starting period for the current Labour Force Survey, as well as to assess its prospects over the next four decades. Source population series are taken from actual population data and Statistics Canada's moderate growth projection (Scenario 2).[1] We identify 16 demographic groups ($i = 1, 2, \ldots 16$) in the analysis — 10-year gender-specific cohorts, except for youths and older people where five-year cohorts are used. It is important for these groups to use five-year cohorts because significant differences in their participation rates provide a richer estimate of the demographic effect.[2]

Trend participation rates for the 16 demographic groups correspond to plausible assumptions based on the results of econometric studies and a comparison with U.S. participation rates of similar demographic groups.[3] Only a few econometric studies have analysed the participation rate behaviour for detailed Canadian age-sex cohorts. Archambault and Grignon (1999) and Rose (1994) have analysed youth participation rates, Beaudry and Lemieux (1999) have examined female participation rates, while Fortin and Fortin (1997, 1999) have studied a broader range of demographic groups.[4] Moreover, the results of some of these studies are difficult to interpret because they use the employment-to-population ratio as a measure of business cycles, which should in principle capture not only cyclical effects but also structural changes.

As suggested by Rubin and Lester (1997), Ip et al. (1999) and Haritos (1998), the U.S. experience also provides useful information on benchmark trend participation rates for various demographic groups in Canada. In contrast to previous decades, business cycles in Canada and the United States have diverged in the 1990s. As a result, labour market indicators have also diverged; particularly the participation rate, which has risen to a record level in the United States while it has trended down in Canada. With the U.S. economy now at or above potential, U.S. participation rates are likely free of important cyclical factors, revealing underlying changes in structural participation rates of individual age-sex cohorts. This suggests the actual U.S. participation rates for detailed demographic groups can be used to gauge the structural participation rates for comparable demographic groups in Canada.

One advantage of the framework used here is its ability to capture the effects of continuing demographic changes on the aggregate participation rate. In our framework, structural changes in the aggregate participation rate reflect either changes in individual trend participation rates or a change in the composition of the source population for given individual participation rates — the demographic composition effect. It is convenient to define this effect with the following:

$$(4) \quad \overline{PR}_t = \sum_{i=1}^{j} w_{i,t}\, PR_{i,89}$$

which is the aggregate participation that would have been observed at time t if all individual participation rates would have remained at their 1989 levels. The annual average demographic composition effect between year t and $t+k$ is then simply defined as:

$$(5) \quad dce_{t,t+k} = (\overline{PR}_{t+k} - \overline{PR}_t)/k$$

A negative (positive) demographic composition effect indicates source population has moved, on average, from age cohorts with higher (lower) than average participation rates to age cohorts with lower (higher) than average participation rates over a given period. Obviously, a negative demographic composition effect would reduce the aggregate structural participation rate, while a positive demographic composition effect would increase it.

Table 1 Average annual demographic composition effect, Canada, 1921-2040
(Percentage points)

Period	Effect	Period	Effect	Period	Effect
1921-1930	-0.104	1960-1970	-0.105	2000-2010	-0.210
1930-1940	-0.122	1970-1980	-0.008	2010-2020	-0.335
1940-1950	-0.095	1980-1990*	-0.032	2020-2030	-0.229
1950-1960	-0.048	1990-2000	-0.119	2030-2040	-0.086

* Between 1980 and 1985 the average annual demographic effect was positive at 0.016 percentage point, while it was negative between 1985 and 1990 at –0.079 percentage point.

Table 2 Age composition of working-aged population, Canada, selected years 1921-2041

Year	Share of Population aged (per cent):						
	15-24	25-54	55-64	65-69	70+	Males 70+	Females 70+
1921	26.3	57.3	9.0	3.0	4.3	2.2	2.1
1931	27.5	55.0	9.3	3.3	4.9	2.4	2.4
1941	25.9	53.8	11.0	3.7	5.5	2.8	2.8
1951	22.0	55.8	11.0	4.4	6.7	3.3	3.4
1961	21.7	56.0	10.7	4.0	7.5	3.6	3.9
1971	26.4	50.9	11.3	4.0	7.3	3.2	4.2
1981	25.2	51.2	11.3	4.4	7.9	3.2	4.7
1991	18.1	56.6	10.9	4.9	9.5	3.8	5.7
2001	16.5	56.4	11.5	4.5	11.2	4.5	6.7
2011	15.7	52.3	15.1	5.3	11.7	4.8	6.9
2021	14.0	48.0	16.7	6.8	14.5	6.2	8.3
2031	13.5	46.3	14.4	7.4	18.4	7.9	10.5
2041	13.4	45.4	14.4	6.5	20.3	8.6	11.7

What We Know More About: The Demographic Composition Effect

Before moving to look at participation rates for individual age-sex cohorts, we first want to highlight continuing demographic changes in the Canadian economy and their impact on the aggregate participation rate (Table 1). The demographic composition effect has displayed two distinct phases since the early 1970s.[5] In 1970-85, the effect of the demographic evolution on the participation rate has been roughly neutral on average. However, since the mid-1980s it has had a negative impact, removing about 1.25 percentage points from the participation rate. From the aggregate participation rate's peak level in 1989, the demographic composition effect has already removed almost one percentage point from it by 1997. Moreover, it will continue to be negative for many decades, removing an additional 8.5 percentage points from the structural participation rate by 2030. In the next four decades or so, the annual demographic effect will intensify to peak at about -0.35 of a percentage point a year in 2015, compared with -0.14 of a percentage point in 1997, before falling gradually to about -0.04 of a percentage point a year in 2040.

A detailed decomposition of the demographic composition effect for 1989-96 will be found in Table A1. It shows that the lower contribution to the aggregate participation rate from younger cohorts has been only partially offset by higher contributions from older cohorts. Most important, the share in source population of people aged 70 and over increased by 1.4 percentage points but had a negligible effect on the aggregate participation rate given their low participation rates.

The negative demographic composition effect is not a new phenomenon. Indeed, Table 1 shows that 1970-85 is the anomaly. Aside from this period, the demographic composition effect has exerted downward pressure on the aggregate participation rate since the 1920s. This downward trend in the demographic composition effect reflects continuous increases in the share of older people in the source population, particularly women aged 70 and over, which, in turn, mirror the increase in life expectancy experienced since the 1920s (Table 2). The pause observed in the 1970s and early 1980s reflects the temporary offsetting effect of baby boomers who were entering into the workforce (see Chart A17).

What We Know Less About: The Structural Levels of Individual Participation Rates

To complete our analysis, the trend or structural participation rates for the 16 demographic groups are specified. Actual participation rates of the 16 age-sex groups in Canada and the United States in 1976-97 are plotted (Charts A1-A16).

The first observation that can be made from these charts is that youth participation rates appear to be sensitive to aggregate cyclical downturns, while adult participation rates appear to be mainly driven by structural factors. However, the participation rate of adult males aged 25-34 is one notable exception. This group seems to be more sensitive to business cycles than other adult cohorts, particularly in the 1990s. Most empirical analysis has confirmed that participation rates for youths are sensitive to business cycles or employment opportunities, but have had trouble identifying a robust cyclical effect for adult cohorts.[6] The exception is Fortin and Fortin (1997) who have concluded that, with the exception of prime-aged males, adult participation rates are as much or even more sensitive to business cycles than youth participation rates.

This last conclusion is difficult to reconcile with the graphical evidence. The source of the opposing results seems to be the variable they used to capture business cycles or job opportunities in these empirical studies: the ratio of employment to source population. The employment-to-population ratio is not a measure of the imbalances between the demand and the supply of labour but the endogenous result of the interaction between them. To capture the business cycle, a measure of the level of the employment consistent with the underlying potential supply of labour in the economy — "the natural rate of employment" — is needed.

This measurement of business cycles or job opportunities is particularly troublesome when applied to a specific demographic group in which

the participation rate of that group is regressed, *inter alia*, on its *own* employment-to-population ratio, as in Fortin and Fortin's 1997 work. Clearly, the two variables will be strongly correlated since they are linked by the following identity: $E/SP = (1-UR)(L/SP)$ where E is employment, SP is source population, UR is the unemployment rate, and L is labour force. This does not mean the participation rate of that demographic group is sensitive to business cycles or job opportunities. Indeed, it is easy to imagine an example in which employment-to-population ratio and participation rates are strongly correlated because they both trend up or down, driven only by structural factors. In that context, the approach used by Fortin and Fortin will wrongly suggest that the participation of that cohort is very sensitive to job opportunities or to the business cycle. As a result, their study is uninformative of the decomposition between cyclical and structural forces behind changes in participation rates and is thus not used in this study to benchmark trend participation rates.

In a more recent study, Fortin and Fortin (1999) acknowledge the endogeneity of the employment-to-population ratio to the participation decision. As an alternative measure of job opportunity they use the ratio of the help-wanted index to the working-age population. Their new results support the graphical evidence that youth participation rates are sensitive to aggregate cyclical downturns, while adult participation rates are mainly determined by structural factors.

Youth Participation Rate

The decline in the youth participation rate in the 1990s has been particularly severe. Since 1989, it has fallen by almost eight percentage points, compared with a 1.4-percentage-point decline for adults over the same period. As noted above, this is partly because youths tend to be more sensitive than adults to business cycles in their decision to participate in the labour force. In the 1990s the decline has been shared by students and non-students, but has been more pronounced for youths aged 15-19, who are more sensitive to cyclical economic downturns.

Recent econometric analyses suggest about half this decline in youth participation reflects cyclical factors that will be reversed as job prospects improve, while the balance is likely to be structural (Rose, 1994).[7] One key factor that has reduced youth participation in the 1990s is the increase in school enrolment.[8] The proportion of those aged 15-24 attending full-time school has increased by more than 10 percentage points since 1989, reaching 58.2 per cent in 1997. Youths attending school participate less in the labour market than those not in school. Therefore, an increase in school enrolment rates reduces the overall youth participation rate. Moreover, the results of Archambault and Grignon (1999) suggest most of the increase in school enrolment observed in the 1990s is structural, rather than a temporary response to weak labour market conditions. Their results show also that a less generous Unemployment Insurance system and higher relative minimum wages have reduced structural participation rates of both students and non-students.[9] Therefore, in line with recent empirical evidence, the current analysis assumes half the decline in youth participation rates reflects cyclical factors, while the other half reflects structural factors.

Prime-aged Adults

The participation rate of prime-aged men (those aged 25-54) has declined in the 1990s, continuing the downward trend observed in the 1980s. The drop was more pronounced than in the United States for men aged 25 -34, but similar to that in the United States for those aged 35-54. This suggests most of the fall in the participation rate of prime-aged men was structural, although some cyclical effects should have played a role for those aged 25-34.

Looking ahead, there is a great deal of uncertainty surrounding the evolution of the participation rate of these cohorts, since it is unclear if the downward trend is completed. The current analysis assumes the trend participation rate for those aged 35-54 is near the actual participation rate level and will remain there until the end of the projection period. In contrast, the trend participation rate for males aged 25-34 is about one percentage point higher than the actual rate, but lower than the U.S. rate for the same age group.

The participation rate of prime-aged women (25-54) stopped rising at the end of the 1980s and the outlook for their participation is uncertain. On the one hand, their participation has shown little, if any, sensitivity to the business cycle. On the other, participation rates for prime-aged women in the United States have recently started to rise again. However, this is in the context of a tight la-

bour market, rising real wages, a reduction in welfare generosity, and from lower participation rates than in Canada for women aged 25-44. Our working assumptions for prime-aged women is for a gradual increase of trend participation rates to 80 per cent over the projection period.[10] Compared with actual participation levels, this represents a modest increase for women aged 25-45 but a significant increase for those aged 45-54 (7.6 percentage points). The latter would represent a "cohort effect" as younger generations of women with demonstrated strong attachment to the labour market replace older generations who never had such a strong attachment.

Older People

As for prime-aged adults, the recent evolution of participation rates for older people (55 and over) are different for men and women. The participation rate of older men has declined in the 1990s, continuing the downward trend observed in the two previous decades. The fall in participation rates of older males is, indeed, part of a long-standing trend that began in the 1950s. In contrast, in the past two decades, participation rates of older women have increased for those aged 55-64, while they have declined slightly for those aged 65 and over.

The introduction of public pension plans in the mid-1960s and the increased share of the population covered by private pension plans have without a doubt played a key role in reducing the labour market participation of older men. The increased presence of pension plans may also have played some role in keeping the participation rates of women over age 65 from rising despite the long-standing increase in the participation of women aged 25-65. Moreover, as shown by Italiano (1996), defined-benefit private and public pension plans are structured to make early retirement attractive by providing some net wealth gains for those who retire before age 65. In all likelihood, this trend toward early retirement has been compounded in the 1990s by more early retirement packages, especially in the public sector, and difficult economic conditions.

There is also a considerable difference between Canadian and U.S. participation rates for older people. The rates for older cohorts, both males and females, are much higher in the United States than in Canada. The difference is particularly striking for men and women aged 65-69 and for women aged 55-64 where the difference peaks at 13 percentage points. One notable exception is the participation rate for men aged 55-64 that has only recently started to fall below that of their U.S. counterparts. Between the mid-1970s and the end of the 1980s, Canadian rates were above U.S. rates.

Table 3 Years of school completed, 1996, Canada and the United States
(Per cent)

	Elementary	High school education	Some post-secondary	University degree
Prime-aged 25-54 cohort				
Canada	6.0	35.7	39.8	18.5
U.S.	4.6	41.2	27.5	26.8
Older 55+ cohort				
Canada	32.0	36.5	23.1	8.5
U.S.	15.8	49.4	18.3	16.5

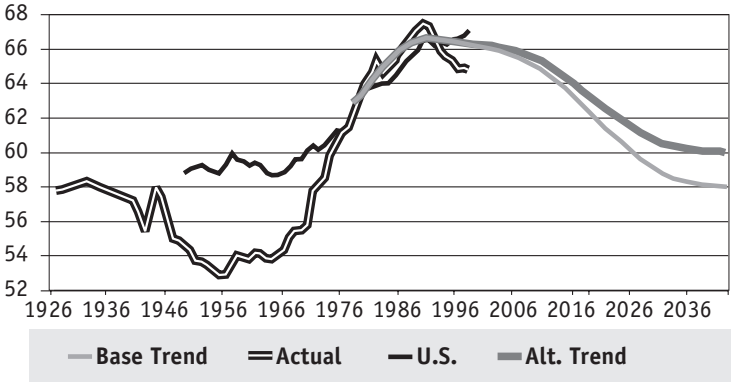
Table 4 Participation rate of Canadians aged 55 and over by education level, 1997
(Per cent)

Elementary	High school education	Some post-secondary	University degree	Average
13.0	23.4	31.8	44.2	24.2

The higher participation of older people in the United States seems to be explained by differences in the social safety net and educational attainment. First, as noted by Haritos (1998), it may be traceable to the less pervasive social safety net in the United States. For example, the lack of universal heath care coverage in the United States and its high cost may force older people to work longer.[11] While Americans are eligible for Medicare at age 65, it is less comprehensive than Canadian medical insurance, covering less than 50 per cent of medical expenditures. Gruber and Madiran (1995) concluded that introducing universal health-insurance coverage in the United States could lead to a large increase in the early retirement rate.

Second, older Canadians tend to be less educated than their U.S. counterparts. A higher pro-

Chart 1 Aggregate participation rates



portion of Americans aged 55 and over have completed university or have high school education, whereas in Canada there is a higher proportion of people with an elementary or incomplete post-secondary education (Table 3). Since participation rates are positively related to education (Table 4), the fact older people are less educated in Canada than in the United States may account for some of the participation gap between the two countries.

To assess the impact of education on the participation rate differential between older Canadians and Americans, we have calculated a participation rate series combining the educational attainment distribution of older Americans and the education-specific participation rates of Canadians aged 55 and over. The resulting series is plotted with actual participation rates of older Canadians and Americans in Chart A18. Although the education-adjusted Canadian participation rate still lies below the U.S. participation rate in recent years, it is equal or above the U.S. rate for 1976-87, suggesting educational attainment is an important source of the difference.

One would expect a narrowing of the participation rate gap between older Canadians and Americans as younger and more educated Canadians age. As shown in Table 3, prime-aged Canadians are almost as educated as their U.S. counterparts. The proportion of those aged 25-54 with only elementary education is similar in both countries, while a lower proportion with a university degree in Canada than in the United States is partly offset by a higher proportion of Canadians with some post-secondary education. In the longer term, education prospects may even be better. The proportion of young Canadians attending school has increased from 45.4 per cent in 1984 to 60 per cent in 1996, while in the United States the enrolment rate increased from 43.1 per cent to 53.6 per cent.[12] Moreover, the fact younger generations are more educated than previous generations suggests the narrowing of the older cohort's participation gap between Canadians and Americans may be accompanied by an increase in participation rates of older people in both countries.

The fact Canada is gradually becoming a more educated society suggests very long-term prospects for participation rates of older cohorts are brighter than one would conclude by looking only at recent trends. However, we are reluctant to apply this "optimism" to our participation rate projection for many reasons. First, although the higher educational attainment of Canadians aged 25-54 may affect positively the participation of older cohorts in coming decades, higher school enrolment rates among youths will not affect the participation rates of the cohort aged 55 and over for three to four decades. Second, the trend toward higher educational attainment has been going on for some time in Canada. The level of educational attainment of older Canadians, and indeed for all Canadians, has been increasing for several decades, while their participation rates have been trending down. As noted above, other factors have played an important role in that decline — private and public pensions, social safety net, and higher net wealth — and it is not clear the effects of these factors have come to an end.

This is why we have not assumed any major increases in the trend participation rates of older people over the projection period in the baseline projection. A noticeable exception is the participation rate of women aged 55-64, which is assumed to continue its upward trend as younger women with higher lifetime participation rates enter that cohort. The trend participation rates of other older cohorts are assumed to remain roughly at their actual levels. To assess the impact of this hypothesis on our results, an alternative scenario, in which the participation rates of older Canadians — apart from women aged 55-64 — increase gradually to close all their actual gaps with comparable U.S. rates by 2040 is also provided (see Charts A11 to A16 for the profile of these alternative participation rates for older cohorts).

Aggregate Trend Participation Rate

The total-economy trend participation rate calculated from the individual participation rates and source population data is plotted in Chart 1. In 1997, the estimated series suggests a trend participation rate of 66.2 per cent, 1.4 percentage points higher than the observed participation rate of 64.8 per cent.[13] This suggests that about half the decline in the aggregate participation rate since the last recession is structural while the other half is cyclical. Our current estimate of the structural level of the participation rate is higher than the estimate of MacGregor and Mang (1996) and Fortin and Fortin (1999), similar to the estimate suggested by the aggregate equation of Fortin and Fortin (1997), and lower than that of Rubin and Lester (1997).[14]

More important, looking ahead, the trend participation rate will continue to fall gradually as a result of downward pressures from demographic changes. By 2015, it is estimated it will be at about 63 per cent, down more than three percentage points from the current trend level, and a rate similar to that observed in the late 1970s. The participation rate stabilizes only by the late 2030s at about 58 per cent, down more than eight percentage points from the current trend level, and a rate similar to that experienced in the early 1970s but also in the 1920s and 1930s.

An alternative scenario, in which the participation rates of older Canadians — apart from women aged 55-64 — increase gradually to close all their actual gaps with comparable U.S. rates by 2040 is also presented in Chart 1. Assuming older Canadians will increase their participation in the labour market in the coming decades reduces somewhat the extent of the fall in the aggregate participation rate but does not change the overall conclusion of the analysis. By 2040, the participation rate in the alternative scenario is 60 per cent, compared with 58 per cent in the base case scenario.

U.S. Experience

In contrast to the Canadian economy, the United States experienced a slight increase in its aggregate participation rate in the 1990s, from 66.5 per cent in 1990 to 67.1 per cent in 1997. This suggests that, in contrast to Canada, the United States has not experienced any decline in its trend participation rate. Applying the same methodology used for Canadian data to that of the United States suggests the divergence in the two countries' structural participation rates reflects, in large part, divergence in their recent demographic evolutions.

Table 5 Average annual demographic composition effect, Canada and the United States, 1950-2010
(Percentage points)[1]

Period	Canada	United States
1950-1960	-0.048	-0.204
1960-1970	-0.105	-0.135
1970-1980	-0.008	-0.001
1980-1990	-0.032	0.073
1990-2000	-0.119	-0.022
1990-1997	-0.116	-0.010
1997-2000	-0.127	-0.048
2000-2010	-0.210	-0.151

1 The demographic composition effect for the United States was calculated by holding the participation rates for the 14 individual age-sex groups constant at their 1989 values, and aggregating them using civilian population weights. For each cohort, the civilian population was obtained as the ratio of the labour force to the participation rate. Because of data availability, the two older cohorts—65 to 69 and 70 and over—were combined together, reducing the number of cohorts to 14.

A comparison of the demographic composition effect in Canada and the United States between 1960 and 2010 is presented in Table 5. In Canada, the demographic composition effect tended to subtract from the aggregate participation rate since the 1950s and will continue to do so in coming years. However, the magnitude of the demographic composition effect differs in the two countries, depending on the period considered. In the 1950s and 1960s changes in the age composition of the population were exerting more downward pressures on the aggregate participation rate in the United States than in Canada. However, since the 1970s, demographics have exerted more drag on the participation rate in Canada than in the United States. Indeed, in the 1980s, changes in the age composition of the population added 0.7 percentage points to the U.S. rate, while they removed 0.3 percentage points from the Canadian equivalent.

In the 1990s, the demographic composition effect continued to show up more strongly in Canada than the United States, removing almost one percentage point from the Canadian participation rate between 1990 and 1997, compared with less than 0.1 of a percentage point from the United States. As in Canada, the composition of the U.S. source population shifted from those aged under 34 to those aged 35 and over during the 1990s. However, in contrast to Canada, this change in age-sex composition of the source population exerted almost no downward pressures on the aggregate participation rate. This is because Canada experienced a much larger increase in the proportion of the source population aged 65 and over than the United States in the 1990s. The proportion of the source population in this age group increased by 1.3 percentage points in Canada in 1989-96, but only by 0.2 of a percentage point in the United States (Table A2).

The divergence in the timing of the demographic composition effect between the United States and Canada reflects the fact the United States became an older society faster than Canada. In 1950-70 in the United States, the proportion of the population aged 65 and over increased from 10.8 per cent to 13.9 per cent, while Canada saw an increase from 10.9 per cent to 11.4 per cent. In the 1970s the share of older people in the population began to increase more rapidly in Canada, allowing an almost complete catch-up to the U.S. level by the end of the 1990s. In 1970-97, the proportion of the population aged 65 and over rose from 11.4 per cent to 15.3 per cent in Canada, while it increased only from 13.9 per cent to 15.8 per cent in the United States.

The United States became an older society faster in part because the Canadian baby boom started later, lasted longer and was more intense than the U.S. baby boom (Foot, 1996). Immigration policy has also played a role in skewing the age pyramid in favour of youth in Canada, relative to the United States. In Canada, a point system is used to evaluate the applications of immigrants. This is designed to favour the applications of highly skilled and highly educated immigrants, but it also places a premium on youth (points are deducted for applicants over age 35). In contrast, in the United States, family reunification is the main objective of immigration policy. Immigration of immediate family members, such as parents, is not subject to any numerical restrictions. Immigrants entering the country under this provision account for a significant share of total immigration in the United States and the average age of immigrants is higher than in Canada (Borjas, 1993).

Looking ahead, the demographic composition effect will also intensify in the United States but will remain less of a drag on the aggregate participation rate than in Canada. This reflects the fact Canada is expected to become an older society than the United States, with its share of those aged 65 and over increasing to 16.7 per cent by 2010, compared with 16.1 per cent in the United States

Conclusion

Clearly, the respective roles of cyclical and structural factors underlying the evolution of participation rates is the subject of considerable uncertainty, but we hope we have highlighted the issue by using a simple population accounting framework. We have focused on demographic changes that are the most certain component of any participation rate projection. In that respect, the conventional wisdom is that the ageing of the population will start to dampen the aggregate participation rate only around 2010 when the leading edge of the baby boom generation will start to retire. In contrast, our results indicate the retirement of baby boomers will not start but rather intensify a downward trend in aggregate participation related to longer life expectancy.

As a result, our calculations suggest the structural participation rate has been trending down since 1989 and will continue to do so in coming decades. Although our estimated rate depends on the assumptions underlying individual trend participation rates and the population projection, the overall downward profile obtained in this paper is robust with respect to any set of plausible assumptions.

The fact Canadians are less likely to participate in the labour market with the passage of time has direct implications for the design of current and future policies. This is because most feasible policies, such as those related to education, social programs and pension systems, will affect labour force participation only with long lags. Considering pension systems for example, it is probably not just a question of reducing economic incentives to early retirement but also moving toward a more flexible labour market in which gradual retirement is possible rather than "forcing" workers

into the choice of working full time or not working at all. Additional economic research should be devoted to understanding the determinants of labour market participation of various demographic groups and particularly older people aged 55 and over, who will account for 40 per cent of the population in 30 years.

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Notes

* The views expressed within this paper are those of the authors and should not be attributed to the Department of Finance.

1. The medium growth population projection, which covers 1993-2041, encompasses the following assumptions. First, the fertility rate remains constant at 1.7 children per woman over the entire forecast horizon. Second, life expectancy at birth increases from 74.6 years and 80.9 years in 1991 to 78.5 years and 84 years in 2016 for males and females, respectively. After 2016, life expectancy is assumed to remain constant at their 2016 levels. Third, the annual number of immigrants remains constant at its 1993 level of 250,000 over the entire projection period.

2. The results obtained by Fortin and Fortin (1999), which decompose the the source population in only six cohorts, show the estimated demographic effect associated to changes in the composition of the source population is very sensitive to the aggregation level used in the analysis.

3. Econometric studies and U.S. data are only used to benchmark individual trend participation rates after 1990. Between 1976 and 1989, the trend participation rates are obtained from an HP filter.

4. In these studies, the participation rate is regressed on both structural and cyclical variables. The estimated relationship is then used to purge cyclical effects from the actual participation rate and obtain an estimation of the structural or trend participation rate. One notable exception is Beaudry and Lemieux (1999) which perform a cohort analysis.

5. In calculating the demographic composition effect for 1921-2040 different population weights were used in different sub-periods because of data availability. First, for 1921-75, population data from CANSIM were used. Second, for 1976-97 labour force source population data from the Labour Force Survey were used. Because population data were used to calculate the composition effect before 1976, the series calculated between 1921 and 1975 was scaled by the ratio of the demographic composition effect calculated with population weights to the one calculated with source population weights in 1976. Finally, for the projection, source population for each age-sex cohort was estimated by scaling each cohort's population projected by Statistics Canada by its source population-to-population ratio in 1997.

6. As noted in the previous section, this issue has been analysed in only a few studies, however.

7. The empirical results obtained by Fortin and Fortin (1999) suggest structural factors played a somewhat larger role.

8. See Jennings (1997) for a descriptive analysis of this issue.

9. The expected impact of higher relative minimum wages on youth participation rates is uncertain since it affects both the supply and demand of young workers.

10. This assumption is consistent with the results presented in Beaudry and Lemieux (1999).

11. The same argument may apply to higher private education costs in the United States than in Canada.

12. For Canada the school enrolment rate is for those aged 15-24 and includes those attending school full-time as well as part-time. For United States the school enrolment rate is for those aged 16-24.

13. In line with our estimated trend participation rate, solid employment performance since mid-1998 has triggered an increase in the actual participation rate, which has reached 66.0 per cent in April 1999.

14. Rubin and Lester (1997) obtain this result by assuming that the "structural" employment-to-population ratio has not changed since 1989. It is interesting to note that this implies a natural rate of unemployment of about 5.5 per cent.

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Appendix

Chart A1 Participation Rate, Males 15 to 19

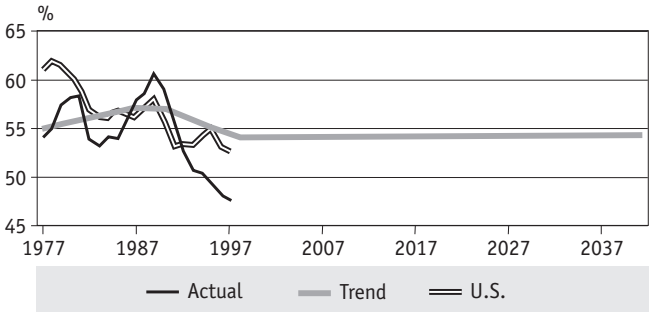

Chart A2 Participation Rate, Females 15 to 19

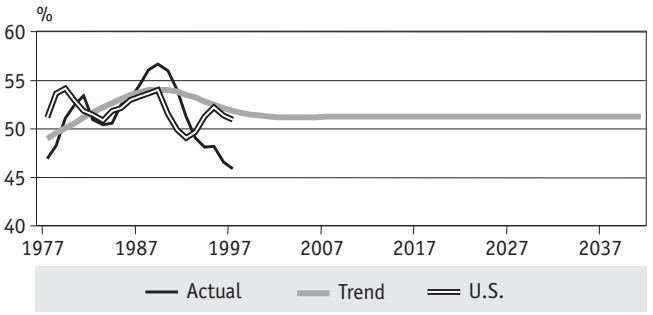

Chart A3 Participation Rate, Males 20 to 24

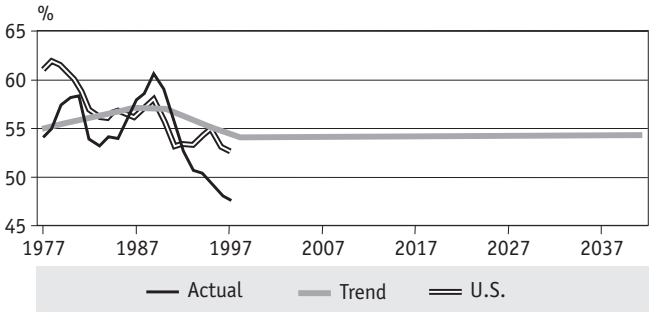

Chart A4 Participation Rate, Females 20 to 24

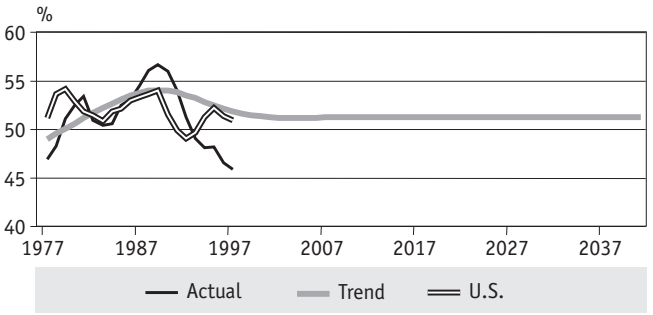

Chart A5 Participation Rate, Males 25 to 34

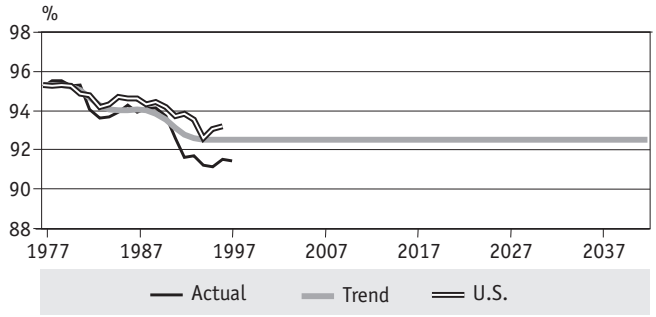

Chart A6 Participation Rate, Females 25 to 34

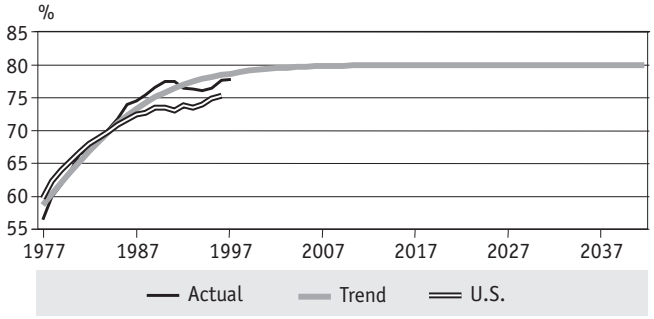

Chart A7 Participation Rate, Males 35 to 44

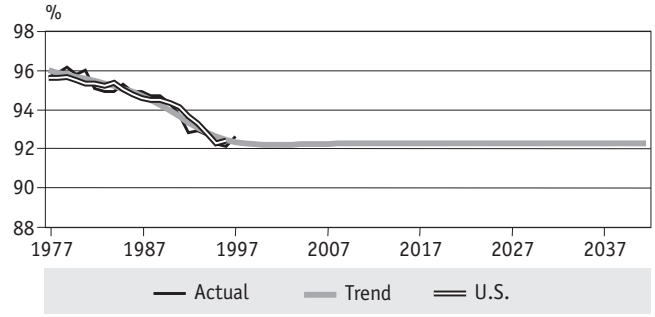

Chart A8 Participation Rate, Females 35 to 44

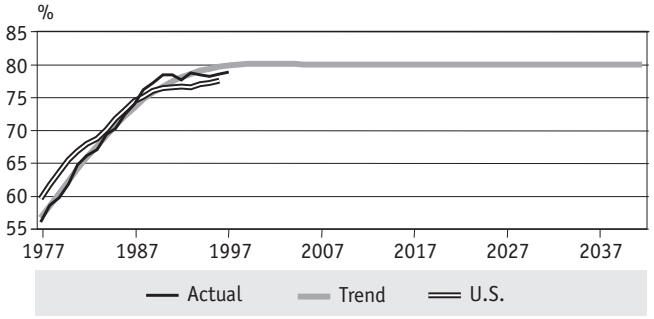

Chart A9 Participation Rate, Males 45 to 54

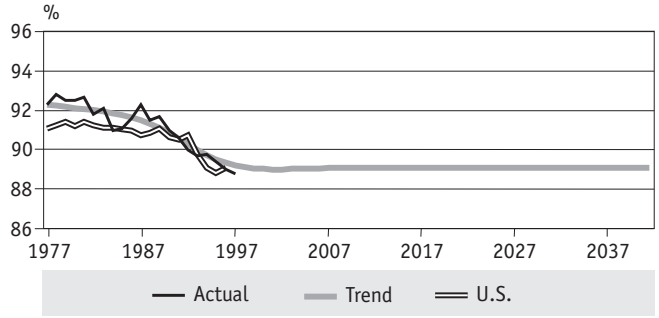

Chart A10 Participation Rate, Females 45 to 54

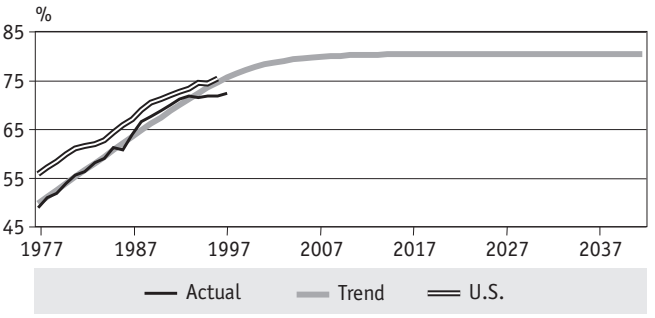

Chart A11 Participation Rate, Males 55 to 64

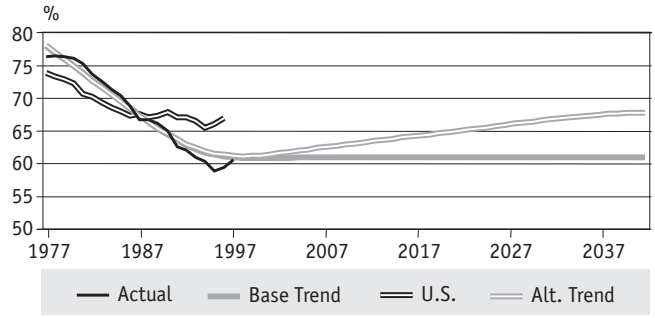

Chart A12 Participation Rate, Females 55 to 64

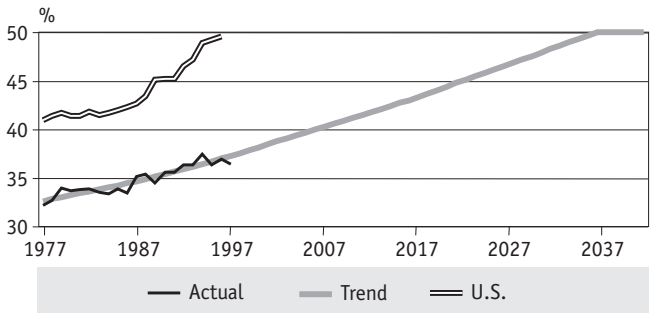

Chart A13 Participation Rate, Males 65 to 69

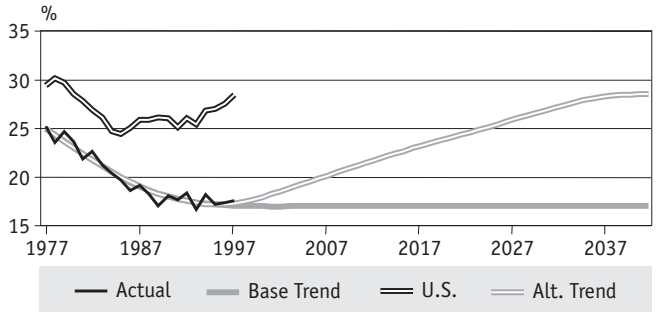

Chart A14 Participation Rate, Females 65 to 69

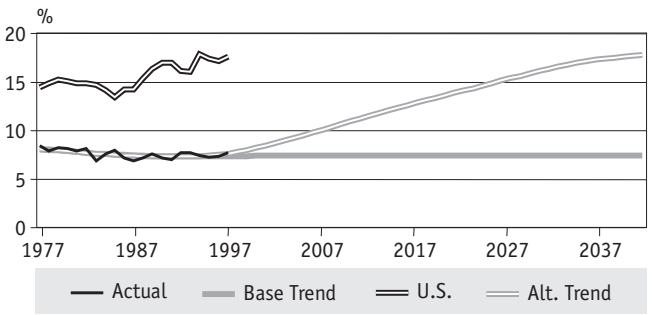

Chart A15 Participation Rate, Males 70 & Over

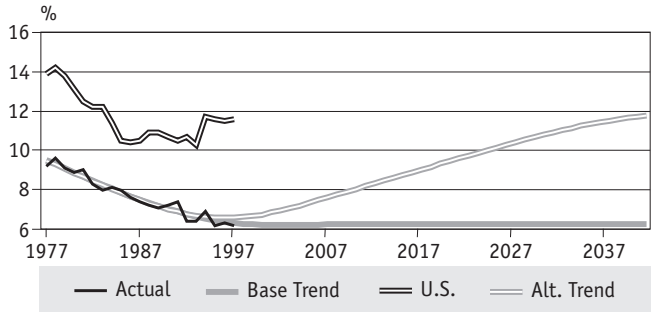

Chart A16 Participation Rate, Females 70 & Over

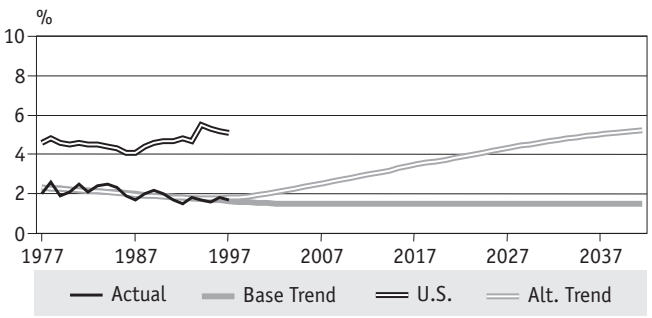

Chart A17 Synthetic Participation Rates Individual Participation Rates Fixed at 1989 Values

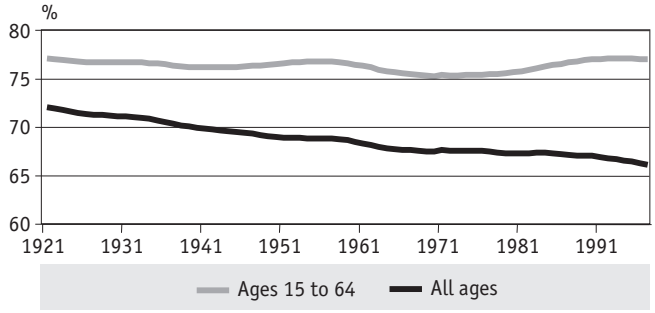

Chart A18 Participation Rate, 55 & Over, Canada & United States Correcting For Educational Attainment

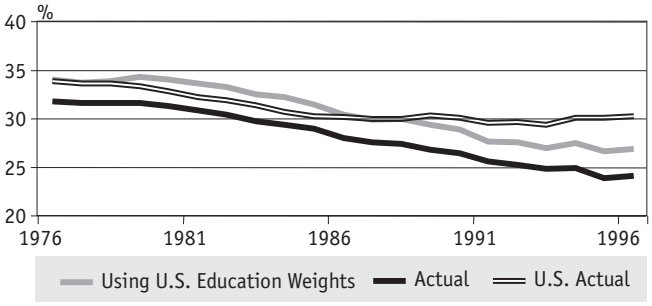

Table A1 Detailed demographic composition effect, Canada, 1989-96

	1989 Participation rate (1)	1989 Source population weights (2)	1989 Contribution to aggregate participation rate (1)*(2)	1996 Source population weights (3)	1996 Contribution to aggregate participation rate with 1989 cohort rates (3)*(1)	1989-1996 Changes in weights (4)=(3)-(2)	Contribution to the Change in Aggregate Participation Rate with fixed 1989 cohort rates (5)=(4)*(1)	Cumulative Contribution (5)
Men 15-19	60.6	4.59	2.78	4.30	2.61	-0.29	-0.18	-0.18
Women 15-19	56.7	4.42	2.51	4.10	2.32	-0.32	-0.18	-0.36
Men 20-24	84.9	5.11	4.34	4.30	3.65	-0.80	-0.68	-1.04
Women 20-24	77.6	5.01	3.89	4.22	3.27	-0.80	-0.62	-1.66
Men 25-34	94.1	11.82	11.12	10.19	9.58	-1.63	-1.54	-3.19
Women 25-34	76.5	11.73	8.98	10.14	7.76	-1.59	-1.22	-4.41
Men 35-44	94.7	9.78	9.26	10.60	10.04	0.82	0.78	-3.63
Women 35-44	77.2	8.78	7.55	10.65	8.22	0.87	0.67	-2.96
Men 45-54	91.7	6.59	6.05	8.10	7.43	1.51	1.38	-1.57
Women 45-54	67.6	6.55	4.43	8.09	5.47	1.54	1.04	-0.53
Men 55-64	66.2	5.53	3.66	5.31	3.52	-0.22	-0.15	-0.68
Women 55-64	34.4	5.79	1.99	5.45	1.88	-0.34	-0.12	-0.80
Men 65-69	17.0	2.22	0.38	2.26	0.38	0.03	0.01	-0.79
Women 65-69	7.6	2.67	0.20	2.50	0.19	-0.17	-0.01	-0.80
Men 70+	7.1	3.46	0.25	4.04	0.29	0.57	0.04	-0.76
Women70+	2.2	4.94	0.11	5.76	0.13	0.82	0.02	**-0.75**
Total	67.48	100.00	**67.48**	100.00	**66.73**	0.00	**-0.75**	—

Table A2 Detailed demographic composition effect, United States, 1989-96

	1989 Participation rate (1)	1989 Source population weights (2)	1989 Contribution to aggregate participation rate (1)*(2)	1996 Source population weights (3)	1996 Contribution to aggregate participation rate with 1989 cohort rates (3)*(1)	1989-1996 Changes in weights (4)=(3)-(2)	Contribution to the Change in Aggregate Participation Rate with fixed 1989 cohort rates (5)=(4)*(1)	Cumulative Contribution (5)
Men 15-19	57.8	3.83	2.21	3.79	2.19	-0.05	-0.03	-0.03
Women 15-19	54.0	3.80	2.05	3.66	1.97	-0.14	-0.08	-0.10
Men 20-24	85.2	4.69	4.00	4.29	3.66	-0.40	-0.34	-0.44
Women 20-24	72.4	4.98	3.61	4.39	3.18	-0.59	-0.43	-0.87
Men 25-34	94.5	11.31	10.68	9.86	9.31	-1.45	-1.37	-2.24
Women 25-34	73.5	11.68	8.58	10.21	7.50	-1.47	-1.08	-3.32
Men 35-44	94.5	9.43	8.92	10.58	10.00	1.14	1.08	-2.24
Women 35-44	76.0	9.87	7.50	10.90	8.28	1.03	0.78	-1.45
Men 45-54	91.1	6.43	5.86	7.81	7.12	1.38	1.26	-0.19
Women 45-54	70.5	6.85	4.82	8.22	5.80	1.38	0.97	0.78
Men 55-64	67.2	5.42	3.64	4.98	3.35	-0.43	-0.29	0.49
Women 55-64	45.1	6.07	2.74	5.48	2.47	-0.59	-0.27	0.22
Men 65+	16.6	6.51	1.08	6.65	1.11	0.14	0.02	0.24
Women 65+	8.3	9.14	0.76	9.18	0.77	0.04	0.00	0.25
Total	66.45	100.00	**66.45**	100.00	**66.70**	0.00	**0.25**	—