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Religiosity and Subjective Wellbeing in Canada

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Abstract Using the Canadian Ethnic Diversity Survey, I explore how religiosity associates with self-reported levels of wellbeing. The overall association of religious intensity with subjective wellbeing is found to be statistically significant, positive and small. When the impact is allowed to vary by religious group, it appears that Catholics and Protestants are very similar in how religiosity impacts their subjective wellbeing; the association is statistically significantly stronger for Canadian Muslims; and Canadian Jews are the closest group to religious nones. Surprisingly, among different dimensions of religious commitment, the intensity of religious belief is found to be the driver of the overall positive association, across religious groups. Finally, when Canadian population is divided into linguistic groups, religious involvement emerges as a negative predictor of French Canadians' subjective wellbeing.

Keywords Subjective wellbeing · Religiosity · Canada · Québec

1 Introduction

This paper takes a detailed look at the relationship between religiosity and subjective wellbeing (SWB) in Canada. The scholarly knowledge on the subject matter has not been updated in more than two decades. To date, Gee and Veevers (1990) remains the unique study that examines the association of religiosity with SWB, using nationally representative Canadian data. The present study redresses this oversight of the literature, while it addresses a number of questions of interest to cross-disciplinary scholarship on the relationship between religious involvement and wellbeing outcomes.

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First, religiosity is recognized to have multiple dimensions, however, in the extant SWB literature, it is often reduced to one of its several aspects. Consequently, little is known about the relative importance of each dimension of religiosity for wellbeing outcomes. This investigation is inclusive of all measurable dimensions of religious involvement, allowing for their quantitative comparison. Second, it is plausible to assume that the impact of religion on SWB varies across religious groups, for a variety of reasons. Most importantly, religions commonly constrain followers' pursuit and enjoyment of worldly activities which are likely to positively contribute to SWB. However, religions differ in the extent and stringency of such restrictions. Thus, the contribution of religiosity to SWB must plausibly vary across religions. This is the first study of the kind that simultaneously includes Jews and Muslims alongside main Christian denominations, allowing for a comparison of different faiths. Finally, this paper examines the impact of religiosity on SWB in the province of Québec, in light of the concurrent rise of its residents' SWB and the decline of the sway of the Catholic Church in this province.

The remainder of this paper is organized as follows. The next section is devoted to an interdisciplinary review of the relevant literature. Section 3 discusses the data and the descriptive statistics. Section 4 addresses methodological questions. Results are reported in Sect. 5, and their discussion follows in Sect. 6. The final section concludes.

2 Literature Review

An interdisciplinary literature has examined the link between religiosity and a wide-range of interrelated wellbeing outcomes. This literature is quite large and heterogeneous with respect to the operationalization of the core concepts of religiosity and wellbeing, data source, and methodology. For a large number of studies, the sample is limited to the Christians (Francis et al. 2003), while the data in the studies carried out by health scientists frequently rely on a subset of population such as the elderly or hospital patients (Koenig and Parkerson Jr 1997). Finally, many of the latter studies do not rigorously implement the *ceteris paribus* assumption (George et al. 2002). The focus of this review is twofold. First, it attempts to provide background information about the relative importance of different dimensions of religiosity alongside its concomitant factors. Second, it enumerates the results obtained using Canadian data in the past few decades.

Religiosity is best conceived as a multidimensional construct. Idler (1987) distinguishes between outward and inward aspects of religiosity. There is an emerging consensus that different dimensions of religiosity produce distinct patterns of correlation with metrics of wellbeing (Hadaway 1985; Ellison et al. 1989; Oleckno and Blacconiere 1991; Lewis and Cruise 2006). However, this assertion arises from the comparison of disparate studies, each of them concerned with a unique dimension of religiosity. Religious attendance has received, by far, the highest scholarly attention. Scholarship has linked religious attendance to better physical and mental health (Harrison et al. 2001; Krause 2008), and longevity (Ellison 1991; Zuckerman 2009). There are also studies that report a negative association (Campbell et al. 1976; Schafer 1997), or the absence of any significant relationship (Lewis et al. 1997). Meta-analysis of these heterogeneous studies, however, confirms that religious attendance is a positive contributor to various wellbeing measures (Argyle 2003; Francis et al. 2003; Shor and Roelfs 2013).

The subset of SWB literature which employs large-scale, nationally representative datasets is closer to the present paper. Within this strand of literature, Ferriss (2002), using

the American General Social Survey of 1972–1996, confirms a positive correlation between SWB and the frequency of churchgoing, although at varying rates across denominations and congregations. Greene and Yoon (2004), using the Eurobarometer Survey of 1993, assert a positive association between religious attendance and SWB. Lelkes (2006), taking the collapse of socialism in Hungary as an exogenous shock, finds that church attendance is positively correlated with SWB. Hayo (2007), also using data from post-socialist Europe, finds that frequent churchgoers report a significantly higher SWB. Elliott and Hayward (2009) use the World Values Survey to compare the impact of the frequency of churchgoing with the self-reported importance of religion to the respondents. They conclude that both measures have an independent and positive correlation with SWB. The literature attributes the positive association of religious attendance with SWB to two distinct components of *social-participation* and *religious efficacy*. The meta-analysis by Shor and Roelfs (2013), however, does not support the *religious efficacy* hypothesis. Along the same lines, the panel-data results by Lim and Putnam (2010) lend support to the premise that the positive impact of religious attendance on SWB springs from its contribution to the construction of social networks in the congregation. They report, nonetheless, that the creation of such networks is contingent on the presence of a religious identity.

The study of the relationship between wellbeing outcomes and "inward" aspects of religiosity, such as prayer and belief in an afterlife, has so far produced a comparable pattern of mostly positive correlation. It has been reported that the effects of stress are reduced for respondents inwardly reliant on a spiritual assistance or the presence of a divine being (Maton 1989; Pollner 1989; Ellison 1991). Among the elderly, religious belief is found to be associated with longevity and better physical and mental health (Ferraro and Albrecht-Jensen 1991; Ellison and Levin 1998). Negative correlation has also been reported (Ross 1990). Idler (2011) reviews the studies on the relationship between inward religiosity and adult mortality, and affirms its positive contribution to longevity, while noting the sensitivity of the magnitudes to the methodology and sample. Private-worship dimension of religiosity is reported to be conducive to a higher sense of purpose in life, thereby contributing to an individual's better health and wellbeing (Koenig et al. 2012). Okulicz-Kozaryn (2010), using a cross-country sample, fails however to detect any positive relationship between the internal aspects of religiosity and SWB. In this literature, many of the studies conduct only bivariate analysis, while multivariate studies are not immune to the omitted-variable bias, due to data limitation (George et al. 2002). And, even with a multiplicity of controls, establishing causality remains a challenge in this literature (Powdthavee and Van den Berg 2011).

Economic studies of the determinants of SWB, often focusing on its cross-country variations, have the advantage of a more rigorous implementation of the *ceteris paribus* assumption and/or attempting to establish causality (Barro and Mitchell 2004). Gundlach and Opfinger (2013) use the World Values Survey to construct national indices for both religiosity and SWB, and report a positive correlation between the two, controlling for other national characteristics. Campante and Yanagizawa-Drott (2015), using the seasonal variation of Ramadan months as the instrument, present the first causal estimates of the impact of religious practice on SWB. Deaton and Stone (2013) use cross-country and by-state US data to critically examine the apparent paradox that arises from the positive correlation of religiosity with SWB at the individual level, and the negative association of religiosity with some of the determinants of SWB, such as aggregate income. In parallel, Grözinger and Matiaske (2014) find both a positive impact for individual religiosity and a negative regional externality at the aggregate level, for a sample of German respondents.

Despite the host of studies reviewed, it has been argued that religion is not a universal predictor of higher SWB across societies. Diener (2012) posits that only certain predictors of SWB generalize across cultures, such as social support, trust, and the fulfillment of basic needs. Idiosyncratic elements, such as cultural standards for expressing positive emotions (Eid and Diener 2001; Oishi and Schimmack 2010), can lead to regional differences in SWB, in absence of measurable objective factors. For example, South American nations tend to report higher SWB than the nations of East Asia, controlling for socioeconomic predictors of this outcome. More puzzling is the case of the province of Québec in Canada, also investigated in this paper, whose SWB level substantially rose and remained above the rest of the country in the past few decades, in spite of its lower mean and median income, and lower trust score (Barrington-Leigh 2013). The argument against the universality of the relationship between SWB and religiosity is based on culture-person congruence thesis, postulating that people who possess the characteristics valued in their culture tend to be happier (Diener et al. 2003; Tov and Diener 2013). As some characteristics are more valued in some cultures, there are differences in what predicts happiness in societies. For instance, Diener et al. (1995) find that self-esteem is a stronger predictor of SWB in individualistic cultures than in collectivistic ones (see also Diener and Suh 2000; Suh et al. 2008). Diener et al. (2011) find that in very religious nations and states of the United States, religious people report higher SWB than irreligious people. However, this difference disappears in the least religious nations and states.

For Canada, Hill (2004) decomposes the changes in the national mean of SWB into portions driven by income per capita, unemployment, and inflation. He reports that when these variables are accounted for, the Canadian SWB has a negative time-trend. Gardes and Merrigan (2008) use both time-series and cross-sectional Canadian data, and find evidence for the Easterlin hypothesis. Barrington-Leigh and Helliwell (2008) find evidence for the negative impact of reference-group comparison on life satisfaction in Canadian urban areas (see also Helliwell and Huang 2010). Burton and Phipps (2011) compare the relative importance of time-constraint and income for the SWB of Canadian households. Barrington-Leigh (2013) examines the surge of SWB in Québec, and rejects higher government spending as its driver. He notes that the timing of the rise of SWB in Québec coincides with the decline of religion in this province, after its *Quiet Revolution* of the 1960s. He, thereby, attributes the pattern to the shift of the province toward a more liberal society. The *Quiet Revolution*, characterized by an effective secularization, led to the creation of a welfare state in Québec. During the period, the provincial government of Québec took a more direct control over the education by creating the Ministry of Education, which had previously been associated with the Roman Catholic Church (see Gauvreau 2005).

Gee and Veevers (1990) is the only study that looks at the relationship between SWB and religiosity in Canada, using a nationally representative sample. Drawing on data from the first cycle of the Canadian General Social Survey of 1985 and bivariate analysis, they report a positive correlation between religious attendance and satisfaction with different aspects of life. They note that in British Columbia, where religious involvement is considerably below national average, the relationship is substantially weakened. Hunsberger (1985) reports a positive relationship between religiosity and psychological wellbeing of a sample of Canadian seniors. Finally, Frankel and Hewitt (1994) corroborate a positive correlation between inward religiosity and wellbeing outcomes of a sample of Canadian university students. Against this background, this paper presents a comprehensive set of SWB results that allow for comparisons across different dimensions of religiosity, and among linguistic and religious groups in Canada.

3 Data and Descriptive Statistics

The dataset used in this study is the Ethnic Diversity Survey (EDS hereafter) of Statistics Canada, collected in 2002, by random-digit dialing phone interviews (Statistics Canada 2003). This dataset is a survey of 41,695 male and female legal residents of Canada, aged between 15 and 65. The EDS records the respondents' labour market status, yearly earnings as well as hours worked per year, allowing for the computation of wage. The highest level of education attained is recorded for the respondent, her parents, and if applicable her spouse. Additionally, the survey includes more than 300 questions covering respondents' religious involvement, ethnic background, and a wide array of socioeconomic attitudes and behaviour. These features of the EDS make it the latest and most comprehensive dataset available for the purpose of this investigation. The variables used in this paper are listed and defined in Table 1. The note to Table 1 provides a link to the on-line information page of Statistics Canada regarding the EDS. This page also contains more details on the data collection methodology employed by Statistics Canada.

The descriptive statistics extracted from the EDS are presented in Tables 2 and 3. As shown in Table 2, self-reported Catholics constitute 42% of the sample followed by Protestants at about 27%. The respondents of no religious affiliation, termed religious nones, constitute 16% of the sample. The minority religions considered, Judaism and Islam, are close in size, with <2% share. The group "Other religions" is comprised of all remaining faiths.

This survey contains standardized questions used for measuring degree of religiosity in research, inviting respondents to (1) rank the *importance of religion* in their lives, from 1 for not important at all to 5 for very important; (2) report their frequency of religious practice with a group of people of the same faith (termed *Religious attendance*); (3) report their frequency of religious practice individually (termed *private-worship*). For the two questions related to the frequency of religious practice, respondents must select their degree of involvement from 5 predetermined categories. In the EDS, the first category pertains to weekly attendance (52 times a year) while it falls to monthly involvement for the second, and 3 times a year in the third category. This non-linearity is corrected using the rescaling approach proposed by Sander (2002).[1] In order to have an indicator of overall degree of religiosity of a respondent, a Composite Religiosity Index (CRI hereafter) is constructed by adding the scores of the three above-mentioned questions. For the religious practice questions, rescaled and recalibrated numbers are used, and the value of 0 is attributed to religious nones. As such, the CRI varies between 0 and 15.

As reported in Table 2, the mean CRI score is 6.40 for the entire sample, inclusive of religious nones (7.40 for the affiliated). Muslims rank first among the religious groups in all religiosity indicators, while Jews score the lowest. Not reported in the tables, the EDS data shows that despite the *Quiet Revolution* of the 1960s, religious affiliation is substantially higher for French Canadians compared to the rest of the country. Only 5.9% of francophones are religiously unaffiliated, against 21.0% of anglophones and 15.3% of allophones (the respondents whose mother-tongue is neither English nor French, mainly immigrants). With just below 88% Catholic, French Canadians' mean CRI score is 6.5,

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[1] Sander (2002) maps the predetermined General Social Survey categories to a quantitative measure as follows: never equals 0; less than once a year equals 0.5; about once or twice a year equals 1; several times a year equals 3; about once a month equals 12; two to three times per month equals 30; nearly every week equals 40; and every week or more often equals 52. After rescaling the responses to these questions, they are recalibrated to vary between 0 and 5.

Table 1 Definitions of main variables

Variable	Definition
Importance of religion	The EDS question is framed as: "Using a scale of 1 to 5, where 1 is not important at all and 5 is very important, how important your religion is to you?". "Not applicable" is recorded for respondents of no religious affiliation (religious nones)
Religious attendance	The EDS question is framed as: "In the past 12 months, how often did you participate in religious activities or attend religious services or meetings with other people, other than for events such as weddings and funerals?". "Not applicable" is recorded for respondents of no religious affiliation (religious nones)
Private-worship	The EDS question is framed as: "In the past 12 months, how often did you do religious activities on your own? This may include prayer, meditation and other forms of worship taking place at home or in any other location". "Not applicable" is recorded for respondents of no religious affiliation (religious nones)
CRI	Composite Religiosity Index, varying between 0 and 15, constructed by adding the rescaled ranking numbers of religiosity measures defined in the above
SWB	The EDS question on SWB is framed as: "Using a scale of 1 to 5, where 1 means not satisfied at all and 5 means very satisfied, all things considered, how satisfied are you with your life as a whole, these days?"
Very-satisfied	A dichotomous variable taking the value of 1 for respondents who self-report at the highest level of SWB scale, described in the above, and 0 otherwise
Trust	A dichotomous variable that takes the value of 1 for respondents who choose the first alternative of the EDS question "Generally speaking, would you say that most people can be trusted or that you cannot be too careful in dealing with people?," and 0 otherwise
Social-networking index	Varying between 0 and 4, standing for the number of social groups the respondent is a member, as recorded in the EDS
Social participation	Varying between 0 (for never) to 52 (for at least once a week), capturing the frequency of taking part in the events related to the social clubs in which the respondent is a member, whose total number is recorded in the above variable (Social-networking Index)
Charity club	A dichotomous variable taking the value of 1 if the respondent is a member of a charity club, and 0 otherwise
Religious club	A dichotomous variable taking the value of 1 if the respondent is a member of a religious club, and 0 otherwise
Allophone	A dichotomous variable taking the value of 1 for the respondents whose mother tongue(s) neither is (includes) French nor English; and 0 otherwise
Francophone	A dichotomous variable taking the value of 1 if the respondent's mother tongue is French, and 0 otherwise
Immigrant	A dichotomous variable taking the value of 1 for "Not a Canadian-born," where a Canadian born is defined as an individual either born in Canada or born outside Canada from Canadian parents, and 0 otherwise
Visible minority	A dichotomous variable taking the value of 1 for "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour" (definition of Employment Equity Act of Canada), and 0 otherwise
Education	Years of schooling of the respondent
Father's education	Years of schooling of the respondent's father
Mother's education	Years of schooling of the respondent's mother
Belonging to North America	Respondents' ranking, from 1 (for the weakest) to 5 (for the strongest), of the feeling of belonging to North America

Table 1 continued

Variable	Definition
Belonging to Canada	Respondents' ranking, from 1 (for the weakest) to 5 (for the strongest), of the feeling of belonging to Canada
Belonging to the Province	Respondents' ranking, from 1 (for the weakest) to 5 (for the strongest), of the feeling of belonging to the province of residence.
Belonging to the City	Respondents' ranking, from 1 (for the weakest) to 5 (for the strongest), of the feeling of belonging to the city of residence
Belonging to the Ethnic Group	Respondents' ranking, from 1 (for the weakest) to 5 (for the strongest), of the feeling of belonging to her/his ethnic group
Belonging to family	Respondents' ranking, from 1 (for the weakest) to 5 (for the strongest), of the feeling of belonging to her/his family
Religious none	A dichotomous variable taking the value of 1 for respondents who report "No Religious Affiliation." It includes Agnostic, Atheist, Humanist, Personal Faith, Free Thinker, and Spiritual
Catholic	It includes the following Christian denominations: Roman Catholic, Ukrainian Catholic, Polish National Catholic Church, Other Catholic
Protestant	It includes the following Christian denominations: Anglican, Baptist, Lutheran, Mennonite, Pentecostal, Presbyterian, United Church, Other Protestant
Other religion	Other religions/denominations including for instance: Buddhism, Hinduism, Sikhism, Other Eastern religions, and Other Christian denominations such as Orthodox
Jewish	All Jewish denominations
Muslim	All Muslim denominations
Locations	Toronto, Montréal, Vancouver, Other Metropolitan Areas, Non Metropolitan Areas

Data source is the Canadian Ethnic Diversity Survey, made available by Statistics Canada. For more information, see http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=4077

Table 2 Descriptive statistics: mean (SD) of religiosity indicators by religious group

	Population (%)	SWB Level (0–5)	Very-satisfied (%)	Importance of religion (0–5)	Private-worhsip (0–5)	Religious attendance (0–5)	CRI (0–15)
Religious none	16.2	4.1 (0.9)	36.9	0	0	0	0
Catholic	41.5	4.3 (0.9)	48.9	3.5 (1.4)	2.7 (2.3)	1.5 (2.1)	7.7 (4.5)
Protestant	27.2	4.8 (0.8)	49.2	3.5 (1.4)	2.6 (2.4)	1.6 (2.1)	7.7 (4.9)
Jewish	1.0	4.2 (0.8)	42.8	4.0 (1.2)	2.0 (2.3)	1.2 (1.7)	7.2 (4.1)
Muslim	1.6	4.2 (0.9)	48.0	4.1 (1.26)	3.3 (23)	1.8 (2.2)	9.3 (4.7)
Other Religion	12.5	4.2 (0.9)	38.9	3.20 (2.0)	2.6 (24)	1.5 (2.1)	7.2 (5.5)
Sample	100	4.3 (0.9)	45.7	2.9 (1.9)	2.2 (2.4)	1.3 (2.0)	6.4 (5.3)

If applicable, standard deviations are reported in parentheses below the means. Sample size is 41,695. Sample weights are applied. Data source is the Ethnic Diversity Survey of Statistics Canada

Table 3 Descriptive statistics: mean (SD) of socioeconomic indicators by religious group

	Wage (C$)	Self-employed (%)	Age (Years)	Francophone (%)	Immigrant (%)	Education (Years)	Bachelor (%)
Religious none	21.5 (11.2)	11.3	38.2 (14.4)	8.3	24.5	13.6	26.2
Catholic	20.3 (10.7)	8.7	43.4 (14.9)	48.0	18.3	13.2	22.3
Protestant	21.6 (11.1)	8.8	47.3 (14.9)	1.2	15.7	13.2	21.3
Jewish	25.9 (13.4)	20.4	44.9 (16.4)	4.1	39.3	15.4	51.4
Muslim	19.1 (12.1)	7.3	36.3 (13.0)	3.1	90.1	14.5	42.9
Other Religion	19.9 (9.8)	9.2	38.8 (15.3)	8.4	41.5	12.4	24.3
Sample	20.8 (10.9)	9.4	43.0 (15.3)	22.7	22.8	13.2	23.6

If applicable, standard deviations are reported in parentheses below the means. Sample size is 41,695. Sample weights are applied. Age and Education are in years. Data source is the Ethnic Diversity Survey of Statistics Canada

against 6.0 for anglophones. Bibby (1990, 2007) notes that Québecers observe their Catholicism *à la carte*, meaning that from the menu of what religion entails, they retain the parts they like, and reject the rest. This conception of religious commitment might be behind the high level of religious affiliation in Québec compared to the rest of Canada, despite the lowering rate of religious attendance in this province (Bibby 2011; Eagle 2011).

The dependant variable used in this paper is extracted from the following question: "Using a scale of 1–5, where 1 means not satisfied at all and 5 means very satisfied, all things considered, how satisfied are you with your life as a whole these days?". As reported in Table 2, SWB self-reports are heavily skewed towards the highest level for all groups, with more than 45% of the Canadians considering themselves very satisfied with their lives. Religious nones score appreciably lower than all other groups as well as the sample mean, followed by Jews.

Table 3 reports the sample means of control variables for which sizable, statistically significant, differences across religious groups are detected. As shown in this table, hourly wage substantially differs across faiths, with Jews (Muslims) being the highest (lowest) earning group. Years of schooling also non-negligibly varies across religious groups. Jews have the highest educational attainment, followed by Muslims. We also detect sizable discrepancies in the age structure of Canadian population when it is divided into religious groups. Muslims are the youngest (35 years) and Protestants are the oldest (47 years) subpopulations. The age-structure discrepancy is likely caused by religious composition of immigrants to Canada in recent decades, majored by differentiated fertility rates among the groups. The percentage share of immigrants is the highest for Muslims (90.1%) and the lowest for Protestants (15.7%). Catholics have the largest share of francophone (48%) and Protestants the lowest (1.2%). The data also reveals notable differences among religious groups in self-employment, most prevalent among Jews and least common among Muslims. These indicators have been used in the regressions as controls, in combination with an array of other validated correlates of SWB.

4 Methodology

To estimate the association between degree of religiosity and SWB, a standard wellbeing function is augmented by religiosity indicators:

$$\Pr(Very\, satisfied = 1 | Z) = h\big(\beta_0 + X\beta + \delta_j R_j + \varepsilon\big) \tag{1}$$

Since the distribution of the values of SWB is heavily skewed towards the highest level, the dependent variable is dichotomized. The variable "Very-satisfied" is constructed to take the value of one for respondents who score the highest (numerical level of five) on the SWB scale. The equations, therefore, are estimated using Probit (Aldrich and Nelson 1984). The Matrix X includes all the controls, and ε is the error term. The religiosity indicators, denoted by R_j, are: (1) being religiously affiliated; (2) importance of religion; (3) frequency of private-worship; (4) frequency of religious attendance; (5) the CRI. The dummy for the religiously affiliated is retained when other indicators are included in the regressions. In this set of estimations, all religious groups are pooled. Equation (1) is also estimated incorporating all dimensions of religiosity at once.

In the Matrix X, a dummy variable is included to control for trust. A social networking index is created to account for the number of social clubs the respondent attends. Two extra dummies control for religious and charitable club memberships. Another variable captures the frequency of respondent involvement in these social clubs, deemed important for SWB (Helliwell and Putnam 2004). The EDS includes a set of six questions inviting the respondents to rank their feeling of belonging, from 1 to 5 in increasing magnitude of strength, to: (1) their family; (2) their ethnic group; (3) their city of residence; (4) their province of residence; (5) Canada; (6) North America. The responses to all these six questions are included in the regressions. Additionally, labour force participation, marital status, number of children present in the household, belonging to visible minority groups, linguistic group, and parental education are controlled for, in the regressions. Household income is weighted by household size to account for less than proportionate increase in the costs resulting from additional members, as done in Clark and Lelkes (2006). The control variables are exhaustively listed as note to the tables.

The by-group differential in SWB is investigated next. In Eq. (2) dichotomous variables, denoted by I_i, are included for Catholics, Protestants, Jews, Muslims, and Other religions, leaving religious nones as the omitted category:

$$\Pr(Very\, satisfied = 1 | Z) = h\left(\beta_0 + X\beta + \sum_{i=1}^{5} \big(\delta_1^i I_i\big) + \varepsilon\right) \tag{2}$$

Finally, in Eq. (3), the correlation between degree of religiosity and SWB is allowed to vary by religious group. In order to do so, the dummies of the five religious groups, I_i, are interacted with the three dimensions of religiosity, R_j. The resulting variables are included simultaneously, in addition to group dummies, in the equation:

$$\Pr(Very\, satisfied = 1 | Z) = h\left(\beta_0 + X\beta + \sum_{i=1}^{5} \big(\delta_0^i I_i\big) + \sum_{i=1}^{5}\sum_{j=2}^{4} \delta_1^i \big(I_i \times R_j\big) + \varepsilon\right) \tag{3}$$

Table 4 Probit estimation; dependent variable: binary state of being very-satisfied with life

Indicator[a]	(1)	(2)	(3)	(4)	(5)	(6)
Affiliated	0.104***	−0.062	0.110***	0.073**	0.046	−0.057
	(0.031)	(0.045)	(0.034)	(0.032)	(0.037)	(0.046)
Importance of Religion	–	0.052***	–	–	–	0.063***
		(0.010)				(0.012)
Private-worship	–	–	−0.002	–	–	−0.026***
			(0.006)			(0.007)
Religious attendance	–	–	–	0.025***	–	0.017**
				(0.006)		(0.008)
CRI	–	–	–	–	0.009***	–
					(0.003)	
Selected controls						
Education	−0.012***	−0.012***	−0.012***	−0.012***	−0.012***	−0.011***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Income	0.081***	0.090***	0.080***	0.084***	0.086***	0.088***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Immigrant	0.162***	0.167***	0.162***	0.164***	0.164***	0.167***
	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
Francophone	0.236***	0.244***	0.237***	0.240***	0.238***	0.251***
	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
Trust	0.122***	0.125***	0.122***	0.121***	0.122***	0.125***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Female	0.070***	0.056**	0.071***	0.067***	0.061**	0.067***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Belonging to the City	0.097***	0.093***	0.097***	0.095***	0.095***	0.093***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Constant	−1.721***	−1.775***	−1.719***	−1.768***	−1.753***	−1.795***
	(0.230)	(0.230)	(0.230)	(0.230)	(0.230)	(0.230)
Pseudo-R^2	0.0655	0.0671	0.0656	0.0664	0.0660	0.0681

The sample size is 31,683. Sample weights are applied. Heteroscedasticity robust standard errors are reported in the parentheses below the coefficients. The sign * means under 10% level of significance while ** stands for under 5% and *** for under 1%. The set of suppressed explanatory variables are: age, age-squared, parents' education, social networking index and social participation, strength of belonging to North America, Canada, the province of residence, the ethnic group and family, if applicable the number of children, and dummies for being married, labour-force participation, being a self-employed, visible minority status, allophone, membership in charity and religious clubs, as well as locations. Data source is the Ethnic Diversity Survey of Statistics Canada. The estimations are made using STATA

[a] The religiosity indicators used in the columns are: (1) Dummy for the affiliated; (2) Importance of religion; (3) Private-worship; (4) Religious attendance; (5) Composite Religiosity Index (CRI); (6) Indicators (1) to (4) at once

5 Results

Table 4 contains the results of six Probit estimations, in accord with Eq. (1). Column (1) only considers the affiliation status. In Columns (2)–(5), the continuous religiosity indicators are incorporated one at a time, in addition to the dummy for the religiously affiliated. In Column (6), the three survey measures of religious commitment are included at once. Note that the tables show Probit coefficients, while throughout the text, the corresponding

marginal probabilities are reported and discussed.[2] The marginal probability computed based on the coefficient reported in Column (1) indicates that a religiously affiliated individual is 4% more likely to be very-satisfied with her life compared to an otherwise identical individual. According to Column (2), an average commitment to the belief-related dimension of religiosity, importance of religion, predicts 2.1% increase in the likelihood of self-reporting very-satisfied with life. If the frequency of private-worship acts as the sole indicator of religiosity, no statistically significant association is detected. The frequency of religious attendance evaluated at its sample mean, on the other hand, increases the likelihood of self-reporting very-satisfied by about 1%. Given the correlation of different dimensions of religiosity with each other, these estimates are likely affected by the omitted variable bias. The regressions reported in Columns (5) and (6) account for all aspects of religious involvement in the same regression.

Column (5) uses the CRI as the explanatory variable, which at the sample mean predicts only 0.3% increase in the likelihood of self-reporting very-satisfied with life ($\beta = +0.009$). This estimate is largely below those reported in Columns (1) to (3), in which religiosity is reduced to a single item. This finding suggests that partial correlations of different aspects of religiosity with SWB may have opposing signs. The regression reported in Column (6) simultaneously incorporates all dimensions of religiosity, revealing the relative importance of each aspect. All coefficients are found to be statistically significant. The marginal effect of the belief-related dimension (importance of religion) is revealed to be 2.5% increase in the likelihood of the outcome while the behavioural aspects (religious attendance and private-worship) have almost identical magnitudes but in opposite directions, nullifying each other.

The regressions reported in Table 4 produce evidence that different dimensions of religiosity do not have the same pattern of association with the predicted value of SWB. Importantly, they illustrate the perils of reducing religiosity to a single indicator and generalizing the uncovered impact, often done in the SWB literature. As Column (6) shows, private-worship has a negative association with SWB. A plausible interpretation of the negative sign of the private-worship coefficient ($\beta = -0.027$) is that respondents less satisfied with their lives may resort to prayer more often than others. Another notable finding is the very small magnitude of the coefficient on religious attendance ($\beta = +0.017$), compared to the belief dimension ($\beta = +0.063$). The regression of Column (6), interestingly, reveals that the abstract dimension of religiosity, importance of religion, is the sole driver of the overall positive association between religiosity and SWB, uncovered in Column (5).

The controls included in the regressions (some suppressed in the tables to save space) had generally the expected signs and magnitudes. Education is found to be negatively correlated with the likelihood of self-reporting at the highest level of SWB. Household income is a statistically significant and moderately important predictor of SWB. Being married is a non-negligible predictor of the highest SWB level. Trusting attitude is found to be a strong positive predictor of self-reporting very-satisfied with life. Social capital variables, proxied by the degree of belonging to different layers of social surroundings, are also generally found to be positively correlated with SWB. A notable result is that being a French Canadian increases the likelihood of self-reporting very-satisfied with life by about 10%, holding all other variables, including the degree of religiosity, constant. In his study

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[2] Dividing a Probit coefficient by 3 provides an approximation for its associated marginal probability. If the dependent variable is not a dummy, e.g. Importance of Religion, the reported marginal effect is evaluated for the sample mean (sample mean × marginal probability).

Table 5 Probit estimation, dependent variable: being very-satisfied with life by linguistic group

Indicator[a]	(1)	(2)	(3)	(4)	(5)	(6)
Francophone	0.463***	0.256***	0.264***	0.256***	0.26***	0.256***
	(0.117)	(0.080)	(0.080)	(0.080)	(0.080)	(0.080)
Affiliated × Francophone	−0.242**	−0.001	−0.049	−0.066	−0.024	−0.003
	(0.118)	−0.093	−0.083	−0.081	−0.086	−0.095
Affiliated	0.128***	−0.026	0.079***	0.058***	0.038	−0.02
	(0.032)	−0.031	(0.023)	(0.022)	−0.025	−0.032
Importance of religion × francophone	–	−0.023	–	–	–	−0.014
		−0.015				−0.018
Importance of religion	–	0.033***	–	–	–	0.037***
		(0.007)				(0.009)
Private-worship × francophone	–	–	−0.016**	–	–	−0.009
			(0.008)			−0.01
Private-worship	–	–	0	–	–	−0.015***
			−0.004			(0.005)
Religious attendance × francophone	–	–	–	−0.011	–	−0.001
				−0.01		−0.012
Religious attendance	–	–	–	0.018***	–	0.012**
				(0.004)		(0.005)
CRI	–	–	–	–	0.006***	–
					(0.002)	
CRI × Fr.	–	–	–	–	−0.009**	–
					(0.004)	
Constant	−1.717***	2.226***	(0.157)	2.232***	2.239***	2.214***
	(0.230)	(0.156)		(0.157)	(0.157)	(0.156)
R²		0.11	0.11	0.11	0.11	0.12

The sample size is 31,683. Sample weights are applied. Heteroscedasticity robust standard errors are reported in the parentheses below the coefficients. The sign * means under 10% level of significance while ** stands for under 5% and *** for under 1%. The set of suppressed explanatory variables are: age, age-squared, parents' education, social networking index and social participation, strength of belonging to Canada, the province of residence, the ethnic group and family, if applicable the number of children, and dummies for being married, labour-force participation, being a self-employed, visible minority and immigrant status, membership in charity and religious clubs, as well as locations. Data source is the Ethnic Diversity Survey of Statistics Canada. The estimations are made using STATA

[a] The religiosity indicators used in the columns are: (1) Dummy for the affiliated; (2) Importance of religion; (3) Private-worship; (4) Religious attendance; (5) Composite Religiosity Index (CRI); (6) Indicators (1) to (4) at once

of the time-trend of SWB across Canadian provinces, Barrington-Leigh (2013) suggests that the rise in the SWB level of the francophone Québec may have resulted from its *Quiet Revolution* of the 1960s, characterised by the liberalisation of mores and the decline of the Catholic Church. This assertion points to a possible pattern of negative association between religiosity and SWB, for French Canadians. The accuracy of this hypothesis is tested in this paper, and the results are reported in Table 5.

As Column (1) of Table 5 confirms, francophones are appreciably more likely to self-report very-satisfied with life. However, an affiliated francophone is about 9% less likely to self-report very-satisfied with life compared to an unaffiliated francophone, evident from the large negative coefficient on the variable "Affiliated × Francophone" ($\beta = -0.242$). In Columns (2) to (6) of Table 5, all religiosity indicators are interacted with the dummy for

Table 6 Probit estimation, dependent variable: being very-satisfied with life by religious group

	Catholic	Protestant	Jewish	Muslim	Other religion
Regression 1: Religious affiliation only					
Dummies	0.110***	0.108***	0.007	0.154*	0.078*
	(0.035)	(0.036)	(0.087)	(0.083)	(0.043)
N = 31,683	$R^2 = 0.066$				
Regression 2: Religious affiliation and religious intensity					
Dummies	−0.054	−0.098	0.065	−0.366	−0.002
	(0.063)	(0.071)	(0.277)	(0.255)	(0.086)
Importance of religion	0.065***	0.080***	−0.032	0.208***	0.026
	(0.018)	(0.023)	(0.072)	(0.073)	(0.026)
Private-worship	−0.027***	−0.030***	0.024	−0.085*	−0.006
	(0.009)	(0.012)	(0.044)	(0.044)	(0.018)
Religious attendance	0.016	0.019	0.042	−0.021	0.012
	(0.011)	(0.014)	(0.059)	(0.038)	(0.018)
N = 31,683	$R^2 = 0.069$				

Two regressions are reported in this table. Sample weights are applied. Heteroscedasticity robust standard errors are reported in the parentheses below the coefficients. The sign * means under 10% level of significance while ** stands for under 5% and *** for under 1%. In Regression 1, only dummies indicating religious group are employed. In Regression 2, the interaction terms of all dimensions of religiosity with group dummies are included, in addition to religious preference dummies

The set of suppressed explanatory variables, common to both regressions, are: age, age-squared, education, parents' education, income, social networking index and social participation, strength of belonging to North America, Canada, the province and the city of residence, the ethnic group and family, if applicable the number of children, and dummies for female, being married, labour-force participation, being a self-employed, visible minority and immigrant status, membership in religious and charity clubs, trust, linguistic group, as well as locations. Data source is the Ethnic Diversity Survey of Statistics Canada. The estimations are made using STATA

francophone. All interaction terms turn up with negative coefficients, though some are not statistically significant at conventional levels. As Column (5) indicates, the partial correlation of the CRI, proxying the overall degree of religious commitment, is statistically significant and negative for the francophones ($\beta = -0.009$), and positive for the rest of the country ($\beta = +0.006$).

Table 6 explores how the association of religiosity with SWB varies across religious groups. The upper panel of Table 6 shows the results of the estimation of Eq. (2), that is, a regression incorporating dummies for the five religious groups of Catholic, Protestant, Muslim, Jewish, and Other Religions, leaving religious nones as the omitted category. The results indicate that if religiosity is reduced to affiliation status, belonging to the groups Catholic or Protestant increases the likelihood of self-reporting very-satisfied with life by equal measures, compared to the unaffiliated. Being a Muslim is a stronger predictor of the same outcome, while Jews are revealed to be no different from the omitted category, religious nones.

The lower panel of Table 6 reports the estimate results of Eq. (3), in which all dimensions of religiosity are included simultaneously and separately for each group. Therefore, these results can be used to compare the relative importance of each dimension of religious commitment across religions. The inclusion of the religiosity indicators swallows the impact of religious identity dummies, which all turn up statistically insignificant. This table confirms that in Canada, regardless of religious group, the belief-

related dimension of religiosity (importance of religion) is the main positive predictor of self-reporting very-satisfied with life. Private-worship turns up with a negative sign for all religious groups except for Jews, for whom no indicator is statistically significant. The same explanation of a possible reverse causation must be reiterated here. The coefficients on religious attendance are no longer statistically significant, for any of the religious groups.

Identical equations are estimated, replacing the dichotomous dependent variable with the ranking numbers of SWB, and Ordered Logit methodology. As no major new insight resulted from these regressions, they are not reported in this paper. These estimations are available upon request.

6 Discussion

The positive association of religiosity with an array of wellbeing outcomes has been previously reported in the literature (Ellison and Levin 1998). The extant contributions, however, scantily produce results which allow for the comparison of the relative importance of each dimension of religiosity for wellbeing outcomes. In fact, most of the previous studies have focused on religious attendance, probably owing to the ease of its measurement and data availability. As a result, theoretical contributions regarding the inherent benefits of religiosity and its channels of impact on wellbeing outcomes, are also often formulated based on this dimension of religiosity (Krause 2008). Across the literature, the evidence for the positive SWB impact of religious attendance is much stronger than what exists regarding personal and private aspects of religiosity (Shor and Roelfs 2013). For instance, Lim and Putnam (2010), conducting an empirical analysis with US data, conclude that religious people have higher SWB levels because "they regularly attend religious services and build social networks in their congregations." They state that there is little evidence for positive SWB impact of private or subjective aspects of religiosity, independent from religious attendance and congregational friendship, in the United States.

The present paper considered all the three dimensions of religiosity and produced estimates which allow for the comparison of their relative importance for SWB in Canada. The analysis found that among the three dimensions of religiosity, the belief-related aspect, *importance of religion*, is the main positive influence, with a much stronger association compared to religious attendance. The much slighter contribution of religious attendance to SWB in Canada, relative to the belief dimension, is at odds with the findings reported in Lim and Putnam (2010) for the USA, where religious attendance rates are generally higher than in Canada (Brenner 2016). These patterns are consistent with the strand of scholarship that sees religious attendance as a club-good with positive return to participatory crowding (Iannaccone 1992). According to this view, the benefit a churchgoer draws from religious attendance depends not only on her own involvement, but also on the presence of other coreligionists, and their engagement with the ceremony. A society-wide decline in religious participation, thereby, is likely to negatively impact its benefit to the remaining churchgoers. The statistics reported in Table 2 show that religious attendance scores are the lowest among the three dimensions of religiosity, in Canada. In fact, a protracted fall in the Canadian religious attendance rates is documented in the past scholarship (Bibby 2011; Eagle 2011). The slight contribution of religious attendance to SWB in Canada may reflect this documented lack of vibrancy.

Canada is a multicultural country with two official languages. The extent of secularisation, manifested through the attitude toward religion and its accommodation in the public sphere, is one of the main areas the francophone Québec differs from the English speaking rest of Canada (Lefebvre and Beaman 2014; O'Neill et al. 2015).[3] The puzzling rise in the SWB levels in Québec, in spite of its lower mean income and trust score, has been previous reported (Barrington-Leigh 2013). Although no definitive cause has been thus far found for this trend, it has been noted that the rise in the SWB levels in Québec coincides with the decline of religion in this province. The analysis done in this paper showed that religiosity is currently a negative predictor of SWB for the francophones, while the reverse is true for the rest of the country. This finding is best explained by the culture-person congruence thesis, according to which people who possess the characteristics valued in their culture tend to be happier (Diener et al. 2003; Tov and Diener 2013). The negative association of religiosity with the SWB of francophones is reminiscent of the study by Diener et al. (2011) in which they use cross-country and US data to test the culture-person congruence thesis. They report that in very religious nations and states of the United States, religious people report higher SWB than irreligious people, while no difference is found for the least religious nations and US states. The society-driven nature of the decline of religion in Québec during its *Quiet Revolution* seems to have made high degrees of religious commitment a minority trait, hence a negative predictor of SWB in this province. The persistence of affiliation with the Catholic Church in Québec seems best interpreted as pertaining to the population's cultural identity, in a similar manner as for Canadian Jews.

The analysis, interestingly, revealed that the association of religiosity with SWB is stronger for Muslims compared to Christians, and statistically insignificant for Jews, in Canada. As the descriptive statistics in Table 2 reveal, Canadian Jews exhibit a lower religious intensity, compared to other religious groups. Taken together with the results reported in Table 6, the present investigation provides evidence that self-identifying as Jewish may uniquely have an ethnic or cultural significance for a large portion of Canadian Jews. For Muslims, most of whom are born outside Canada, the finding is in line with previous reports suggesting that religious involvement positively contributes to the wellbeing of immigrants (Harker 2001; Whittaker et al. 2005). Affiliation with Islam is reported to be subject to stigma in Europe (Saroglou and Mathijsen 2007). Strong commitment to a stigmatized religious group is suggested to become an additional barrier to an immigrant's acculturation to the host country, thus negatively impact self-esteem and exacerbate depressive symptoms (Friedman and Saroglou 2010). The analysis done in this paper, informative about the Canadian context, does not produce any evidence congruent with these studies.

The limitations of this paper should be noted. First, while it is conceivable that religious nones may have some involvement in religion or spirituality, the current data only covers religious involvement of the affiliated. Religious nones are excluded from religious intensity questions under the assumption of their absence of involvement. This shortcoming of the data, eliminates the possibility of finer categorization among religious nones.

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[3] The latest manifestation of this difference was the proposition of the Québec Charter of Values, a provincial bill introduced by the governing Parti Québécois in 2013. It intended to define the limits of religious reasonable accommodation in Québec. There was much controversy in Québec and elsewhere about the Charter, especially its proposed prohibition of public sector employees from wearing or displaying "conspicuous" religious symbols. According to the bill, relatively discreet items such as a finger ring, earring or small pendants bearing a religious symbol would be allowed, while more obvious items such as a kippah, turban, head scarf, and larger crosses and religious pendants would be prohibited. The bill died on the order paper as of March 5, 2014 (see O'Neill et al. 2015).

Second, the dataset used in this paper, though the latest of its kind, is slightly dated. The conclusions drawn about Christian denominations, which are predominantly composed of the Canadian-born, are expected to remain the same. However, some quantitative changes are likely for non-Christian groups, owing to the changes in the composition of immigrants to Canada, as well as religious nones, a group growing via cohort replacement.

7 Concluding Remarks

The relationship between religiosity and SWB has not been studied for Canada, since the paper by Gee and Veevers (1990), which only proceeds to bivariate analysis. The multivariate investigation documented in this paper has uncovered a number of interesting patterns. Considering all dimensions of religiosity separately and simultaneously, it is found that the abstract and belief-related dimension of religiosity, importance of religion in one's life, is the main responsible for the overall positive, though small, correlation between religious commitment and SWB, in Canada. The correlation between religious attendance and SWB is found to be small and positive. It is more than offset by the negative association of the other behavioural dimension, private-worship. The impact of religiosity is also compared across religious groups. It is found that the association of religiosity with SWB is very similar for Catholics and Protestants; it is more pronounced for Muslims; and it is non-existent for Jews. Another intriguing finding is the overall negative association between religiosity and SWB for French Canadians.

The scientific understanding of the underlying motivations of religiosity is increasingly important. With the growing presence of religious minorities in the West, future research can use the approach taken in this paper, investigating the impact of religiosity on SWB by religious and linguistic group, for other countries. Given the burgeoning interest in using SWB research to steer socioeconomic policies, such studies can contribute to the scholarship of various disciplines.

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