

A public, open, and independently-curated database of happiness coefficients

C. P. Barrington-Leigh,* E. Lemermeier

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Abstract

We report the construction of a nascent database of happiness coefficients, that is a synthesis of evidence on the size of improvements to human life experience, measured as self-reported satisfaction with life, that can be expected from changing objective, policy-amenable circumstances. The wealth of data on people's lives in a wide variety of circumstances within Canada and internationally, including respondents undergoing a diversity of changes and life events, and subject to a variety of public policies and policy changes, has provided a rich base of knowledge about what makes life good. This growing research literature has in recent years been met with interest from central governments looking for accountable but more human-centred approaches to measuring progress, communicating objectives, making policy, and allocating resources. Meanwhile, frameworks for benefit-cost accounting using inference from life satisfaction data have been devised, and in some cases central government Finance departments and Treasuries are incorporating this approach into their formal methodology for budgeting. Partly because exclusion restrictions relating to all-encompassing life satisfaction are hard to support, the body of causal inference about these effects is still somewhat diffuse. Collating, reviewing, and synthesizing such evidence is an important task and should likely be led initially by academia and ultimately by a broad academic, civil society, and government collaboration. In this vein, we report on the assembly of a database of summary estimates focused on studies using Canadian data, supplemented where needed by evidence from around the world. The domains of individual experience and circumstances comprising this initial effort include Education, Environment, Work, Finances, Health, Social Capital, and Crime. The paper also explains the context for and limitations of the use of a database of happiness coefficients.

*To whom correspondence should be addressed; see wellbeing.research.mcgill.ca. Also, you can find the latest version of [this manuscript online](#).

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1 Precedent databases

As governments strive to establish new and updated frameworks for the evaluation and planning of programs, policies, and budgets based on modern evidence about human well-being, some new institutions will be needed (Barrington-Leigh, 2021). This paper (1) suggests some principles for the curation of growing knowledge about what makes for a good life, and happy societies; (2) provides a fledgling sample of what a database of such research findings might look like; and (3) articulates some important limitations on how such knowledge can be used in policy making.

Reviews of econometric studies of happiness¹ have in several instances compiled summary effect sizes into tabular form, in which the existing evidence on several different influences on life satisfaction are brought together (Clark, Flèche, et al., 2019, online Annexes 2–5).

Frijters, Clark, et al. (2020) describe a process by which the UK might maintain an authoritative list of the best available estimates for any given influence on wellbeing. Frijters, Clark, et al.’s description may represent an overly-frequentist conception of filtering and aggregating evidence, but they emphasize the importance of moving towards transparency in however the updating of the database is carried out. Barrington-Leigh (2021) similarly advocates for a process to debate and distill knowledge about the relationship between policy-influenced variables and human experience, in an accountable and ongoing process, but suggests that this be led initially by the analytic community, rather than initially by government with a transition towards more independence over time.

2 Principles for curation

In what follows, we dub the database of such knowledge a *Database of Happiness Coefficients (DoHC)*, and the public body tasked with curating it a Wellbeing Knowledge Centre (WKC). We propose the following principles for a WKC and *DoHC* to support policy making in Canada:

1. The *DoHC* should be curated independently or at **arms-length** from government. All findings should be made available to government agencies and to the public.

While the knowledge embodied in the *DoHC* will never be sufficient to dictate policies (see section §4), it must be available to the public and to public and private organizations in order to help to push government to adopt a more evidence- and human- oriented policy making approach.

2. The WKC must strive for maximum **transparency** of its methods, including the criteria for selection and integration of studies.

A possible productive service for the WKC would be to host an ongoing open review process of all research articles used to build the *DoHC*.

3. The WKC must always embrace an **openness to revision** of the database.

Core to the *DoHC* are evaluations of the degree of confidence in causal inferences behind each coefficient. Future evidence will continuously revise and deepen the *DoHC*.

¹Throughout this paper, ‘happiness’ can be taken to mean the set of subjective wellbeing measures that are used to gauge overall quality of life, most prominent and important among them being respondents’ own numerical evaluation of their level of satisfaction with life, obtained through a single survey question (OECD, 2013).

4. The *DoHC* should be designed to inform calculations about the expected **distribution of wellbeing**.

Most frequentist statistical models in use in this field focus on estimating mean values of wellbeing, or use strong distributional assumptions, but these will ultimately prove inadequate to inform policy choices, which will be based on the full predicted distributions of wellbeing outcomes. That is, policy makers will want to consider both the univariate distribution of (for instance) SWB, and multivariate distributions along standard dimensions of disadvantage, oppression, and inequality.

5. The *DoHC* should target content to **support the needs of planners** and decision makers.

Explanatory variables (predictive factors) in academic models are often chosen based on (a) their hypothesized importance in accounting for variance in happiness, or (b) simply on their availability, or (c) on being able to show or argue that their variation constitutes or contains a natural experiment of some kind. In order to be useful to decision makers and community planners, estimates will instead need increasingly to focus on the effects caused by objective, policy-amenable outcomes. One may therefore expect initially many knowledge gaps in the *DoHC*. The WKC may need to help direct resources to fill those gaps.

6. The *DoHC* should be constructed so as to allow for **hierarchically-sourced evidence** and be able to privilege locally-contextualized evidence.

A Canadian WKC will incorporate evidence from around the world and liaise with other national or international curators of *DoHC*s, or possibly to lead in the curation of an international one. In any case, locally-contextualized evidence should be given appropriate priority, and at all scales. A municipal or community government will need to lean heavily on evidence about wellbeing gathered from beyond its jurisdiction, but at the same time will want to emphasize local experience.

In practice, large government departments may inevitably maintain their own version of the *DoHC* internally, but it is expected that internal government studies and experience will inevitably make it into the public domain, so that novel information should ultimately all flow into the public *DoHC*.

The WKC will most likely need to commission studies to summarize the knowledge in a given field, and incorporate the synthesized findings into the *DoHC*. The What Works Centre for Well-being in the U.K. is already playing this role of commissioning reviews.

3 Seed *DoHC* for Canada

In the interest of seeding an effort of building a *DoHC* for Canada, and in order to communicate the concept, we report the construction of a small *DoHC*.

3.1 Methods

Briefly, the following procedure was carried out to arrive at our database entries. First, a search of EconLit, EconPapers, Scopus, and JSTOR for publications in economics and psychology led to a set of 189 academic articles and working papers related to life satisfaction in Canada.

Domain	Change	Effect on 0–10 SWL
Education	Extra compulsory year	−0.03 (±0.098)
Environment	↑SO ₂ by 10μg m ^{−3}	−0.04 (±.04)
Work	Overqualification	−0.280 (±.049)
Finances	doubling of HH income	+0.16 (±.196)
Health	smoking daily→never	+0.12 (±.04)
Social Capital	Partnered→separated	−0.4 (±0.14)
Crime	Victim of violent crime	−0.396

Table 1: Sample entries in the Canadian *DoHC* from several different domains. See Table 2 at the end of the paper for fuller details.

Secondly, these papers were retrieved and sorted by topic. Features such as survey data used, sample size, age of respondents, geographic scope, temporality (cross-section or longitudinal), and the subjective wellbeing measure in use were all tagged.

Thirdly, studies with large sample sizes, relevant SWB measures, nationwide scope and/or longitudinal data were preferentially chosen. Within each, we identified estimates derived through well-defined methodologies and evaluated the confidence in their effect and causality. These features were recorded in the database, along with any free-form comments or clarifications.

3.2 Findings

Our database is available online at lifesatisfaction.ca/dohc and included in full (as at the time of writing) at the end of this manuscript. table 1 shows a few sample values from the database, which also includes commentary on the persistence of effects over time, the degree of confidence in effect and causality, the data source and type, and of course the relevant citation(s).

4 The role of happiness policy in context

In any discussion of the seemingly-technocratic life satisfaction approach to benefit-cost accounting, it is important to keep the context in mind. There is a lot that any *DoHC* or wellbeing policy approach will never be able to do, and *DoHC*s do not have the potential to diminish policy making towards a deterministic exercise. This section describes three important limitations (discussed in more detail in Barrington-Leigh, 2021) to what can be expected from a *DoHC*.

Distributions

First, as mentioned above, the knowledge base around predicting policy effects on wellbeing should in principle be designed to predict distributions of outcomes, not just averages. Having a good understanding of wellbeing impacts means you can disaggregate the overall effects of a given policy or budget based on different demographic groups or subpopulations and importantly intersectional groups. Many governments, when carrying out evaluations or projections, already disaggregate outcomes in this way. Using a new or more encompassing measure of wellbeing as an objective does not change the need or challenge of understanding distributional outcomes.

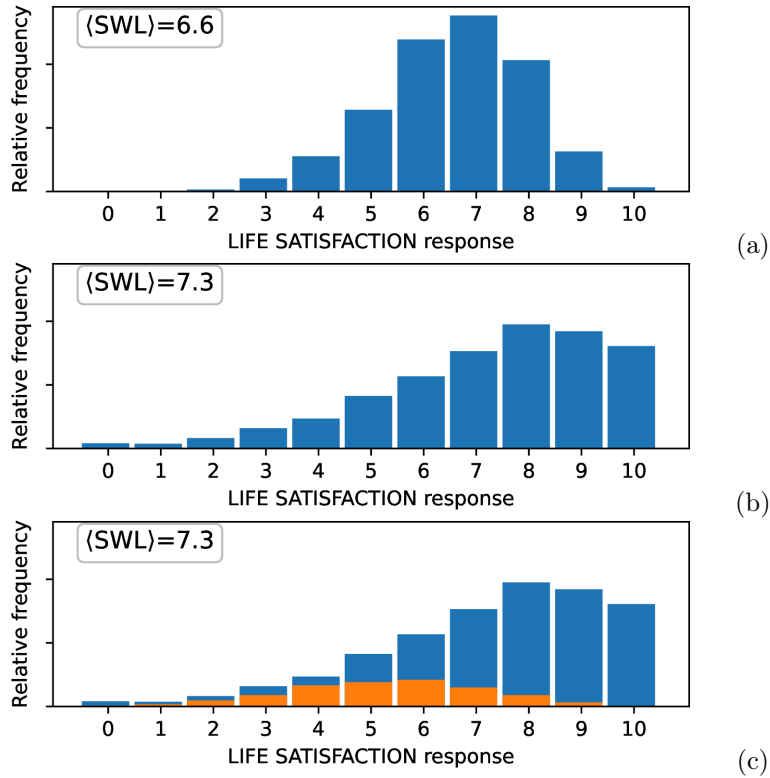


Figure 1: Policy impact and the distribution of wellbeing. Hypothetical distributions of life satisfaction responses described in the text. (a) is before a policy change; (b) is a predicted outcome after the policy takes effect, and (c) a disaggregation of the distribution for a demographic subgroup.

Moreover, those distributional outcomes are fundamental to decision making. While the early literature on cost/benefit accounting for policy-making (e.g., Happiness Research Institute, 2020; Frijters and Krekel, 2021) emphasizes scalar objectives and criteria, in reality decision makers are sensitive to non-scalar considerations. For instance, figure 1(a) and (b) show hypothetical distributions of current and projected future life satisfaction. The policy appears to increase wellbeing from 6.6 to 7.3, according to its mean, yet the distribution shows that some people are worse off afterwards than before. Panel (c) disaggregates the anticipated outcome into a demographic subgroup (shown in orange) and the rest of the population (shown in blue). The relative lack of thriving of the subgroup may be a considerable concern for policy makers for ethical (equity) or political reasons. In any case, nothing about a life satisfaction approach or the information in a *DoHC* helps with the question of how to value different parts of a distribution in coming to an overall decision. These kinds of considerations do not happen automatically with a wellbeing approach, just as they do not happen automatically when using traditional welfare measures like family income.

Dynamics

There is a second reason that a *DoHC* does not act as a policy oracle. Policy makers may disagree about whether reducing a given disparity is best carried out through strong government intervention and redistribution, or more through removing barriers and allowing for people to change their own situation. However, this question is not just about ethics and principle, but also about the dynamics of how people behave and invest over their life course, and indeed how all kinds of possible and typical government investments pay off over time. Those are questions to which a wellbeing approach assumes you already know the answer. That is, the *DoHC* is likely to specialize, especially early on, in answering the question, “Given a set of *current* objective conditions at some point in time, how happy would someone be?” In order to project the outcome of a policy change or budget allocation today, one will need to predict *future* objective conditions driven by the policy change. This information is all outside of the *DoHC*’s contribution (For more explanation, see Barrington-Leigh, 2021; Barrington-Leigh, 2022). If anything, though, the policy synergies made possible by having an overarching, well-understood measure of wellbeing may make it much more desirable and valuable for governments to have sophisticated and detailed models of the return to human and non-human investments over the life course.

Precautionary approach

Despite the limitations above, the most ambitious and attractive promise of a wellbeing approach is that it offers a way to add up all the effects of taxation, legislation, and expenditure, along with extant conditions, to come up with a reasonable prediction of the distribution of outcomes for a prospective policy. This system, which boasts accountability to measurable outcomes and a growing evidence base, can provide cost/benefit or cost effectiveness guidance to a decision maker who has a way to handle distributional questions.

However, there is another dimension in which this vision has its limits: one cannot feasibly apply the wellbeing approach to all questions about future public investments. In particular, when considering questions about investments with far-future payoffs, the uncertainty in predictions of objective outcomes will lead to a large amount of uncertainty about the implications for future human wellbeing. This uncertainty will overwhelm any decision-making when the decision involves alternative uses and benefits of a resource in the short term. That is, for long-run, unfamiliar,

unpredictable, complex, and uncertain dynamics, the calculations described in the previous sections will not provide precise enough answers for making decisions in the same way that shorter-run decisions can be made.

This limitation is, again, nothing to do with switching to a more evidence-informed metric for human wellbeing. It is instead an existing challenge that is unchanged by the availability of a *DoHC* except in that it comes into sharper focus. When one has a more explicit measure of human wellbeing, the question of whether policy is simply meant to maximise it is starker than when pursuing vague, proxy objectives like economic growth, which no one would argue is a singular goal of optimal policy. The implication of the limitation is that some other principle, i.e., beyond wellbeing maximisation, is needed to make long-run decisions whose ramifications are particularly speculative or far-off. Barrington-Leigh (2021, section 6.1) again describes the alternative, or solution, in more detail, and associates these long-run quandaries with the idea of sustainability. A “precautionary approach” is typical language for how to handle such uncertainty when the costs and benefits for human wellbeing are not sufficiently understood.

5 Conclusion

The availability of a *DoHC* with sufficient coverage and precision to be useful for informing government decision-making is an imminent reality. The U.K. Treasury already has explicit guidance in place for this kind of quantitative evaluation. Canada’s new Quality of Life framework is perfectly suited to benefit from it also. On the way there, however, are significant capacity gaps and institutional transitions. A close relationship with academic researchers will be necessary in the beginning to construct this important database of human knowledge. The nascent *DoHC* in this paper may serve as an example for researchers and government agencies to begin thinking about how to shape, organize, and curate such information in an open and transparent and geographically hierarchical way.

As this idea permeates government agencies, a few cautions or points of advice are advisable, and described above. To reiterate, (1) quantitative wellbeing approaches do not release governments from the duty of judging questions of distribution and equity; nor do they diminish the role of politics and debate in this task; (2) a *DoHC* does not predict the future; it only tells us how a given future may map onto experienced wellbeing; great efforts are needed in bolstering governments’ abilities to model returns to investments, in particular investments in people which bear fruit throughout the life course; and (3) many questions of long-run sustainability cannot be sufficiently handled through quantitative optimization of wellbeing and should instead be debated and settled using an alternative framing principle, such as the goal of conservation.

Table 2: Entries in the *DoHC*, available in a sortable, downloadable, and updated form at lifesatisfaction.ca/dohc.

Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Crime	Fear	A doubling fear of crime	Approx -0.30	Unknown	Medium. Panel data-based, often replicated, but drivers of fear not exogenous	Hanslmaier (2013), "derived from the relative effect of fear of crime versus effect from unemployment in a log-odds setting" (note on this reference in Frijters handbook) . Nationwide representative study on victimization and crime-related issues, 2010 (Panel; DEU). Derived from relative effect of fear of crime versus effect from unemployment in a log-odds setting
Crime	Violent crime	Victim of violent crime	-0.396	Effect largely in first year (only statistically significant in first year)	High but specific: effects are for unanticipated events that were recorded	Johnston, Shields, and Suziedelyte (2018), Table 3 (?) Effect of -0.398 for females and -.300 for males. HILDA 2002-12 (Panel; AUS).
Education	Duration	Extra year of compulsory education	-0.03 (\pm 0.098) converted from 1-7 to 0-10 LS	Persistent effects	High for UK; since effect found from 1972 UK compulsory school changes. Marginal result also found in other Western countries	Clark and Jung (2017), Page 11, paragraph 1 (based on Table 3). BHPS 1996-2008 (Panel; GBR).
Environment	Air pollution	Increase of 1-day SO ₂ level by 10 $\mu\text{g m}^{-3}$ (equivalent to 3.9 ppb)	-0.02 (\pm 0.02) on 5-point LS	Temporary effect	Effect robust in cross-sectional data; includes high-resolution geographic fixed effects.	Barrington-Leigh and Behzadnejad (2017a), In text, bottom of page 16 of paper. CCHS 2005-11 (Cross-sectional; CAN).
Environment	Air pollution	Increase of average PM10 level by 10 $\mu\text{g m}^{-3}$ (equivalent to 3.9 ppb)	0.014 on a 3-point happiness scale	Unknown	Medium to high; effects of air pollution significantly exogenous for single individual	Levinson (2012), Results section paragraph 1. GSS (USA) 1984-96 (Cross-sectional; USA).
Environment	Air pollution	Increase of average SO ₂ level by 10 $\mu\text{g m}^{-3}$ (equivalent to 3.9 ppb)	-0.08	Unknown	High; effects driven by unanticipated changes in power plant emissions due to policy	Luechinger (2009), Table 4, column II (IV estimate). GSOEP 1983-2011 (Panel; DEU).
Environment	Land use	Construction of wind turbine within 4km around household	-0.1405 (\pm 0.0782)	Seems temporary; effect disappears after 5 years	High; wind turbine construction exogenous for household in surroundings, difference-in-differences with treatment at multiple points in time	Krekel and Zerrahn (2017), Table 2, column 1. GSOEP 2000-2012 (Panel; DEU).
Environment	Land use	Increase of 1 hectare of greenspace within 1km of household	+0.0031 converted from 1-7 to 0-10 LS	Seems permanent	Medium to high; panel data-based set but no clearcut exogenous variation	White et al. (2013), 0.0020 in Table 2, Column 5. BHPS 1991-2008 (Panel; GBR). Cited by / taken from DOHC in Frijters and Krekel...?

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Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Environment	Land use	Increase of 1 hectare of greenspace within 1km of household	+0.0066 (± 0.0049)	Seems permanent	Medium to high; panel data-based set but no clearcut exogenous variation; similar results by studies in the UK	Krekel, Kolbe, and Wüstemann (2016), Table B.2. GSOEP 2000-2012 (Panel; DEU). Effects strongest for older residents
Environment	Land use	Increase of 1 hectare of vacant land (abandoned areas) within 1km of household	-0.0395 (± 0.0002)	Unknown	Medium; panel data-based but no clearcut exogenous variation	Krekel, Kolbe, and Wüstemann (2016), Table B.2. GSOEP 2000-2012 (Panel; DEU). Effects strongest for older residents
Environment	Weather	Daily rainfall of 6mm above average	-0.008 (± 0.0012) on 5-point LS	Temporary effect	Effect is statistically significant and robust in cross-sectional dataset, but not in panel dataset	Barrington-Leigh and Behzadnejad (2017b), Table 2, Columns 7 and 8. CCHS 2005-11, NPHS 2004-10 (Cross-sectional and panel; CAN). Women and individuals with poor health condition are more affected
Finances	Financial satisfaction	High financial stress (self-rated)	-0.864 (± 0.086)	Unknown	Cross-sectional data, considering the possibility of an indirect effect of income through financial stress uncovers a strong effect of financial stress on life satisfaction, but an effect not clearly linked to income	Brzozowski and Spotton Visano (2020), Table 2, Column 2. GSS 19-24 (Cross-sectional; CAN). Measurement includes those who report 3 or higher on a 5-point stress scale and also choose "finances" as their primary source of stress
Finances	Income	Doubling of household income	+0.16 (± 0.196)	Persistent effects with elation peak	High. Effect found in panels, cross-sections, and shock-related (lotteries).	Flèche et al. (2019), Table 2.1. BCS70 (Panel; GBR). Height disputed and income measurement problematic.
Finances	Income	Doubling of household income	+0.5	Persistent effects with elation peak	High. Effect found in panels, cross-sections, and shock-related (lotteries).	Frijters, Haisken-DeNew, and Shields (2004), Table 2. GSOEP 1991-2001 (Panel; DEU).
Finances	Income	Increase in difference between own log income and log income of a provincial reference group	+0.194 (± 0.135)	Unknown	Medium. Panel data, significant negative effect as found in other Canadian literature.	Latif (2016), Table 5, Column 2. NPHS 1994-2009 (Panel; CAN). Reference group contains all individuals with a similar education level that are inside the same age bracket and residing in the same province
Finances	Prosocial spending	Donated to charity in the past month	+0.27 (± 0.039) on 11-point Cantril ladder	Unknown	Cross-sectional data, relies on correlational analysis, supported by limited experimental data	Aknin et al. (2013), . GWP 2006-08 (Cross-sectional and panel; WLD).
Finances	Prosocial spending	Donated to charity in the past month	+0.28 (± 0.047) on 11-point Cantril ladder	Unknown	Cross-sectional data, relies on correlational analysis, supported by limited experimental data	Aknin et al. (2013), . GWP 2006-08 (Cross-sectional and panel; USA, CAN, AUS, NZL). Region-specific coefficient using survey results from US, Canada, Australia, NZ

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Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Health			+0.24 (\pm 0.03)	Effect lasts while treatment lasts	Medium. Fixed-effect estimates consistent with small RCTs and public health campaign results, but magnitude very unclear	Mujcic and J.Oswald (2016), Table 2, column 1 and 2; in text near beginning of page 3. HILDA 2007, 2009 (Panel; AUS).
Health	Mental health	From depression to full mental health	+0.71	Permanent, little evidence of a peak	High as found everywhere, including large clinical trials	Flèche et al. (2019), Table 16.2. BHPS (Panel; GBR). Based on 4-point change on a 0-12 scale
Health	Mental health	From excellent to poor mental health (self-rated)	-3.13 (\pm 0.30)	Unknown	Cross-sectional data precludes causal claims	Shi et al. (2019), . CCHS 2009-10 (Cross-sectional; CAN). Obtained from control variables
Health	Nutrition	From 0 to 8 portions of fruit and vegetables a day	+0.16 (\pm 0.08)	Unknown	Cross-sectional data precludes causal claims	Shi et al. (2019), Table 2, column 2. CCHS 2009-10 (Cross-sectional; CAN).
Health	Physical health	From excellent to poor physical health (self-rated)	-2.19 (\pm 0.17)	Unknown	Cross-sectional data precludes causal claims	Shi et al. (2019), Table 2, Column 1. CCHS 2009-10 (Cross-sectional; CAN). Obtained from control variables
Health	Physical health	From healthy to poor physical health (self-rated)	-0.96	Permanent effect, with initial peak	High as found everywhere, including to health shocks.	Ferrer-i-Carbonell and Frijters (2004), Unclear but likely taken from Table 3. See additional comments column. GSOEP 1983-2011 (Panel; DEU). Based on a 3-point change in a 1-5 self-report measure of physical health
Health	Physical health	From healthy to poor physical health (self-rated)	-1.080 (\pm 0.122)	Permanent effect, with initial peak	High as found everywhere, including to health shocks.	Frijters, Johnston, and Shields (2014), Table 4, column 2. NCDS 1958-2009 (Panel; GBR).
Health	Physical health	Satisfied with health status, at age 60 or older	+0.292 (\pm 0.059) on 10-point LS	Unknown	Medium. Cross-sectional data precludes causal claims, yet findings are consistent with many studies suggesting health is the strongest single predictor of late-life SWB	Zelikova (2013), Table 2, Column 7. WVS 2005-07 (Cross-sectional; CAN, NZL, GBR, USA).
Health	Smoking	From smoking daily to not at all	+0.12 (\pm 0.04)	Unknown	Cross-sectional data precludes causal claims	Shi et al. (2019), Table 2, column 1. CCHS 2009-10 (Cross-sectional; CAN). Obtained from control variables
Social capital	Belonging	Sense of belonging to Canada	+0.336 (\pm 0.137) on 10-point LS	Unknown	Cross sectional data precludes causal claims	Helliwell and Wang (2011), Table 3, Column 5. GSS17 (Cross-sectional; CAN). A sense of belonging to Canada is strongly associated with general social trust

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Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Social capital	Belonging	Sense of belonging to the community	+0.781 (± 0.110) on 10-point LS	Unknown	Cross sectional data precludes causal claims but is consistent with broader literature suggesting community-level belonging is most important	Helliwell and Wang (2011), Table 3, Column 5. GSS17 (Cross-sectional; CAN). A sense of belonging to one's community is strongly associated with neighbourhood trust
Social capital	Belonging	Sense of belonging to the province	+0.274 (± 0.114) on 10-point LS	Unknown	Cross sectional data precludes causal claims	Helliwell and Wang (2011), Table 3, Column 5. GSS17 (Cross-sectional; CAN).
Social capital	Discrimination	Experience religious discrimination	-0.39	Unknown	Cross-sectional data precludes causal claims	Vang, Hou, and Elder (2019), Table 4, Column 2. GSS27 (Cross-sectional; CAN). Significant positive interaction term suggests higher religiosity mitigates the negative effect of religious discrimination
Social capital	Friendships	Can count on friends	+0.414 (± 0.090) on 11-point Cantril ladder	Unknown	Low. Cross sectional data with regional effects; causality unclear	Helliwell and Wang (2011), . GWP 2006 (Cross-sectional; WLD). Comes from Y/N response to question: "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?"
Social capital	Friendships	From 0 close friends to 3-5 close friends	+0.241 (± 0.017) on 10-point LS	Unknown	Cross sectional data; consistent with broader literature	Helliwell and Wang (2011), Table 3, Column 1. GSS17 (Cross-sectional; CAN). Impact is much smaller for those who are married or living with a partner, suggesting friends and spouses provide some similar happiness benefits
Social capital	Friendships	From 0 close relatives to 3-5 close relatives	+0.526 (± 0.149) on 10-point LS	Unknown	Cross sectional data; consistent with broader literature	Helliwell and Wang (2011), Table 3, Column 1. GSS17 (Cross-sectional; CAN). Paper includes several categories of numbers of close relatives (1 or 2, 3-5, 6-10, 11-20, over 20), an increase from one category to the next is about 0.15
Social capital	Friendships	Seeing close friends more frequently	+0.096 (± 0.051) on 10-point LS	Unknown	Cross-sectional data precludes causal claims, but consistent with	Helliwell and Wang (2011), Table 3, Column 4. GSS17 (Cross-sectional; CAN). Frequency of visits with family and especially with friends add significantly to LS above and beyond the effects of having such networks in place
Social capital	Friendships	Seeing close relatives more frequently	+0.096 (± 0.051) on 10-point LS	Unknown	Cross sectional data; consistent with broader literature	Helliwell and Wang (2011), Table 3, Column 1. GSS17 (Cross-sectional; CAN). Frequency of visits with family add significantly to LS above and beyond the effects of having the network in place

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Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Social capital	Immigration	Being an immigrant parent (female)	-0.210 (± 0.106) on 5-point LS	No apparent improvement over time, "years since arrival" variable is statistically insignificant	Medium. Cross sectional data, effect persists with controls for personal characteristics such as ethnicity, income, etc; consistent with broader literature	Burton and Phipps (2010), Table 5, Column 3. CCHS 2002-10 (Cross-sectional; CAN). No statistically significant effect for female immigrant children once mediating variables (language, ethnicity) are added
Social capital	Immigration	Being an immigrant parent (male)	-0.218 (± 0.133) on 5-point LS	No apparent improvement over time, "years since arrival" variable is statistically insignificant	Medium. Cross sectional data, effect persists with controls for personal characteristics such as ethnicity, income, etc; consistent with broader literature	Burton and Phipps (2010), Table 5, Column 4. CCHS 2002-10 (Cross-sectional; CAN). No statistically significant effect for female immigrant children once mediating variables (language, ethnicity) are added
Social capital	Romantic relationships	From never married to married at 50 or older	+0.20 (± 0.078)	Permanent effect with high initial peak	Medium: cohort study findings so causality unclear	Flèche et al. (2019), Table 9.1. BHPS (Panel; GBR).
Social capital	Romantic relationships	From partnered to separated	-0.40 (± 0.14)	High initial effect, then some adaptation	High as found everywhere.	Flèche et al. (2019), Table 5.2. BHPS (Panel; GBR). Note that most find new partners and don't stay separated. Lone men suffer more.
Social capital	Romantic relationships	From single to married/partnered	+0.28 (± 0.10)	Permanent effect with initial peak	High. Ubiquitous finding around the world	Flèche et al. (2019), Table 5.2. BHPS (Panel; GBR).
Social capital	Romantic relationships	From single to married/partnered	+0.1	Permanent effect with initial peak	High. Ubiquitous finding around the world	Ferrer-i-Carbonell and Frijters (2004), Taken from Frijters and Krekel's table– not exactly sure where this coefficient came from. Maybe Column 1: fixed effect ordered logit 0.08 in Table 3 ?. GSOEP 1983-2011 (Panel; DEU).
Social capital	Romantic relationships	From single to married/partnered	+0.60 (± 0.022)	Unknown	High. Panel data, fixed instrumental effects	Latif (2010), Table 3, Column 2. NPHS 1994-2007, CCHS 2009-11 (Panel; CAN).

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Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Social capital	Romantic relationships	Never married, age 60 or older	-0.122 (\pm 0.078)	Unknown	Medium. Cross-sectional data precludes causal claims, yet consistent with broader literature as found widely	Zelikova (2013), Table 2, Column 7. WVS 2005-07 (Cross-sectional data; CAN, NZL, GBR, USA).
Social capital	Trust	Believe a lost wallet is likely to be returned if found by a stranger	+0.237 (\pm 0.098) on 10-point LS	Unknown	Cross sectional data precludes causal claims but is consistent with GWP findings and broader literature	Helliwell and Wang (2011), Table 3, Column 3. GSS17 (Cross-sectional; CAN).
Social capital	Trust	Believe a lost wallet is likely to be returned if found by a stranger	+0.074 (\pm 0.098) on 11-point Cantril ladder	Unknown	Low. Cross sectional data includes regional fixed effects; but effect is statistically insignificant.	Helliwell and Wang (2011), Table 2-c, Column 6. GWP 2006 (Cross-sectional; WLD).
Social capital	Trust	Believe a lost wallet is likely to be returned if found by neighbours	+0.172 (\pm 0.088) on 10-point LS	Unknown	Cross sectional data; consistent with GWP findings and broader literature	Helliwell and Wang (2011), Table 3, Column 3. GSS17 (Cross-sectional; CAN). Respondents who live in high-density census tracts and are highly mobile are less likely to believe a neighbour would return their wallet
Social capital	Trust	Believe a lost wallet is likely to be returned if found by neighbours	0.117 (\pm 0.088) on 11-point Cantril ladder	Unknown	Medium. Cross sectional data includes regional fixed effects; generally consistent with broader literature	Helliwell and Wang (2011), Table 2-a, Column 6. GWP 2006 (Cross-sectional; WLD).
Social capital	Trust	Believe a lost wallet is likely to be returned if found by police	0.138 (\pm 0.094) on 11-point Cantril ladder	Unknown	Medium. Cross sectional data includes regional fixed effects; generally consistent with broader literature	Helliwell and Wang (2011), Table 2-b, Column 6. GWP 2006 (Cross-sectional; WLD).
Social capital	Trust	Confidence in police	+0.361 (\pm 0.114) on 10-point LS	Unknown	Cross sectional data precludes causal claims	Helliwell and Wang (2011), Table 3, Column 5. GSS17 (Cross-sectional; CAN).
Social capital	Trust	Social trust (self-reported trust in "most people")	+0.131 on 10-point LS	Unknown	Cross-sectional data precludes causal claims; statistically significant positive effect on life satisfaction and domain satisfaction in all domains	van der Horst and Coffé (2012), Table 3, Column 1. GSS17 (Cross-sectional; CAN). Social trust measured by a binary variable where 0 is "one cannot be too careful in dealing with people" and 1 is "most people can be trusted".
Social capital	Trust	Trust in co-workers	+0.638 (\pm 0.149) on 10-point LS	Unknown	Cross sectional data precludes causal claims;	Helliwell and Wang (2011), Table 3, Column 5. GSS17 (Cross-sectional; CAN).
Social capital	Trust	Trust in neighbours	+0.336 (\pm 0.140) on 10-point LS	Unknown	Cross sectional data precludes causal claims but is consistent with broader literature on community-level trust	Helliwell and Wang (2011), Table 3, Column 5. GSS17 (Cross-sectional; CAN). Respondents who live in high-density census tracts and are highly mobile are less likely to trust their neighbours
Work	Commute	From no commute to 1 hour car commute	-0.012 (\pm 0.041)	Unknown	Low. Findings disputed and causality unclear.	Dickerson, Hole, and Munford (2014), Table 2, Column 2. BHPS 1996-2008 (Panel; GBR).

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Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Work	Commute	From no commute to 1 hour car commute	-0.20 (± 0.098)	Unknown	Low. Findings disputed and causality unclear.	Stutzer and Frey (2008), Table 1, Column 2. GSOEP 1985-2003 (Panel; DEU).
Work	Commute	Increase in commute (by ???)	-0.18 (± 0.1176) on 10-point LS	Unknown	Low. Unclear units on time allocation commuting variable.	Hilbrecht, Smale, and Mock (2014), Table 12, Column 2. GSS 24 (Cross-sectional; CAN). Particularly strong effect for women; Significant indirect effects for time spent in physically active leisure and seriousness of traffic congestion
Work	Employment status	From employment to unemployment	-0.71 (± 0.059)	Immediate effect higher then reducing, but no adaptation	Immediate effect higher then reducing, but no adaptation	Flèche et al. (2019), Table 4.2. BCS70 (Panel; GBR).
Work	Employment status	From employment to unemployment	-0.46 (± 0.078)	Immediate effect higher, then reducing, but no adaptation	High. Large effects found in longitudinal cross-sections, recession-related and employment-shock related (plant closures)	Flèche et al. (2019), Table 4.2. GSEOP (Panel; DEU).
Work	Employment status	From employment to unemployment	-0.054 (± 0.022) on 5-point happiness-in-life	Short and long term effects	High. Panel data, fixed instrumental effects	Latif (2010), Table 3, Column 2. NPHS 1994-2007, CCHS 2009-11 (Panel; CAN). Not statistically significant for individuals aged 54 and older
Work	Employment status	From full-time employed to part-time employed not wanting more hours	+0.080 (± 0.043)	Largely permanent	Effect very robust in cross section and panels, but causality unclear	De Neve and Ward (2017), Table 6.3, Column 8 "NA+ANZ". GWP 2006-08 (Cross-sectional and panel; CAN, NZL, AUS, USA). Particularly strong effect for men
Work	Employment status	From full-time employed to part-time employed wanting more hours	-0.108 (± 0.016)	Largely permanent	Effect very robust in cross section and panels, but causality unclear	De Neve and Ward (2017), Table 6.3, Column 8 "NA+ANZ". GWP 2006-08 (Cross-sectional and panel; CAN, NZL, AUS, USA). Particularly strong effect for men
Work	Employment status	From unemployment to out-of-labour force	-0.23 (± 0.13)	Unknown	Cross-sectional data precludes causal claims	Shi et al. (2019), Table 4.2. CCHS 2009-10 (Cross-sectional; CAN).
Work	Employment status	From working to retired (at age 55 or older)	+0.056 (± 0.047) on 5-point happiness-in-life	Unknown	High. Panel data, fixed instrumental effects	Latif (2011), Table 2, Column 4. NPHS 1994-2007 (Panel; CAN). No significant effect for ages 45-54
Work	Job satisfaction	One unit change on 0-10 scale of non-financial job satisfaction	+0.15 (± 0.04)	Unknown	Cross sectional data but findings consistent between ESC and GSS data. Causality unclear.	Helliwell and Huang (2010), Table 1, Column 2. GSS17, ESC2 (Cross-sectional; CAN). Income effect instrumented for ESC data, adjusted in GSS data

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Domain	Category	Change	Effect on 0-10 Life Satisfaction	Dynamics	Confidence in effect and causality	Source, Country, and Comments
Work	Type of job	Being in a white collar job versus a blue collar job	Approx. +0.80	Unknown	Effect very robust in cross-section and panels but causality unclear	De Neve and Ward (2017), Approximated from job categories in Table 6.5 (?). GWP 2006-08 (Cross-sectional and panel; WLD). White collar includes: managers, officials, clerical and office workers; blue collar includes construction, transportation, farming
Work	Type of job	Employment in an occupation that is below an individual's skills or work experience (immigrants)	-0.055 (± 0.096)	Negative effect tends to diminish with increased length of stay in Canada	Cross-sectional data precludes causal claims	Hou and Frank (2017), Table 3, Column 4. CCHS 2009-14 (Cross-sectional; CAN). Lower income the main intermediate factor linking over-education to life satisfaction for immigrant
Work	Type of job	Employment in an occupation that is below an individual's skills or work experience (non-immigrants)	-0.280 (± 0.049)	Unknown	Cross-sectional data precludes causal claims	Hou and Frank (2017), Table 3, Column 2. CCHS 2009-14 (Cross-sectional; CAN). Lower income just one of the important factors for non-immigrants.
Work	Work conditions	Flexible work hours	+0.19 (± 0.1176)	Unknown	Cross-sectional data precludes causal claims	Hilbrecht, Smale, and Mock (2014), Table 12, Column 3. GSS 24 (Cross-sectional; CAN).

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