

The Quebec Convergence and Canadian Life Satisfaction, 1985–2008

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De plus en plus de sondages, réalisés par des gouvernements ou des entreprises privées, tentent de mesurer la satisfaction face à la vie, cette mesure étant obtenue grâce à des instruments d'auto-évaluation. Au Canada, de tels sondages n'ont pas été faits de façon systématique au fil des ans, mais les données recueillies depuis 1985, de même que des sondages récents réalisés plusieurs fois selon une même structure, facilitent beaucoup l'analyse que nous pouvons maintenant faire de l'évolution de cette satisfaction dans les diverses régions du pays. Dans cet article, je montre que, depuis 25 ans, la satisfaction face à la vie s'est beaucoup accrue au Québec quand on compare cette province au reste du Canada, et que l'ampleur de cette hausse du bien-être subjectif est comparable à l'effet qu'aurait la multiplication par trois du revenu moyen des ménages.

Mots clés : Canada, Québec, bien-être subjectif, bonheur, Révolution tranquille, revenu

Self-reported life satisfaction is increasingly measured in government and private surveys around the world. In Canada, life satisfaction questions have not been asked in a consistent manner over time, but the accumulated set of data since 1985, along with recent surveys with repeated structure, now facilitates an analysis of regional changes. Those two and a half decades reveal a significant increase in life satisfaction in the province of Quebec as compared with the rest of Canada. The scale of this increase in well-being is comparable to the imputed effect of more than a trebling of mean household income.

Keywords: Canada, Quebec, subjective well-being, happiness, Quiet Revolution, income

INTRODUCTION

Recent high-level interest and initiatives¹ by national governments towards measuring subjective well-being (SWB) for gauging and guiding policy indicate and heighten the need for tools to analyze repeated cross-sectional surveys of SWB.

Much of the economic literature on SWB has focused on the extent to which individual and aggregate SWB changes relatively weakly in association with trends in corresponding measures of income. Largely absent in the debate on this matter are examples of SWB changing dramatically, yet if countries like the United Kingdom wish to

judge or plan public expenditures, regulation, or macroeconomic policy on the basis of SWB, there must be strong enough SWB signals and powerful enough SWB accounting to make sense of changes.

Canada provides a remarkable test case for these requirements, because, in the two decades in which Statistics Canada has been surveying subjective well-being in various forms, one region of Canada has undergone a remarkable increase in reported well-being. In particular, francophones in Quebec have undergone a large and significant convergent increase over the past 20 years as compared with the rest of the country. Moreover, these changes occurred in a province that has experienced rapidly changing institutions and norms, in addition to economic shifts. The scale of that shift, as I show below, is large in equivalent income terms and is sustained.

This paper presents the following findings: first, Quebec has undergone a rapid, steady, and significant increase in SWB as compared with the rest of Canada; second, changes in mean income do not account for this increase; third, changes in the distribution of income, combined with concavity of utility, do not account for the increase; and fourth, estimates accounting for the steady rise of SWB in Quebec in terms of various standard predictors leave a large and significant unexplained component. Implications of these findings for the feasibility and accountability of efforts to supplement national measures of progress with SWB are discussed in the final sections.

Background

One main aim of this paper, to compile various Canadian surveys addressing SWB and perform a time-series analysis of mean SWB, was previously attempted by Hill (2004). Hill writes that between 1945 and 2002, “about 160000 [Canadians] have answered questions about their general happiness.” Since 2003, Statistics Canada has fielded a ten-point scale life satisfaction question in most cycles of its annual General Social Survey, as well as life satisfaction questions in several other surveys including

the large Canadian Community Health Survey, totalling over a third of a million new respondents. Here I focus on a subset of those surveys, the General Social Surveys, which offer some repeatability of format over time.

Hill (2004) considers only national averages for each survey and year from which data are available, and in looking for real changes in mean life satisfaction over time, devises a way to compare the absolute responses from one survey to another, despite the lack of consistency in the format of the question across surveys. He makes a tentative decomposition of changes in national mean SWB into changes in national income, unemployment, and inflation (as undertaken across countries and within the United States and United Kingdom by Di Tella, MacCulloch, and Oswald (2003) and Blanchflower and Oswald (2004)). Hill’s method, however, has two drawbacks. It relies on strong assumptions about how to equate responses from dissimilar questions, and it provides no regional comparisons.

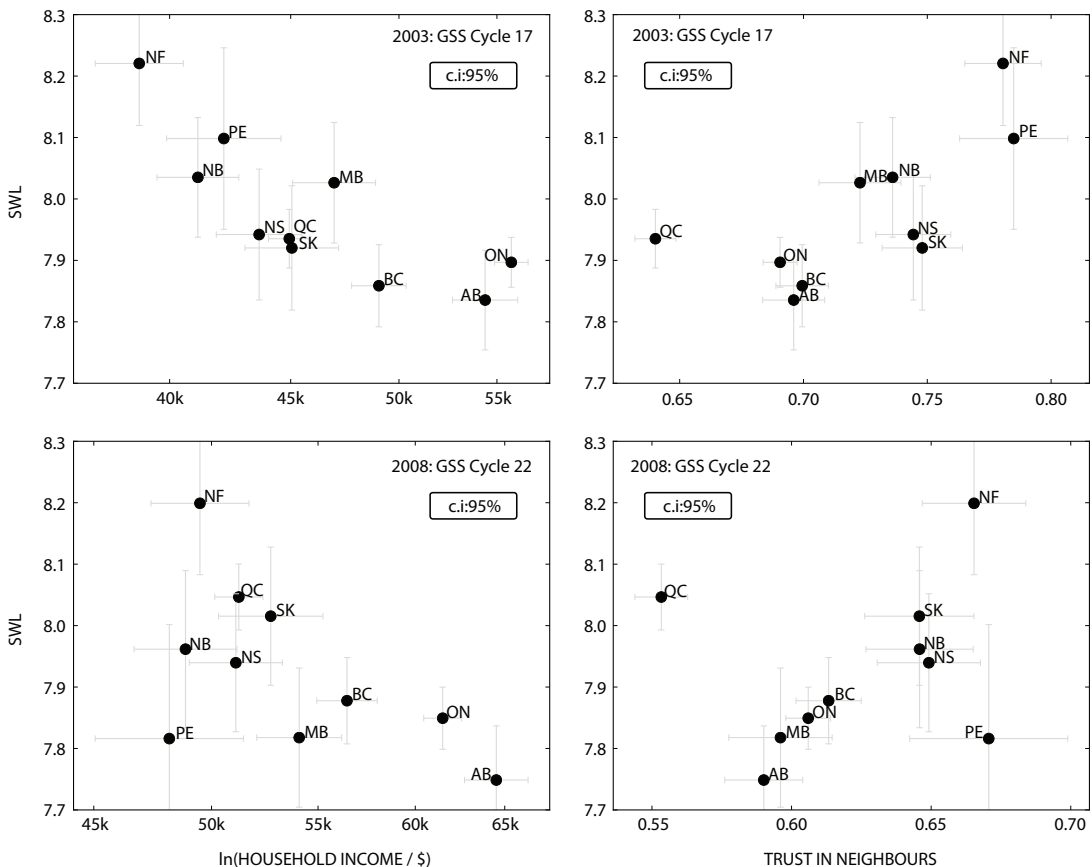
In the present work I take an entirely different approach. I begin by aggregating reported SWB to provincial means rather than the national means treated by Hill. The new approach enables a comparison of trends amongst provinces without the need to establish cardinal comparability of responses from one survey to another. This comparison is achieved by normalizing individual responses within each national survey and then aggregating to provincial means in order to create time series of mean SWB “z-scores” for each province.

Besides Hill’s study, previous work on SWB in Canada has largely focused on one (or a few, but dissimilar) surveys and on models of individual-level satisfaction with life (e.g., Barrington-Leigh 2008b; Barrington-Leigh and Helliwell 2008; Burton and Phipps 2011, 2008; Gardes and Merigan 2008; Gee and Veevers 1990; Helliwell 2003; Helliwell and Huang 2010; Helliwell and Putnam 2004). Figure 1 shows a comparison of data from the 2003 and 2008 cycles of GSS. The four panels

show that provincial means of satisfaction with life² (SWL) are positively correlated with mean trust in neighbours and inversely correlated with income, in both survey years. The correlation and geographic variation amongst subjective reports aggregated at the provincial level remains a striking suggestion that a significant part of the role of social and macro-economic policy in shaping well-being outcomes in Canada remains to be understood (Barrington-Leigh and Helliwell 2008).

A notable feature of Figure 1 is that Quebec is an outlier in terms of its average stated trust. In terms of the relationship evident from these simple scatter plots, Quebec is happier than it “ought” to be, given its level of trust. This anomaly was investigated by Longpré (2009), who looked at individual and neighbourhood characteristics, including Catholicism, local belonging, French ancestry, and linguistic homogeneity, but found no simple account of the Quebec difference.

FIGURE 1
Life Satisfaction, Income, and Trust in Neighbours, Canada



Note: Grey lines show 95 percent confidence intervals.

Source: Provincial means of trust and SWL are from the GSS in 2003 (top panels) and 2008 (lower panels). Income means are from the 2001 and 2006 censuses.

In this paper, I identify a new Quebec “mystery,” maybe less to do with the low current trust reports of Québécois than with the evolution of SWL over the past 25 years. I find that at the time of the first GSS cycle in 1985, SWL reports were much lower in Quebec than in any other province; however, they have fully converged and advanced to a relatively high level in Canada over the period of the first 20 GSS cycles. Indeed, [Figure 1](#) shows that SWL standing in Quebec increased significantly even in the five years between cycles 17 and 22 of the GSS.

[Fortin \(2010\)](#) reviews the economic performance of Quebec since 1960 by comparing it to its similarly sized neighbour, Ontario. Fortin shows that the economic role of the state has grown dramatically in Quebec since 1960, not just as compared with an earlier Quebec in which the Catholic Church played a larger role but even as compared with contemporary Ontario. During the period studied in this work, Quebec has imposed higher taxes, paid more in interest on provincial and local debt, and supported more public enterprise than Ontario. Employment rates for both sexes have also been climbing faster than in Ontario. Nevertheless, I argue that material income changes in Quebec are not nearly large enough to account for the extraordinary trajectory of SWL there.

Cultural changes spawned during the so-called Quiet Revolution (*La Révolution tranquille*) in Quebec are also dramatic. As a highly Catholic province, Quebec has had historically high fertility rates, yet by the mid-1990s was exhibiting a precipitous fertility drop to below the Canadian average ([Beaujot 2000](#); [Caldwell and Fournier 1987](#); [Roy and Bernier 2009](#)). Concomitantly, Quebec experienced a downturn in religiosity, an increase in divorce, and, after the early 1970s, a rise in suicide rates. According to sociological descriptions, these cultural changes, and the resulting increased incidence of suicide, reflect a shift from collectivist, traditional values to individualistic ones ([Krull and Trovato 1994](#)). In addition, the history of Quebec since the first

GSS has been one of profound and policy-mediated transformation and struggle—along linguistic lines and related to cultural self-determination and social identity. Are any of these changes behind the shift in life satisfaction in Quebec? If so, are they measurable, and can the connection be shown?

The section that follows describes the data. I then examine the pattern of provincial SWL means and regression “residuals” for Quebec over time. The subsequent section considers income-related and other quantitative, measured trends across Canada as possible explanations for the Quebec convergence in SWL. After further discussion, including a look at the data on suicide, I offer some speculative conclusions.³

DATA

In 2010 Statistics Canada produced a version of the first 20 cycles of its General Social Survey (GSS) with harmonized variable coding in order to simplify time series comparisons. The two primary objectives of the GSS are “to gather data on social trends in order to monitor changes in the living conditions and well-being of Canadians over time; and to provide information on specific social policy issues of current or emerging interest.”⁴

The survey is implemented with a new cross-sectional sample each year, but the theme and to some degree the format of surveys are repeated with a five-year period. Throughout the years, a number of the questionnaires have solicited an assessment of the respondent’s overall satisfaction with life, though with almost no consistency in wording until recent years. This section shows the various formats used for SWL questions and responses in both official language versions of each GSS cycle.⁵ By my assessment, there is no significant difference in the evolution of the question prompts or response options between the French and English versions of the surveys.⁶

TABLE 1
Detailed Wording of Satisfaction with Life Questions, GSS1 to GSS22

<i>GSS Cycle and Variable Name</i>	<i>Question Used (English and French)</i>	<i>Values</i>
GSS1 (FEELLIFE)	Using the same scale, how do you feel about life as a whole?	1 Very satisfied; 2 Somewhat satisfied; 3 Somewhat dissatisfied; 4 Very dissatisfied; 5 No opinion
	Quel sentiment éprouvez-vous à l'égard de la vie en général?	1 Très satisfait; 2 Plutôt satisfait; 3 Plutôt insatisfait; 4 Très insatisfait; 5 Sans opinion
GSS2 (LIFE_E3)	How do you feel about your life as a whole right now?	1 Very satisfied; 2 Somewhat satisfied; 3 Somewhat dissatisfied; 4 Very dissatisfied; 5 No opinion
	Quel sentiment éprouvez-vous à l'égard de la vie en général en ce moment?	1 Très satisfait; 2 Plutôt satisfait; 3 Plutôt insatisfait; 4 Très insatisfait; 5 Sans opinion
GSS4 (DV_N4)	How do you feel about your life as a whole right now? Are you satisfied or dissatisfied?	1 Strongly dissatisfied; 2 Somewhat dissatisfied; 3 Somewhat satisfied; 4 Strongly satisfied; 5 Satisfied with statement/not stated as to the degree; 7 No opinion
	Quel sentiment éprouvez-vous à l'égard de la vie en général en ce moment? Êtes-vous satisfait ou insatisfait?	1 Très insatisfait; 2 Plutôt insatisfait; 3 Plutôt satisfait; 4 Très satisfait; 5 Satisfait avec commentaire/non déclaré quand au degré; 7 Sans opinion
GSS6 (DVN2C)	Are you satisfied or dissatisfied with your life in general? Is that somewhat or very?	Satisfied / Dissatisfied / No opinion. Somewhat / Very.
	Êtes-vous satisfait(e) ou insatisfait(e) de votre vie en général? Est-ce que c'est plutôt ou très?	Satisfait(e) / Insatisfait(e) / Sans opinion. Plutôt / Très.
GSS12 (D7)	Using the same scale, how do you feel about your life as a whole right now?	1 Very satisfied; 2 Somewhat satisfied; 3 Somewhat dissatisfied; 4 Very dissatisfied; 5 No opinion
	En utilisant la même échelle, quel sentiment éprouvez-vous à l'égard de la vie en général en ce moment?	1 Très satisfait; 2 Plutôt satisfait; 3 Plutôt insatisfait; 4 Très insatisfait; 5 Sans opinion
GSS17, GSS19, GSS20 (LS_Q210)	Using the same scale, how do you feel about your life as a whole right now?	01 Very dissatisfied; 02 03 04 05 06 07 08 09 10 Very satisfied; 11 No opinion; 98 Not stated; 99 Don't know
	En utilisant la même échelle, comment vous sentez-vous à l'égard de la vie en général en ce moment?	01 Très insatisfait; 02 03 04 05 06 07 08 09 10 Très satisfait; 11 Sans opinion; 98 Non déclaré; 99 Ne sait pas
GSS21, GSS22 (SRH' Q120)	Using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied", how do you/does he/does she feel about your/his/her life as a whole right now?	1: Very dissatisfied; 2; 3; ...; 10: Very satisfied
	À l'aide d'une échelle de 1 à 10, où 1 signifie 'Très insatisfait(e)' et 10 signifie 'Très satisfait(e)', quel sentiment éprouvez-vous/éprouve-t-il/éprouve-t-elle en général à l'égard de votre/sa vie?	1: Très insatisfait(e); 2; 3; ...; 10: Très satisfait(e)

Source: Author's compilation.

On the other hand, there is great variation from one year to the next. Not only are there slightly different wordings over time but the response options vary from a two-question binary choice sequence (GSS6) to a four-point scale (GSS2, GSS4, GSS11-12) to a ten-point scale (GSS17, GSS19-22).⁷ Even within similar response option scales, there are qualitative differences in the distribution of responses and very significant differences in the survey means of responses. For instance, the ten and 11-point scale distributions can be either unimodal (GSS17, GSS19-20) or bimodal (GSS21-22), and the survey means for Canadians of age 15 and older vary by as much as ~0.24, or ~15 percent of the standard deviation, amongst surveys with the ten-point scale.⁸ These inconsistencies across surveys likely reflect framing and priming effects as well as possibly real changes in circumstances and expectations from year to year. They thus also represent cautionary evidence against comparing cardinal means of SWB from year to year in repeated cross-sections, and support the approach taken below, which allows arbitrary differences amongst survey cycles.

Given the lack of systematic differences between the French and English wordings, I treat responses in the two languages as from a single pool, while tending to avoid comparing one survey's cardinal responses to those of another survey. Instead, in order to compare SWL from dissimilar surveys over time, I use the national mean and standard deviation in each year as an evolving reference with which to normalize all responses.

There are other SWB questions that have been asked on multiple GSS cycles. Although SWL is the measure of primary interest as an overall indicator of the subjective quality of life, other SWB questions address mood (happiness) and another form of life evaluation phrased as living a "happy life." These data are also featured below.

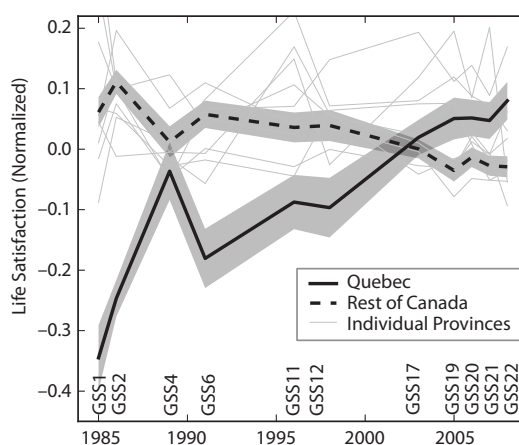
In most cycles of the GSS, the sample population is residents of the ten provinces aged 15 and over

not living in an institution. However, for cycles 16 (2002) and 21 (2007), the population is restricted to those aged 45 and older. In addition, some cycles included supplements, such as an elderly (age ≥ 65) or provincial oversample. However, these oversamples are taken into account in computing population weights and therefore should not bias the point estimates to follow.

THE RISE OF SUBJECTIVE WELL-BEING IN QUEBEC

Life Satisfaction

FIGURE 2
Life Satisfaction by Year (in/outside Quebec)



Note: Responses have been normalized for each survey for better comparability across surveys. The ordinate shows z-scores in the national distribution for each year.

Source: Author's calculations using General Social Survey.

Figure 2 presents the provincial time series derived from GSS cycles in which SWL was assessed. Each thin line shows the difference between one of nine provinces' annual mean SWL and the national mean for each year. The vertical axis is scaled to

units of standard deviation of the national distribution of SWB responses for each year. The time series for the tenth province, Quebec, is shown by a heavy solid line, along with a 95 percent confidence band.⁹ A stand-out feature of this graph is that, with the exception of data from GSS cycle 4 in 1989, respondents in Quebec report initially much lower SWL than any other province, but this difference decreases nearly monotonically and eventually reverses somewhat.

Motivated by this finding, [Figure 2](#) also shows with a dashed line the mean for all respondents outside Quebec. The 95 percent confidence interval is again depicted by a shaded envelope. This mean is, naturally, dominated by respondents from the other large provinces: Ontario, British Columbia, and Alberta. The size and significance of the trend and the difference reversal are clearer when comparing the two bold curves. The initial difference between Quebec and the rest of Canada is striking. In 1985, respondents from Quebec reported being “Somewhat satisfied” or “Plutôt satisfait(e)” 83 percent more often than they reported being “Very satisfied” or “Très satisfait(e).” By contrast in the rest of Canada, the pattern was reversed, and 27 percent more respondents chose “Very satisfied” or “Très satisfait(e)” as compared with “Somewhat satisfied” or “Plutôt satisfait(e).”

Naturally, this large difference in SWL may be due primarily to some specific subset of the Quebec population, which would imply an even higher specific effect on those affected. [Figure 3](#) shows the results of splitting the sample along various demographic lines to test hypotheses about who and what accounts for the large trend in SWL differences.

[Krull and Trovato \(1994, 1121\)](#) argued that since the 1950s, “modernization in Quebec has been more detrimental to men than to women.” [Figure 3\(a\)](#) shows SWL trajectories separately for men and women in order to address the possibility that men (or young men in particular) account for the trend. It

is clear from these trajectories, and maybe surprising given the shifting gender roles accompanying the Quiet Revolution, that the rise in SWL in Quebec is not gender dependent.

It might also seem likely that, for a variety of possible causes, the trend would differ for generations born before and after the Quiet Revolution or for Québécois of different ages. [Figure 3\(b\)](#) splits the sample by age to show that a rising trend exists in the relative SWL of Québécois, regardless of their being more or less than 45 years old at the time of the interview. Although age and cohort effects remain entangled in both cases, a similar splitting based on cohort (not shown) reveals a uniform effect for respondents born before or after 1965.¹⁰

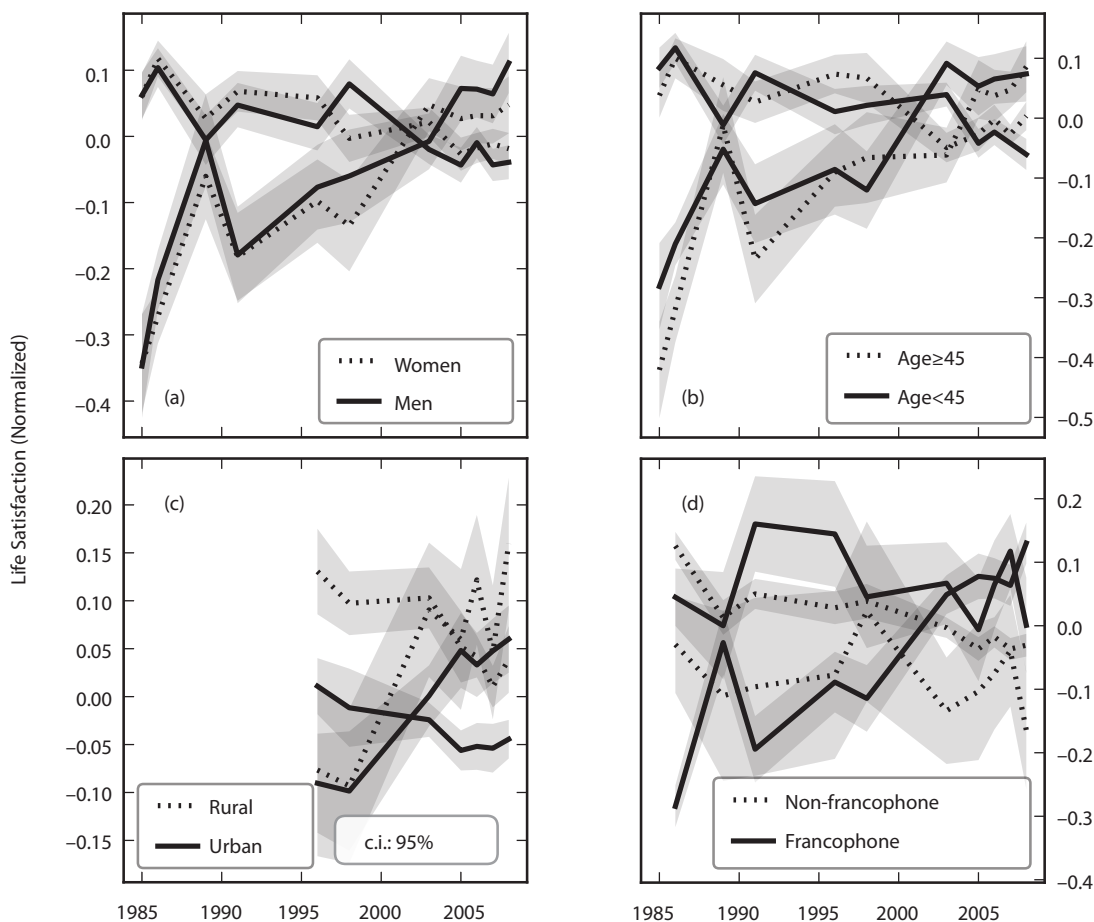
A third subdivision of the sample is shown in [Figure 3\(c\)](#). Though a record of whether the respondent’s dwelling is urban or rural is not available prior to cycle 11 of the GSS, the indication is that in recent years there has not been a large discrepancy in SWL between rural and urban dwellers in Quebec—unlike for the rest of Canada—and that the rising trend is evident, independently, in both rural and urban groups.

On the other hand, [Figure 3\(d\)](#) shows that the francophone population fully accounts for the observed province-level time trend.¹¹ The minority anglophone and allophone populations, combined, appear to have no significant trend for normalized SWL. This observation remains tentative, given that the small samples of non-francophone Quebec respondents and of francophone non-Quebec respondents result in poorly constrained SWL means for these subsets.¹² Nevertheless, one can confidently state from these plots that this non-francophone subpopulation does not have a large effect on the Quebec mean SWL trend.

Other Measures of SWB

Happy life: Five cycles of the GSS have included a question assessing happiness in the respondent’s

FIGURE 3
Life Satisfaction by Year and Demographic Subgroup



Note: Evolution of life satisfaction with the sample split along four demographic variables. In each panel, the two bottom lines in the earliest years show Quebec means, while the top two show means for the rest of Canada. Responses have been normalized for each survey for better comparability across surveys. The ordinate shows z-scores in the national distribution for each year.

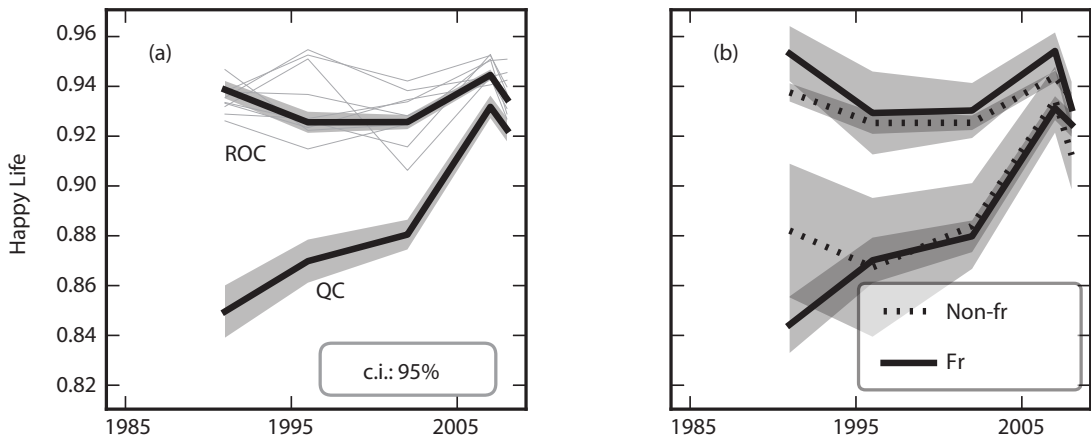
Source: Author's calculations using General Social Survey.

life, in general. This question provides an intermediate measure of sorts between a cognitive and all-encompassing evaluation of life (SWL) and the shorter time scale and narrower scope of momentary affect questions.¹³

Figure 4 shows that this alternate measure presents a similar pattern after 1990 to that of the SWL

data in Figures 2–3. In this case, the data are shown without normalization, as the absolute response values portray a coherent pattern.¹⁴ For the “happy life” question, the disparity between Quebec and the rest of Canada, or indeed any other province, is even more stark (Figure 4a). Moreover, francophones and non-francophones alike in Quebec show the rising trend in SWB (Figure 4b). Also, there is a slightly

FIGURE 4
Mean Response to the “Happy Life” Question by Year (in/outside Quebec)



Note: Mean response to the “happy life” question by year (in/outside Quebec). (a) Solid lines show overall means, from cycles 11, 16, 21, and 22 of the GSS, for Quebec (QC) and the rest of Canada (ROC). The thin lines show individual provincial trends. (b) The same sample split by first language into francophone (fr) and non-francophone. Responses have not been normalized; the plots show weighted means of raw response values after only rescaling the four and five point responses to a consistent 0–1 range. Shaded regions show 95 percent confidence intervals.

Source: Author’s calculations using General Social Survey.

smaller Quebec discrepancy for the younger (<45 years old) population than for the older (not shown).

Happiness: Measures of more momentary happiness, available in 12 cycles, reveal similar patterns to the “happy life” question, except that in the earliest years Quebec respondents reported similar values to those from outside Quebec.

To summarize the various measures of SWB, it is clear from consulting the question wordings that the trend of SWL in Quebec continues more or less coherently across several changes in the wording of survey questions, as well as several changes in the response scale offered. Moreover, it is reflected in other, more affective SWB measures, meaning that it cannot be an artifact of a single mismatched translation.

Pooled Estimates of Individual SWL

Differences amongst regions and changes over time can be quantified in a unified manner by modelling individual SWL for a pooled sample of respondents from all available cycles of the GSS. Reduced form equations for SWB are sometimes used as a kind of direct estimate of a utility function. [Stevenson and Wolfers \(2008\)](#) use coefficients on geographic indicator (dummy) variables in simple estimates of SWB less boldly, simply as a means to quantify the differences to be explained. To begin in the latter vein, I begin by estimating a simplified version of the following equation,

$$Z_{i,y}^{SWL} = \alpha_y + \delta_y q_i + \theta \log(Y_i) + \beta X_i + \varepsilon_i \quad (1)$$

in which $Z_{i,y}^{SWL}$ is the normalized SWL report for individual i who responded in cycle (year) y from

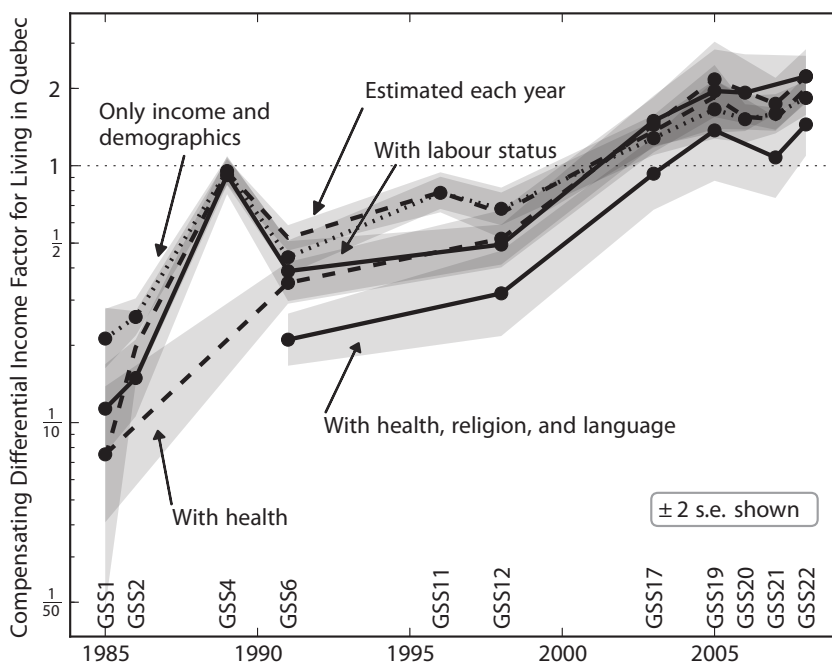
Quebec ($q_i=1$) or outside Quebec ($q_i=0$). The α_y are fixed offsets for each GSS cycle, and the set of coefficients δ_y capture the effect of indicators q_i for whether individual i was a resident of Quebec in year y . When household income Y_i and other individual attributes and circumstances X_i are all excluded, the estimated values for δ_y reproduce the difference in means between the two bold curves in Figure 2.

By bringing additional individual characteristics X and Y into the model (1), we can check whether some simple demographic and income changes account for the shift in subjective well-being. However, using richer sets of controls necessitates dropping more years from the analysis, due to the changing nature of the GSS surveys. I begin such a progression by incorporating an income measure. The baseline model includes the respondents' self-reported income,

along with an indicator for being in the top income category,¹⁵ a full set of indicators for household size, and controls for gender, a quartic in age,¹⁶ and three measures of marital status. Nationwide price increases are accounted for by the α_y yearly indicators.

Incorporating income into an estimate of individual SWL makes it possible to calculate the magnitude of other coefficients in terms of income changes associated with equivalent levels of life satisfaction. In equation (1), such *compensating differentials* of income for the difference between living inside and outside Quebec are calculated as the ratio of coefficients δ/θ . The estimated evolution of this ratio for the baseline version of the model outlined above is depicted by the “income and demographics” solid line in Figure 5. Due to the near constancy of the estimates of θ over time, this

FIGURE 5
Unexplained Quebec Component of SWB: Compensating Differential



Source: Author's calculations.

measure of the magnitude of convergence of SWL in Quebec since 1985 results in a picture closely resembling that of the estimated evolution of the raw coefficient, δ (not shown).

Using the values shown, a conservative estimate of the compensating differential of log income for living in Quebec in 1985 is -1.28 , the 95 percent confidence interval upper bound, i.e., nearly two standard errors smaller than the point estimate (-1.55) of the coefficient ratio for the Quebec indicator in this specification.

This estimate implies that the differential income to compensate for living in Quebec in 1985 would be to receive an income boost of $\exp(1.28) - 1 \approx 2.58$ times the (geometric) mean household income.¹⁷ Moreover, over the period ending in 2008, this differential reverses to reach a significantly positive benefit (or unexplained effect) of Quebec residence, evaluated as an income increase of a factor of at least 58 percent over and above actual income.¹⁸ While these values will sound extraordinarily large to readers not familiar with the literature on the role of non-material consumption factors in accounting for subjective well-being, it is important to emphasize the magnitude of well-being differences to be explained in this paper.

Incorporating other individual controls that are often used in SWL accounting and that are available in multiple cycles of the GSS, Figure 5 shows estimated trends for models including—in addition to the baseline model controls—self-reported health, religiosity, first language, and labour status.¹⁹ These estimates show effects at least as strong as those of the parsimonious specification.²⁰

Lastly, an alternative formulation based on absolute response values of SWL—i.e., without normalizing responses each year—is obtained by carrying out estimates of equation (1) separately for each cycle of the GSS and then comparing compensating differential estimates over time. Estimates using this approach agree closely with the

pooled estimates; in other words, the coefficient on $\log(\text{income})$ is fairly consistent over cycles of the GSS. Such estimates are shown as the “each year” line in Figure 5.

DOES INCOME GROWTH EXPLAIN THE RISE OF QUEBEC’S SWB?

If the estimates above are taken seriously, the magnitude and significance of the geographic and temporal differences in SWB that form the “Quebec convergence” present a mystery of the first order.

Consider a consumption-based utility depending on individual private consumption, status or rank in the distribution of others’ consumption, and tax-funded public goods,²¹

$$u_i = u(c_i, F(c_i), g). \quad (3)$$

Can such a description be consistent with the findings above on SWB and self-reported income when the relevant consumption in equation (3) relates primarily to market or market-mediated circumstances?

Changes in the individual nominal incomes reported in the GSS might not capture the bulk of the benefits of general income growth in Quebec due either to price changes or to an increased role for tax-funded public goods. Nevertheless, it is clear from the magnitude of the compensating differential estimates that any such explanation will need to involve large magnitudes as well. This section addresses the possibilities that (a) prices have stayed lower in Quebec, (b) the *quantity* of government spending has risen more in Quebec, or (c) concavity of $u(\cdot)$ in c_i , combined with a changing distribution in Quebec, is sufficient to account for the changes in SWL.

Household Income

According to the simple model above, increasing private income in Quebec cannot account for the rise in SWL; however, it is worth checking whether

incomes have even increased there as compared with the rest of Canada. Figure 6 shows the mean real adjusted after-tax income for each province and for a population-weighted average of provinces outside Quebec, for the period before and during the first 22 cycles of the GSS.²² These data show that during the period of increase of SWL in Quebec, incomes there were not climbing faster than those in the rest of Canada, or even keeping up.²³

These incomes reflect national-level inflation corrections but are not adjusted for the possibility of a changing relative purchasing power between Quebec and other provinces. It is difficult to compare overall price levels across provinces for a number of reasons, summarized, for instance, by Statistics Canada (2008). Typically, Statistics Canada generates consumer price comparisons across major cities

each year but at the provincial level only provides price comparisons *within* a region over time.

Since 1985, price levels in Quebec rose as fast as in the rest of Canada until the mid-1990s, after which inflation has been slightly higher in Ontario and the western provinces. In terms of timing, this is not consistent with an explanation based on purchasing power for a rise of SWL in Quebec beginning after 1985.²⁴

Income Distribution

Rousseau (2009) examined the lack of growth in mean happiness in the United States over several decades of mean income growth. He found that the constancy of well-being could be simply explained through the concavity of the individual happiness function $u(c_i)$ combined with an increase in

FIGURE 6
Income and Inequality across Canada, 1975–2008

FIGURE 6a
Mean After-Tax Real Income in 2008 Constant Dollars,
Adjusted for Household Size

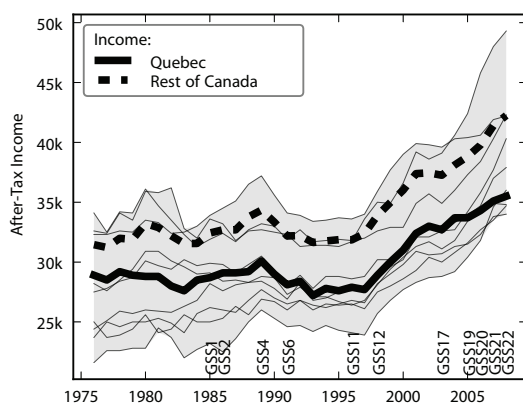
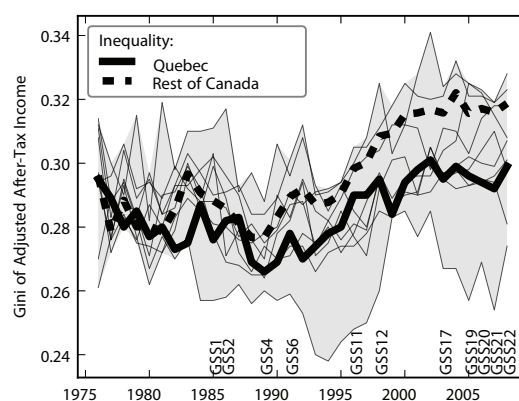


FIGURE 6b
Gini Coefficient of Adjusted After-Tax Income



Note: The dashed line shows the population-weighted mean for all provinces other than Quebec. Individual provinces, shown in thin light lines, span the gray shaded regions.

Source: (a) CANSIM Table 202-0706, derived from Statistics Canada's Survey of Consumer Finances and Survey of Labour and Income Dynamics; (b) CANSIM Table 202-0709, derived from Statistics Canada's Survey of Consumer Finances and Survey of Labour and Income Dynamics.

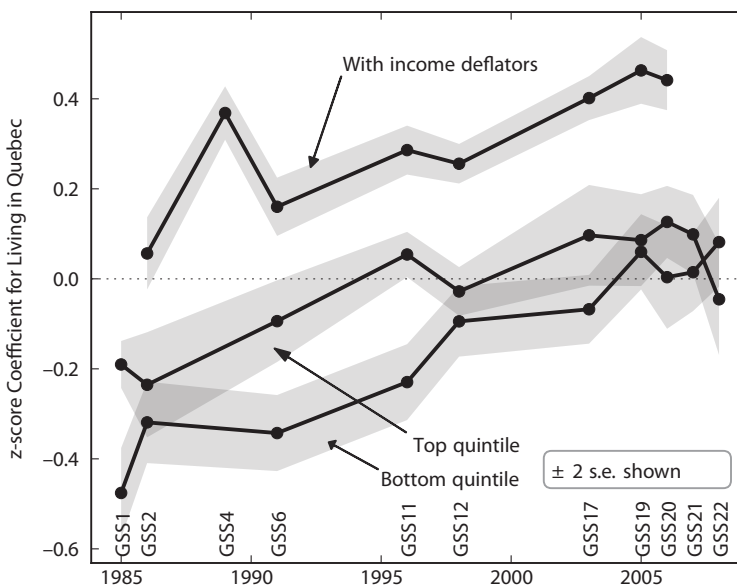
inequality that has accompanied the growth in mean income. That is, very classical individual utility functions were sufficient to explain the mean statistics when the full income distribution was taken into account. Given that income inequality, as measured by Gini coefficients,²⁵ has decreased in Quebec relative to the rest of Canada (see [Figure 6b](#)), is it possible that a purely individualistic, income-based explanation could also hold for the growth in well-being there?

A way to assess this question decisively is to look at the distribution of well-being across the income distribution. Given that mean incomes in Quebec have not risen compared with those in the rest of Canada, and under the assumption of a classical, concave increasing dependence of SWB on income, Quebec's becoming relatively happier due to a redistribution of income would require

that its wealthiest segment became relatively less happy as compared with the rest of Canada. That is, the relative increase in mean SWB in Quebec would need to reflect a relative improvement for the high-marginal-utility-of-income population at the expense of low-marginal-utility households.

I test this hypothesis by restricting the estimate of equation (1) to the top and bottom 20 percent of the income range within Quebec and outside Quebec for each year. Support for the concavity explanation would take the form of a decreasing coefficient on an indicator variable for the top quintile in Quebec, combined with a more strongly increasing one for the bottom quintile. The results (see [Figure 7](#)) show that on the contrary both high- and low-income Québécois experienced gains in SWL and, especially for some earlier years when the Quebec gains in SWB were greatest, the high-income households gained most.

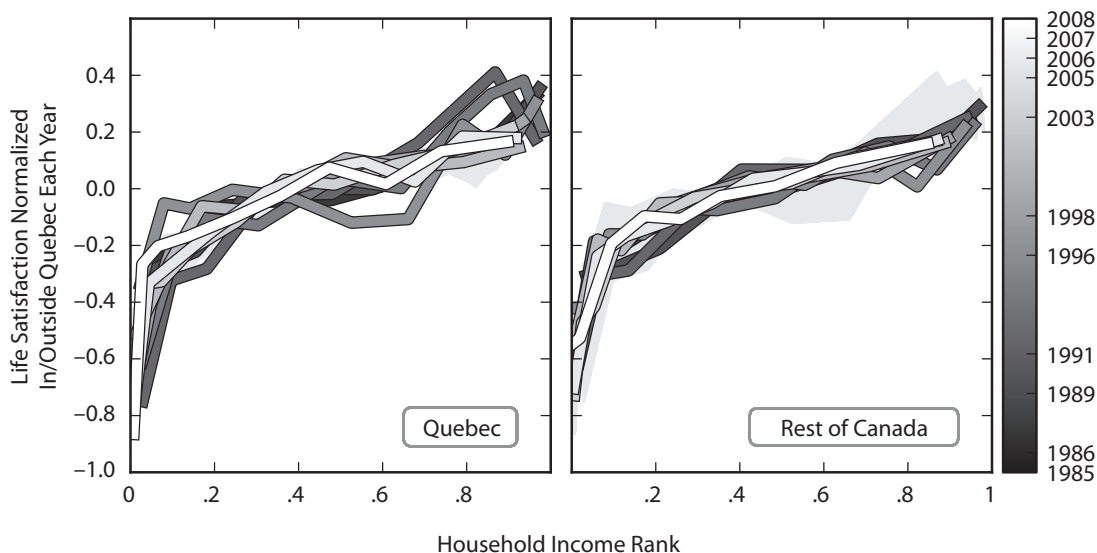
FIGURE 7
Further Estimates of Equation (1): Quintiles and Price Deflators



Note: The model with income deflators (see note 24) is shown with an arbitrary vertical offset.

Source: Author's calculations.

FIGURE 8
Distribution of SWL (Normalized) by Year and Income Rank



Note: Annual distributions of life satisfaction by household income rank. Each line shows the distribution for one year (indicated by shade), separately normalized within Quebec (left panel) and outside Quebec (right panel). In each plot, a lightly shaded region in the background shows an underlay of the range of distributions from the other plot.

Source: Author's calculations.

Organizing the data by income quantile can be used to assess crudely the shape of the $u(c_i)$ curve. Figure 8 shows a remarkably consistent relationship between income rank and SWL within and outside Quebec, as well as over time. Here, in order to compare pure distributional properties, the yearly normalization of SWL is carried out separately for Quebec and the rest of Canada. These estimates again tend to refute an individual consumption and income redistribution mechanism as an explanation for the relative increase of SWB in Quebec.

Note that several relevant and plausible hypotheses involving Quebec's low income inequality are at once refuted by the qualitative findings above. A model in which utility over income depends concavely on the difference between own income and the mean income in or outside Quebec would,

in order to explain the observed rise of Quebec SWB, also require that the SWB of Quebec's highest income contingent lost ground compared with the rest of Canada's. Alternatively, in a model in which income rank, or ordinal status, is a direct determinant of well-being, distributional changes in income do not have a direct (static) effect on the mean or distribution of SWB. Indeed, even for the case of more subtle effects of changes in inequality of the structure of rewards and the distribution of endowments in a world in which pure rank matters (Hopkins and Kornienko 2010), most outcomes involve a decrease in welfare for the wealthiest when inequality decreases. This is contrary to the findings shown in Figure 7.

If the changing nature of the income distribution in Quebec towards increased equality (relative to

the rest of Canada) is related to the phenomenon of rising relative SWL, it appears not to be occurring through the concave-utility channel identified by Rousseau (2009) for the United States, nor through one acting on relative preferences.

Financial Satisfaction

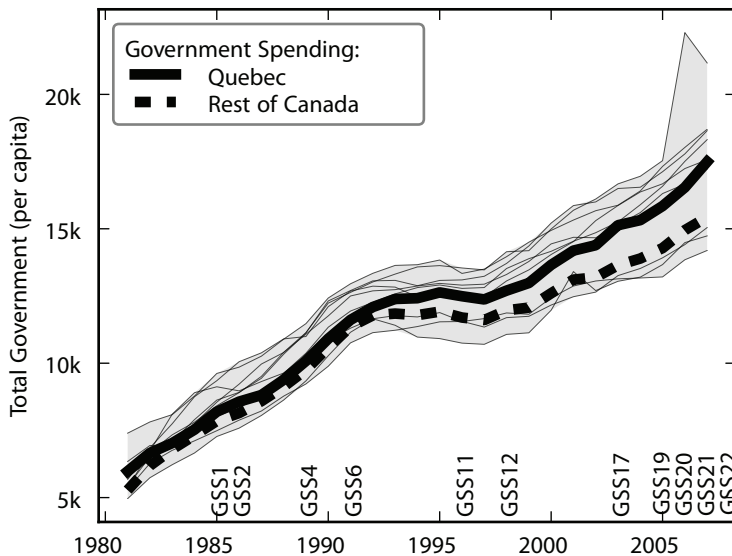
Some GSS cycles have asked questions on satisfaction with narrower domains than life as a whole. A particularly strong line of evidence that financial factors are not driving Quebec's rise in SWB could come from another subjective response. Respondents' *satisfaction with finances* was recorded seven times between 1985 and 2006. These data are sparse in the middle years of the study period but show no rise over time in Quebec until after 1998. This pattern corroborates a limited role for income in the changing SWL of Quebec, at least in the earlier years. Thus, not only have objective incomes not risen especially fast in Quebec but there is no sign of

subjective satisfaction with finances having changed the way SWL has.²⁶

Public Goods

Another possibility raised above relates still to the quantity of economic activity growing in Quebec but through a public good channel rather than through private expenditure. Taxation and government spending per capita tend to be higher in Quebec than in other provinces. As for other such province-level variables, it is not feasible to test statistically any detailed hypotheses about the relationship between aggregate spending and changes in relative well-being. However, an inspection of the evolution of total per-capita government spending, displayed in Figure 9, shows that public spending in Quebec has led the national average and has increased relative to other provinces only since 1992.²⁷ While substantially larger than in Ontario, British Columbia, and Alberta, per capita spending in Quebec remains well

FIGURE 9
Total Per Capita Government Expenditure by Province



Note: Total expenditure is the sum of local, provincial, and federal government expenditures.

Source: Statistics Canada's CANSIM table 384-0004.

within the range of the other, smaller, provinces. Thus, the quantity of public spending since 1981, whose well-being effects are likely to lag outlays, does not appear to be a candidate for explaining the early part of the rise of SWB in Quebec. In addition, if the value of public spending were comparable to equivalent private consumption, then the rise since 1992 would be an order of magnitude too small to account for the SWB trend (see [Figure 5](#)). Naturally, the *nature* of public spending policies may be different and could be related to the differential performance of SWB.

Other Explanatory Factors

If income growth and redistribution were not the cause of the improved lives of Québécois, what was? Below I briefly assess the trajectories of several other economic and social variables that may be considered likely candidates based on modelling SWB at individual and aggregate levels.

Labour status: It is well established and not surprising that unemployment has an effect on life evaluations well beyond that due to the associated income loss. Individual-level effects of unemployment and work hours were already incorporated into estimates shown in [Figure 5](#). Moreover, the unemployment rate in Quebec has generally remained uniformly above the Canadian average during the period of interest; similarly, Quebec's employment rate has remained below Canada's. In both cases, there has been some convergence beginning only in the late 1990s. On the other hand, according to the GSS, employed Quebec workers were working nearly two hours less per week in 2006 than those in the rest of Canada,²⁸ but were working a more similar number of hours in 1989–1990.

Following this theme of inquiry, some GSS cycles asked about satisfaction with one's job and about satisfaction with one's time outside work. *Job satisfaction* has risen in Quebec but only since the late 1990s, when francophone respondents made gains. Otherwise, no large differences are evident between gender or age subgroups within Quebec.

By contrast, *satisfaction with time outside work* in Quebec shows large differences from the rest of Canada for at least three cycles and, with the exception of age groups, is also highly consistent across subgroups. Overall, the trend is a decreasing satisfaction with time use until the mid-1990s, and an increasing one thereafter.

Health: Until 1998, young female Québécoises gave slightly less positive self-reports on the status of their health than their non-Quebec counterparts, but for other groups there is reasonable consistency, suggesting again that not all subjective assessments follow the trend that SWL does, and indeed therefore that aspects of life other than health are underlying the SWL discrepancy (see also [Figure 5](#)).

Religion: The changing roles of religion and religious institutions are salient, or central, features of the social changes associated with the Quiet Revolution, in which the pervasive role of the church was largely overturned within less than a generation. In general, participation in religious activities is associated around the world with higher SWL for both the participant and others nearby ([Bergan and McConatha 2001](#); [Clark and Lelkes 2009](#); [Ferriss 2002](#); [Helliwell 2003](#); [Helliwell et al. 2010](#)).²⁹ The situation in Quebec represents an interesting case of a cultural shift away from religious attendance without the corresponding decrease in well-being that one might predict from a simplistic extrapolation of such cross-sectional patterns.

The declining frequency of attendance at religious institutions in Quebec was already on par with the rest of Canada by the time of GSS cycle 1, though it continued to fall in subsequent years, faster than in the rest of Canada, and faster for francophones than others, both within and outside Quebec. It is interesting to note that there is a steep decline in religious attendance, up to the mid-1990s, amongst francophones outside Quebec, possibly the sign of a delayed transmission of the Quiet Revolution beyond Quebec's borders.

Age profiles of religious attendance show that the religious attendance of Québécois from their mid-twenties onwards increases steadily until beyond retirement age, altogether by a factor of more than ten—that is, from less than once per year to more than once per month. Through the GSS years, attendance at nearly all ages has dropped by a fairly uniform factor of three. Organizing the data by cohort reveals that this trend has occurred predominately across cohorts rather than within them; that is, habits formed early in life tend to persist throughout it.

By contrast, in the rest of Canada, young adults start out with a higher frequency of attendance, and the elderly exhibit a lower frequency than in Quebec, with the rates falling—also fairly uniformly in age—only recently, and by a factor of less than three. As a consequence, the inter-generational trend, or heterogeneity, in religious attendance patterns is much stronger in Quebec than outside it, and has remained so for all annual samples since 1985.

Religious behaviour is a dimension on which Quebec and its Quiet Revolution stand out. However, overall, it is hard to see how the features of religious life in Quebec noted here could account for an increase in SWL in light of the existing literature.

Social capital: A prominent family of findings in the SWB literature is that subjective and objective measures of social engagement and linkages are associated with higher SWL at the individual and macro level, above and beyond effects mediated through productivity and employment (Dolan et al. 2008; Helliwell and Barrington-Leigh 2010, 2011; Helliwell and Putnam 2004; Helliwell and Wang 2011; Powdthavee 2008; van der Horst and Coffé 2011). These measures relate to civic participation; social networks; trust in and engagement with institutions, neighbours, family, colleagues, and fellow citizens; and fellow-feeling as indicated by social identity or sense of belonging (see, especially, Helliwell and Barrington-Leigh 2011) with one's locale.

In light of the rise of secular and civic institutions in regulating behaviour and social norms in Quebec, one might anticipate changes in characteristics of the social fabric as part of the Quiet Revolution. Unfortunately, repeated relevant measures are scarce over the GSS cycles.

In three cycles, respondents were asked about their attitude towards police as one way to gauge the role and reputation of public institutions. Responses regarding the general *approachability of police* have changed little outside Quebec over 1993–2004, with ratings below 85 percent in western provinces and above 85 percent in eastern provinces.³⁰ Within Quebec, on the other hand, ratings have increased for both sexes from values significantly less than to those typical of the rest of Canada.³¹

GSS respondents have also been asked about their *safety walking alone at night*, possibly serving as a measure of security and trust of fellow citizens. Québécois reported the lowest levels of safety, though only slightly lower than in the other big provinces. The difference appears to be due to the relative insecurity of both women and older respondents in Quebec; these are also the same populations in all other provinces who felt less safe. This measure of safety rose throughout Canada during the years with data, between 1993 and 2004, until a decline in 2003, but again it offers no clues to the differential trends in SWL.

Measures of social identity, elicited by asking to what extent respondents feel they belong to their locale,³² have high correlations with SWL but have only been measured in recent years. In those years, Québécois feel a relatively similar *sense of belonging* to their local community, a stronger connection to their province, and a much weaker connection to Canada. Across Canada, older respondents feel more affiliation with their province and country. This topic is taken up in more detail in Helliwell and Barrington-Leigh (2011).

DISCUSSION

Quebec has undergone dramatic changes in the social context and cultural norms that affect identities and social interactions, as well as in market participation and economic production and in the level and scope of government provision. These changes have not been completely aligned with the pace and nature of shifting norms across the rest of North America, which makes them interesting and useful for analysis.

By what quantitative measures other than SWB does Quebec stand out, according to the evidence presented so far? The employment rate in Quebec has climbed somewhat towards the national average but only in the latter half of the period of SWB convergence. The average number of hours worked by the employed in Quebec started low and has decreased fairly steadily since 1990. Household incomes have stayed low. If productivity changes are to explain Quebec's shift in SWB standings, it appears they cannot do so quantitatively through normal channels of buying power or leisure time. Similarly, the impact of government-funded public goods, if measured by contemporary expenditures alone, cannot account for Quebec's rise in well-being. During the same period, redistributive policy in Quebec has slowed the rise of the Gini inequality index for after-tax household income: beginning at the Canadian average, Quebec income now stands out from the other large provinces as considerably more equitable. Indeed, by 2008, the gap between the rest of Canada and Quebec was more than a fifth of the difference between Canada and Sweden, the lowest Gini nation, according to the World Income Inequality Database. It is difficult to say how this might affect individual lives or social liens in ways not captured by intermediate measures from the GSS.

Data needed to assess these characteristics of society and individual lives remain relatively scarce. Most of the variables that are most significant in individual-level and aggregated cross-sectional

analysis of SWL in certain recent cycles of the GSS (Helliwell and Barrington-Leigh 2010) are not available for most of the first two decades of the GSS. It may be that the factors that have mattered most for changing life in Quebec have simply not been well measured in this period. For instance, social harmony across linguistic lines has likely improved drastically as a result of Bill 101 securing francophone linguistic rights, the series of referenda on Quebec sovereignty, and the formation and rise of the Bloc Québécois federal party, all within the period 1977–1995. Similarly, the impact of Quebec's strong social support system and public infrastructure may be difficult to evaluate through expenditures alone and without account of appropriate lags.

There are precedents for an association between political developments and measured subjective well-being. Indeed, in introducing the topic of SWB to economists, Easterlin (1974, 105) cites Cantril's explanation of post-revolutionary exuberance and political turmoil, respectively, for remarkably high and low levels of SWB in Cuba and the Dominican Republic. More recently, Clifton and Morales (2011) note the decline in SWB in Egypt and Tunisia prior to the uprisings of the Arab Spring, which began in 2010 (see also Amin et al. 2012).³³ Unfortunately, none of the GSS surveys with life satisfaction fell in a referendum year or during the years when the Meech Lake Accord or Charlottetown Accord were negotiated or defeated. Thus, within-year variation is not accessible to estimate the effect size of these events. For instance, Quebec's high relative SWB in 1989 may not be an anomaly in an otherwise monotonic increase but rather a reflection of high hopes for the 1987 Meech Lake Accord, which would have then been dashed by its 1990 rejection, leading to the drop measured in 1991.

Suicide Rates

One other piece of evidence that could shed light on the evolution of well-being in Quebec is suicide data. Figure 10 shows suicide rates in Ontario and Quebec for all ages but separated by gender. These

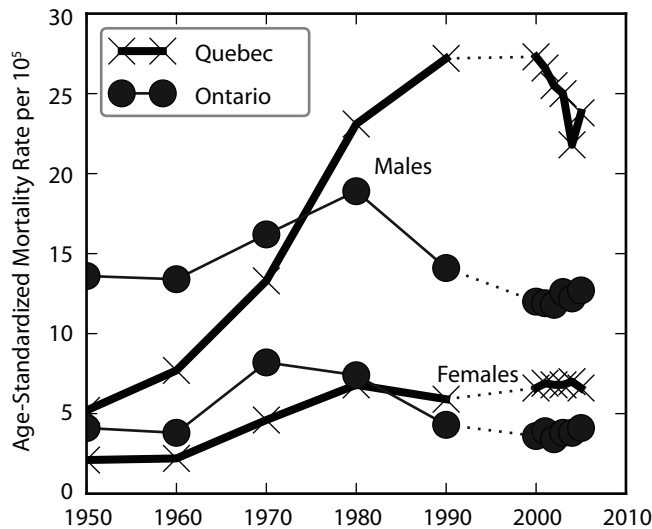
data show, most notably, a dramatic rise in completed male suicides in Quebec during the Quiet Revolution and, since 2000, a sharp decrease in this rate (see also [Cormier and Klerman 1985](#); [Gagné and St-Laurent 2008](#)). While suicide rates for females are lower and have a less dramatic rise in both provinces, it should be noted that the pattern across genders for attempted suicides is typically quite different than for successful ones. Although [Figure 10](#) shows an increase in the 1960s and 1970s in Ontario as well as Quebec, the data nevertheless suggest the possibility that the convergence of life satisfaction during the 1990s, observed and investigated in the present work, may represent a *recovery* by Quebec from the conditions associated with the peak in its suicide rates, rather than an improvement of SWL from a long-term, lower baseline in Quebec.

[Krull and Trovato \(1994, 1138\)](#) find that the pattern of gender differences in suicide in a changing

Quebec supports the more general finding, dating to the early insights of Durkheim, that a high degree of social integration and regulation is protective against suicide, while a low degree is a risk factor ([Cutright and Fernquist 2000](#); [Durkheim 1897](#); [Helliwell 2007](#)). [Krull and Trovato \(1994\)](#) contrast the period in Quebec from 1931 to 1956 with that of 1961 to 1986 as a transition from one characterized by “high integration” and “low individualism” to one of “low integration” and “high individualism,” in which religion, divorce, and childlessness become significant predictors of male and female suicide rates.

If a transition towards individualism posed difficulties for Québécois, it may be possible that institutions have been able to adapt to replace the missing supports and hence forge a recovery both in mean SWB and in protection for the most vulnerable of all, as seen after 2000 in [Figure 10](#).

FIGURE 10
Suicide Rates in Quebec and Canada, 2000–05



Source for years ≤ 1990: [Mental Health Division, Health Services Directorate 1994](#), Health Canada Tables 2.1 and 2.2; source for years ≥ 2000: Statistics Canada, Table 102-0552.

I find a different description more compelling. The reduction in religious involvement and rigid marriage institutions in Quebec and the increase in the role of government in providing social supports, simultaneous with an increase in suicides and mean life satisfaction, bring to mind the case of some Scandinavian countries that also exhibit seemingly paradoxical incidences of high SWL and high suicide rates. Helliwell (2007) fully accounts for Sweden's high SWL but only average suicide rate through a combination of predicted effects of Sweden's low religiosity, high divorce rate, and high perceived quality of government.³⁴ Perhaps Quebec has undergone a "Scandinavianization" on these same dimensions that have previously been analyzed in cross-section amongst countries? If so, maybe Quebec is benefiting from the broader set of social-democratic policies that have accompanied such a shift, and that have been so successful for SWL in Scandinavia (Roy and Bernier 2009). Indeed, the past two decades have left Quebec with a mean SWL greater than the rest of Canada's by enough to place it at the highest level amongst Scandinavian nations.³⁵

CONCLUSIONS

The main contributions of this study are (1) to transform subjective well-being measures taken from successive cross-sectional surveys in order to make them commensurable across provinces and over time; (2) to present evidence of the "Quebec convergence," a dramatic rise of subjective well-being over two decades throughout the Quebec population; and (3) to assess the possible causes of this rise. Real income growth, unemployment, and changing income distributions are all important factors in accounting for individual SWL but, acting at the individual level, were found not to be explanations for the convergence.

A Dual Challenge

The economic scale of the SWL convergence in Quebec poses a dual challenge for policy and research.

It presents difficulties for the thesis that changes in income account for much of the variation in well-being; it also challenges the thesis that changes in subjective well-being can be meaningfully and quantitatively related to policy-mediated changes in the circumstances of those who are evaluating their lives.

The former claim underlies a broad income-growth orientation amongst policy-makers and institutions, and the latter claim underlies the interest in and advocacy for increased attention to subjective measures of well-being. If the statistically and economically significant shifts in the SWB of Québécois do not reflect the kind of welfare that society regards as a worthy objective, then SWB measurements must be subject to a massive and previously unreported cultural or other spurious bias. Given the Quebec trend's multi-decadal time scale and consistency across SWB measures and languages, this seems unlikely.

Limitations

For either of the dual challenges to be resolved, more data are likely to be key. Hill (2004) concludes that SWB data are of much poorer quality in Canada than in the United States or Europe and that "Statistics Canada should make its proper and consistent collection a priority." Since his writing, Statistics Canada has come a long way towards casting Canada as a leader rather than a laggard in SWB assessment, but many other countries are prioritizing this approach as well. The rejection of income-related causes—including status effects—for Quebec's increasing SWL lends support to this growing trend of governments exploring broader headline measures of welfare than income-oriented growth. In addition, the present work suggests that even in mainline social surveys there are gaps in thematic coverage if we are to be able to explain shifts and differences in SWL. It is important that countries hoping to make progress in enhancing properly measured welfare will have in hand in another two decades sets of consistent and regular measures of all the subjective and objective, social

and individual factors that are found to be significant determinants of subjective well-being. These include measures of trust, social links, and cultural continuity and identity.

Until further analysis is able to unpack the policy changes responsible for Quebec's upward trend in SWL—as well as for other cross-sectional differences amongst differing policy regimes around the world—highly specific policy implications will remain elusive. Instead, one may consider the approach of a more qualitative grouping of policy orientations. Those states that have been especially successful in generating highly rated life experiences may serve as general, albeit not monolithic, models of successful policies. At the very least, the findings reported here lend some general support for the features that make the Quebec policy environment special in Canada.

Finally, it is important to remember that most of the central phenomenon described herein was a convergence from below, and that the smaller provinces in Canada still generate the highest reports of SWL (Figure 1). It will be of utmost interest to see whether Quebec continues its upward trajectory in SWL, or at least retains its position above the other large provinces.

Hypotheses

Regardless of these debates, the Quebec convergence may represent evidence of the power of social policies and shifts in social institutions to produce sizable enhancements to SWL, independent of economic shifts. In light of the findings of this study, the following developments remain as candidates for policies that may account for improved life evaluations in Quebec.

First, Quebec has undergone a shift, as compared with the rest of Canada, towards a more Nordic set of institutions, including low after-tax income inequality, low religiosity, less formal marriage, and strong family and social supports provided by the government. This set of policies, or others that have

come packaged with them, may generate broadly felt benefits, due, for instance, to security of various forms or to reduced status-related stress. They do not appear to benefit preferentially respondents from a particular part of the income distribution. Public spending in Quebec on a per capita basis is well above levels in the other three big provinces, yet Québécois report no less satisfaction with finances than the rest of Canada. Although we cannot unpack the well-being effects of provincial policies with only ten provinces, it may be that Quebec is reaping higher benefits of extra social supports afforded by its higher spending.

Secondly, Quebec has made progress in what may be described as self-determination. Relative to the early 1980s, recognition and supports for cultural identities are more secure and are reflected in political and legal institutions. Although the GSS data are mostly silent on the matter, it may be that Québécois are now more at peace with their government, their identities, and each other, including across linguistic and religious lines.

Both of the hypotheses above are subject to the observation that benefits have accrued broadly, for instance, across linguistic and gender lines and across the income distribution, suggesting changes in the social fabric.³⁶ The relatively low levels of trust expressed in Quebec (see Figure 1) remain a mystery in this picture, since high trust is typical of Scandinavia and other high-SWB countries and is strongly predictive of high SWB at the individual level both within Quebec and in the rest of Canada.

Improved measurement of trust and other indicators of social cohesion may help to shed light on the degree to which this trust deficit is a long-term one³⁷ or an echo of the Quiet Revolution, and whether it is related to the well-being puzzle in this paper. Similarly, continued monitoring and analysis³⁸ of evolving SWB in Quebec may yet help to clarify whether its rise is a recovery in progress from some negative aspect of the Quiet Revolution, or the outcome of either the self-determination of a people

or the Scandinavianization of social norms and fiscal policy. These latter processes are interrelated outcomes of the past half-century, as the Quiet Revolution entailed both the rejection of cultural and political norms and the educational upgrading and economic empowerment of francophones and Québécois.

NOTES

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¹ For example, see [UK Office of National Statistics \(2011\)](#) and [Cameron \(2010\)](#) for Prime Minister Cameron's initiative in the UK; [Stiglitz, Sen, and Fitoussi \(2009\)](#) for the report commissioned by President Sarkozy of France; [OECD \(2011\)](#) and <http://www.oecd.org/progress> for the OECD's "Better Life" initiative; and [Bernanke \(2010\)](#) for a speech on well-being by the US Federal Reserve chair.

² Two similar acronyms, SWB and SWL, are used throughout. Subjective well-being (SWB) is a more general term, encompassing reports such as momentary happiness.

³ An extensive appendix, available from the author, provides additional details in table form, robustness checks, and supporting information.

⁴ Statistics Canada website, <http://www.statcan.gc.ca>.

⁵ Throughout the GSS cycles, nearly all respondents provided answers to the SWL and happiness questions when asked. However, a considerable number failed to report household incomes (on the order of a third). Mean reported SWL of this subsample is not statistically different from the overall mean, and analysis of the Quebec "effect" carried out on them reveals the same pattern as for those who did report income.

⁶ Pierre Fortin has pointed out (personal communication) that in cycles 2, 4, 12, 17, 19, and 20, "your life

as a whole" is translated as "la vie en général," which is literally "life in general," rather than "votre vie dans l'ensemble." However, "votre vie" rather than "la vie" was used in cycles 6, 21, and 22, and there is no discernible bias associated with these changes, e.g., comparing cycles 4 and 11 with cycle 6, or cycle 20 with cycles 21 and 22.

⁷ Other surveys covering Canada use still other systems. While the SSHRC-funded Equality, Security, and Community survey used a ten-point SWL scale, Statistics Canada's Ethnic Diversity Survey (2002) and Canadian Community Health Survey (annual) used a five-point scale, and Gallup's World Poll used an 11-point scale. This 11-point, zero-to-ten scale will likely become standard in future Statistics Canada surveys sampling SWL. A comparison of response distributions for all these surveys is available from the author.

⁸ Also common across these surveys are focal point enhancements, typically at the bottom, middle, and top values of the scale, in the ten and 11-point scales. The non-ambiguity of the centre-point in an 11-point zero-to-ten scale has been one argument for preferring such a scale in future surveys ([Helliwell and Barrington-Leigh 2010](#)).

⁹ The standard errors of the mean shown here are calculated analytically, assuming a continuous distribution. However, bootstrap estimates of the errors for discrete distributions of responses produced nearly identical values.

¹⁰ More details, available from the author, show that SWL standing has increased for all ages in Quebec.

¹¹ Data from GSS Cycle 1 are missing from this plot because neither the interview language nor the native language of the respondent was recorded in that survey. The measure used for the remaining cycles is an indicator of whether French was a childhood first language for the respondent.

¹² The proportion of Quebec respondents who are francophone varies from 85 percent in cycle 2 (1986) to 80 percent in cycle 22 (2008).

¹³ Two versions of this question have been used. In 1991, a question with four-point response scale was worded, "Would you describe yourself as usually..." or "Vous décririez-vous comme une personne..." with responses "Happy and interested in life?" / "Somewhat happy?" / "Somewhat unhappy?" / "Very unhappy" in English, and "Heureuse et intéressée par la vie?" / "Quelque peu heureuse?" / "Quelque peu malheureuse?" / "Très

malheureuse?” in French. In 1996, a five-point scale question was introduced but has been consistent over all years since. Its wording is “Would you describe yourself as being usually...” or “Vous décririez-vous comme étant habituellement...” with responses “Happy and interested in life?” / “Somewhat happy?” / “Somewhat unhappy?” / “Unhappy with little interest in life?” / “So unhappy that life is not worthwhile?” in English, and “Heureux(se) et intéressé(e) à vivre?” / “Plutôt heureux(se)?” / “Plutôt malheureux(se)?” / “Malheureux(se) et peu intéressé(e) à vivre?” / “Si malheureux(se) que la vie ne vaut pas la peine d’être vécue?” in French. For comparability, the responses are indexed and scaled to a 0–1 range representing unhappy to happy.

¹⁴ In a version of Figure 4(a) that showed annually normalized values, both bold lines would be monotonic.

¹⁵ In 1985 (GSS1), continuous values were accepted for household income. Thereafter, the top category for household income varies from $\geq \$60k$ in 1986 to $\geq \$100k$ since 1998. The fraction of respondents who chose the top category was 7 percent in 1986 but has grown in recent years to ~ 22 percent as a result of the top bracket not increasing with nominal income growth. Including a single dummy variable to indicate that the top category was chosen, or including a separate such dummy for each year, does not significantly change the tightly constrained estimated coefficient on $\log(\text{income})$. Results shown here include a single dummy for the top category.

¹⁶ The data exhibit the following average life course pattern of SWL: from a high point in youth, unconditional means of SWL decrease gradually until middle age and then increase more rapidly towards retirement age, where they level off and decline again in old age. The literature commonly describes a U-shaped quadratic dependence of SWL on age when controlling for other individual characteristics (Blanchflower and Oswald 2008, and references therein). While a quadratic specification is canonical, a quartic may be more appropriate in some societies with high life expectancy. Including a quadratic for age, rather than a quartic, does not change any coefficients in equation (1) except for the one on “widowed.” Because the means exhibiting the life course pattern described above are unconditional (except on age), the cautionary note on interpreting age coefficients in cross-sections given by Frijters and Beaton (2008) does not apply; indeed these data refute their findings. Reported affect, by contrast, remains relatively constant throughout the life course,

though there is a hint of a slight decrease with age inside Quebec. Subjective reports of health, not surprisingly, follow a much simpler steady decline with age.

¹⁷ Based on the 1986 Census, in which 29,276 Quebec households were in the “long-form” sample, there were an estimated 2.35 million households altogether in Quebec, averaging $2.716 \pm .009$ members each and with a mean “total household income” of $\$30,615 \pm 144$ in contemporary currency.

¹⁸ Again, this is using a 95 percent confidence lower bound; $0.58 \approx \exp(0.61 - 2\sigma) - 1$.

¹⁹ Labour status measures include paid work hours and indicators for employed, unemployed, domestic, student, illness (unable to work), and retired statuses.

²⁰ A similar plot of the estimated raw coefficients δ shows even more consistency across all the models except for the one including religion and language. Some of the variation across models shown in Figure 5, then, is due to a small reduction in the coefficient θ when health or labour status is controlled for.

²¹ More generally, one might consider households to have preferences over the entire distribution of incomes:

$$u_i = u(c_i, f(c), g). \quad (2)$$

Two prominent cases in the literature of a simplified dependence on others’ consumption are a dependence on the mean consumption c as a reference level (e.g., Barrington-Leigh 2008a; Eaton and Eswaran 2009) or a dependence on the individual’s position in the income distribution $F(c_i)$ (e.g., Hopkins and Kornienko 2004), rather than the more general functional in section 2. Below I address these simpler relative income cases, which in reduced form include the possibility of status-based allocation of non-market goods (Frank 1985), but I cannot reject or easily test for the more general formulation, which encompasses possibilities like inequality aversion.

²² These values are derived by Statistics Canada from its Survey of Consumer Finances and Survey of Labour and Income Dynamics.

²³ The pattern shown in Figure 6, based on labour survey incomes, also holds if self-reported incomes from the SWL respondents in the GSS are used for calculating the provincial means.

²⁴ In order to evaluate the magnitude of the price effect on SWL, equation (1) can be modified to include the

within-province inflation adjustments π_p to household income, along with a set of provincial indicators in order to account for any initial cost of living differences across provinces p in 1985:

$$Z_{i,y,p}^{SWL} = \gamma_p + \alpha_y + \delta_y q_i + \theta \log\left(\frac{Y_i}{\pi_p}\right) + \beta X_i + \varepsilon_i \quad (4)$$

Under this specification, the size and significance of the estimated trend in Quebec effects δ_y appear nearly unchanged, reflecting the small scale of the price correction as compared with the values of compensating differentials estimated earlier. These raw estimates of δ_y are shown as the top line, labelled “with income deflators,” in Figure 7. Due to the normalization of inflation indices, there is an arbitrary vertical offset in this line.

²⁵ Due to the categorical nature of the income measure in GSS surveys and in particular the increasingly important upper bound, Gini indices calculated from GSS data are generally decreasing over time, in contrast to the more detailed estimates based on the Labour Force Survey. This makes it difficult to compare changing SWB distributions to the counterfactual ones obtained using fixed model coefficients but evolving (sampled) income and demographic distributions.

²⁶ Interestingly, the age profiles of satisfaction with finances differ between Quebec and the rest of Canada, and the difference is relatively constant over 20 years. Satisfaction is relatively constant over the life course in Quebec but is sharply increasing in the rest of Canada.

²⁷ There is an even stronger relative increase in Quebec’s provincial and local spending as compared with increases in other parts of Canada, but this trend reflects Quebec’s tendency to opt out of federal spending programs, with compensation, in order to direct its own policy in areas it considers to be provincial jurisdiction—i.e., to substitute federal for provincial spending.

²⁸ This shift may be especially prominent for men. In 2011, average work weeks in Quebec and BC were both one hour below the national average. Quebec is also an outlier in stated preferences over work hours. In response to the GSS 20 question, “Considering your main job, given the choice, would you, at your current wage rate, prefer to work fewer hours for less pay / more hours for more pay? / the same hours for the same pay? / none of the above?” 8.4 percent of Quebec workers chose “fewer hours,” while 7.7 percent chose “more.” The next highest, and lowest, respectively, in any other province were 6.8 percent and 11.9 percent.

²⁹ See, however, [Gee and Veevers \(1990\)](#), who give mixed results for Canada using GSS Cycle 1, and note that [Helliwell et al. \(2010\)](#) did not find effects from religiosity or religious participation in North America or Europe.

³⁰ The question in English was “What kind of job is local police force doing re: being approachable and easy to talk to?” with answers “Good Job,” “Average Job,” and “Poor Job,” coded to 0–1. Another question, on the respondents’ “confidence in police,” was asked in some more recent surveys.

³¹ Both inside and outside Quebec, respondents’ estimate of the approachability of police increases with age after age 20. Interestingly, this trend continues at all ages and appears to be invariant over time.

³² The community question, for example, is worded, “How would you describe your sense of belonging to your local community? Would you say it is: very strong / somewhat strong / somewhat weak / very weak?”

³³ [Chandler and Lalonde \(1998\)](#) have also described the importance of political factors and of cultural continuity in protecting against suicide amongst Canadian aboriginals. More generally, individual SWB has been shown to relate to political outcomes ([Di Tella and MacCulloch 2005](#)).

³⁴ That is, Helliwell finds that an internationally estimated model accounts well for Sweden’s case. The expected effects of Sweden’s divorce norms, low religiosity, and perceived government quality give it a high mean SWL without a low suicide rate.

³⁵ In GSS 22, Quebec’s mean SWL is $\sim .172$ above the rest of Canada’s, while in the fifth wave of the World Values Survey, the highest mean SWL in Scandinavia is Norway’s, which is $\sim .195$ above Canada’s.

³⁶ Recognition of the importance of social capital and “emergent” macro-scale social conditions, which are likely to have been in flux during and since Quebec’s Quiet Revolution, is a trend in diverse fields, including psychology ([Haslam 2004](#)), health, architecture, urban planning, and development policy ([Côté and Healy 2001](#)), and may come to have a profound effect on the evaluation of macroeconomic outcomes ([Helliwell and Barrington-Leigh 2010](#); [Stiglitz, Sen, and Fitoussi 2009](#)).

³⁷ For instance, shared with other traditionally Catholic societies ([Inglehart and Baker 2000](#); [Longpré 2009](#)). See also [Nunn and Wantchekon \(2011\)](#) for an example of other long-term determinants of trust.

³⁸ For instance, SWB questions are now standardized in future GSS cycles, allowing decomposition of differences and changes in SWB using a Oaxaca-Blinder method; see an earlier working paper version (2010) of the present analysis.

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