



## Analysis

# What do Canadians think about economic growth, prosperity and the environment?



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## ABSTRACT

This study examines public opinions about economic growth, prosperity and the environment, and segments the sample based on some of these attitudes. A sample of 1001 Canadians participated in an online survey in January 2016. Data shows that economic growth is received with positive reactions, although very few participants strongly agreed with the notion of ‘growth at all costs’. Moreover, many were unsure about the balance of benefits and costs of growth. A vast majority of the respondents agreed with reducing consumption, pointing to a potentially high level of support for post-growth tenets and other post-materialistic proposals. Three distinct segments were identified using Latent Class Analysis (LCA). The Assured (41.1%) expressed optimism towards technology and indefinite economic growth. The Ambivalent (36.3%) did not express strong opinions about any issue. The Concerned (22.6%) acknowledged human unsustainability, expressed higher environmental concern and did not believe in indefinite growth. Demographic factors (e.g., gender, political identification) correlated significantly with the clusters, and members of the Concerned reported a higher likelihood to vote for a politician who does not pursue economic growth as a main policy goal. The findings of this study question the assumed ‘social consensus’ around growth.

## 1. Introduction

As a result of environmental deterioration, social inequity, global economic crises and lower rates of global growth, the focus of macro-economic policy on economic growth is being questioned once again in academic, social and political circles (Hopkins, 2008; Jackson, 2011; Schneider et al., 2010). Some scientists, economists and heterodox media are increasingly contesting the desirability and possibilities of continuous expansion (Drews and van den Bergh, 2016; Norgard et al., 2010; Ripple et al., 2018). While there is greater acknowledgment that past rates of economic development have been achieved through the unsustainable use of resources (OECD, 2011; UNEP, 2011), there is less agreement regarding the sustainability of future growth. For instance, many argue that growth has the potential to become ‘sustainable’, ‘green’ or ‘smart’ (OECD, 2011; UNEP, 2011), while others call for a ‘post-growth’ or ‘de-growth’ paradigm, pointing out the undesirability and unsustainability of continued exponential growth (Jackson, 2011; Kallis, 2011). In addition, others have proposed moving towards systems that are agnostic or indifferent about this indicator (Raworth, 2017; van den Bergh, 2011).

Although the criticisms of the growth paradigm remain marginal, this recently renewed debate may present an opportunity to re-examine

dominant narratives and explore lay people's attitudes about economic growth, prosperity and the environment as a means of guiding public policy. This is increasingly important considering that the relationship between economic growth and sustainability is becoming an increasingly relevant public issue (Drews and van den Bergh, 2016). Despite the centrality of economic growth in the sustainability debate, little in the way of research has explored public opinion about preferred economic end-states (e.g., steady state economy *versus* economic growth) (Leiserowitz et al., 2006). Moreover, current debates on this issue have not yet comprehensively explored the dimension of public opinion (Drews et al., 2018; Drews and van den Bergh, 2016), as a way of better informing political decision-making.

This paper adds to the limited, but emerging, literature on this topic and provides insight into the nuanced and diverse views held by the public about the relation between economic growth, prosperity and the environment. It reports results from an online survey carried out in 2016 of 1001 Canadians. Canada is seen as a leader in North America and globally, in terms of climate action and in proposing clean growth policies. Moreover, Canada has a symbolic role as a model of ‘development’ and ‘prosperity’ for many people around the world. For instance, in a survey carried out by IPSOS<sup>1</sup> to 18,000 individuals across 25 nations in 2017, Canada was perceived by the majority of

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<sup>1</sup> <https://www.ipsos.com/en/dangerous-world-2017>.

respondents (85%) as the best global example in terms of its positive influence in the world. In addition, little in the way of comprehensive and updated information exists about Canadian's opinions about economic growth and related issues (e.g., [Drews and van den Bergh, 2016](#) present data for Spain, while [Drews et al., 2018](#) synthesize findings for Europe and the U.S.).

To that end, we first examine an array of general and specific attitudes towards economic growth. We then, segment the sample based on attitudinal response patterns to determine different clusters of people with similar perspectives on the growth-environment debate and study how each segment correlates with sociodemographic factors (e.g., age, gender) and other variables (e.g., participant's issue involvement).

## 2. Literature review

Surveys that have included questions regarding economic growth and the environment (e.g., World Values Survey, Gallup polls) have often narrowly framed the issue as a dichotomous choice (i.e., environmental protection *versus* economic growth), thus restricting participants' ability to express more nuanced opinions on priorities ([Drews et al., 2018](#); [Kaplowitz et al., 2013](#)). For instance, when Canadians were forced to choose between the environment and economic growth in one survey encompassing attitudes between 2005 and 2009, 68% prioritized environmental protection over economic growth and jobs ([World Values Survey, 2015](#)). This percentage rose to 88% in a later survey ([Environics Institute, 2012](#)). In general, Canadians have expressed strong pro-environmental attitudes, even higher than their counterparts in the United States and some European countries ([Pyman and Pammett, 2010](#)).

To date, one of the most comprehensive overviews assessing public opinions about economic growth and the environment is offered by [Drews et al. \(2018\)](#) for Europe and the United States. Results showed that a majority of people believe that economic growth and environmental protection are compatible. In the case of Spain, many preferred green growth among other economic policy options (which also included 'growth at all costs') ([Drews and van den Bergh, 2016](#)). However, when forced to choose, survey participants tended to prioritize the environment over economic growth ([Drews et al., 2018](#)). Interestingly, individuals showed limited factual knowledge about economic terms and concepts. The authors of this study highlighted the need for more research exploring this and related issues ([Drews et al., 2018](#)).

Sociodemographic factors have shown to be related with these attitudes. For instance, people in Spain that scored higher on the belief in limits to growth had more leftist political tendencies ([Drews and van den Bergh, 2016](#)). Similarly, individuals who identified with the Green and Left Party in Sweden showed greater support for moving towards an environmentally friendly society even if it meant low or no economic growth ([Jagers, 2009](#)). Regarding gender, studies by [Berglund and Gericke \(2018\)](#) found male Swedish students to be more positive towards economic growth than female students. Studies in Canada showed that women, those with higher levels of formal education and who identify with left-wing political parties, reported higher levels of environmental concern ([Pyman and Pammett, 2010](#)).

Other pro-ecological orientation surveys, such as the revised New Ecological Paradigm (NEP) scale, have measured attitudes on 'limits to growth' as one of its five dimensions ([Dunlap et al., 2000](#)). However, the items aimed at measuring this dimension focused on population growth and resource availability, and not on actual GDP growth. Findings showed that, overall, NEP scores tend to be lower in countries with more materialistic and conservative values ([Dunlap, 2008](#)). The antithesis of NEP, the Dominant Social Paradigm (DSP) measures attitudes towards science and technology, free markets, and unlimited economic growth, among other aspects ([Shafer, 2006](#)). Strong support for the DSP has been found to be inversely correlated to environmental attitudes and concern ([Kilbourne et al., 2002](#)) and with high NEP scores ([Shafer, 2006](#)).

To our knowledge, few studies have empirically and explicitly explored how different segments or clusters of the population perceive the

prioritization of the economy and the environment. A recent study ([Drews et al., 2019](#)) identified three main clusters among scientists (global sample) and lay people (sample from Spain): Green growth, Degrowth and Agrowth. The Green growth cluster expressed the most positive views about growth, while the Degrowth cluster conveyed more critical views towards growth and technology, and the Agrowth cluster was in the middle of the spectrum. Additional findings suggested that the Degrowth cluster was more likely to be associated with left-wing political parties and that scientists' views were more diverse, distinct and skeptical than those of lay people. [Drews et al. \(2019\)](#) stated the need for more research to determine whether similar segments are found in different cultural contexts.

Another study that explored views about growth among the Swedish environmental movement found two perspectives. The dominant viewpoint saw economic growth as incompatible with, and as a hindrance to, sustainability, aligning with ideas of degrowth or the steady state economy. A minority's perspective saw growth as a prerequisite for sustainability, aligning with a green growth perspective ([Bach, 2017](#), Unpublished Master thesis). Contrasting views were identified by [Berglund and Gericke \(2018\)](#) on a study of young Swedes where the majority (57%) were 'un-differentiating positive' towards growth, while other smaller clusters (30%) expressed more 'nuanced-ambivalent' views. A minority (5%) were 'two-way convinced' in that they viewed growth both as necessary and as a threat, or 'critical' (8%) in that they disagreed that growth is needed for sustainable development.

Although not tested empirically on the general population, [De Mooij and van den Bergh \(2002\)](#) described five different perspectives on the 'growth-environment' debate, with views about the desirability of growth, the possibility of indefinite growth and the enforceability of sustainable economic growth or zero growth, marking key distinctions between perspectives. [Rees \(1995\)](#) categorized two distinct worldviews on these issues – the *expansionist* and the *ecological* worldview. Among other aspects, the expansionist worldview sees economic expansion as unrestrained from ecological limits and has great faith on technology and human ingenuity (i.e., techno-optimistic), while the ecological worldview sees the economy as fully dependent on the environment, economic growth as restrained by biophysical limits and is more skeptical about techno-salvation ([Rees, 1995](#)). This classification resembles the 'cowboy' and the 'spaceman' economy described by [Boulding \(1966\)](#) where the former sees the Earth as an open and unbounded system, while the latter sees the Earth as a closed system with limited resources.

In an era of unprecedented economic growth and ecological degradation, this study contributes to the emerging literature on how different segments of the population view these issues by examining public opinions and attitudes about growth and the environment within the specific context of Canada.

## 3. Methods

### 3.1. Survey sample and procedure

1250 Canadian residents participated in an online survey in January 2016, implemented by ResearchNow market research agency. ResearchNow randomly contacted 5424 potential participants from their Canada-wide pre-enlisted online panel. Interested participants clicked on the survey link, which took them to the questionnaire cover letter and survey. A total of 1001 surveys remained, after removing low quality surveys (i.e., the same response in most or all questions) and surveys from participants who completed it too quickly (i.e., speeders). Appendix A provides sociodemographic data of survey respondents and of the Canadian population.

The survey defined economic growth as the annual increase in value of all goods and services produced in an economy (measured as GDP). Participants completed questions related to: 1) their general opinions about economic growth and related issues; 2) their specific opinions about economic growth and consumption in Canada; 3) their concern

**Table 1**  
Relative frequencies, means and standard deviations for 12 items for all participants.

Statement	% Distribution					Mean <sup>a</sup>	SD
	% Distribution						
	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree		
1. Economic growth is largely a good thing	1.8	7.0	23.5	49.5	18.3	3.75	0.89
2. There are no limits to the capacity of the economy to keep expanding	14.3	28.7	25.2	24.5	7.3	2.82	1.17
3. Technology will eventually solve our problems with scarce natural resources	14.4	27.1	28.5	23.8	6.3	2.80	1.14
4. Human ingenuity will ensure that we do not make the Earth unlivable	9.4	21.8	27.4	32.1	9.3	3.10	1.13
5. The so called 'ecological crisis' facing humankind has been greatly exaggerated	25.4	31.3	23.1	15.2	5.0	2.43	1.17
6. Economic growth and environmental sustainability are compatible	4.7	16.5	26.5	39.1	13.2	3.40	1.06
7. The world is currently not environmentally sustainable	3.8	12.6	22.7	38.7	22.1	3.63	1.08
8. Humans are as much a part of nature as other animals	3.1	5.1	10.8	34.0	47.0	4.17	1.02
9. Humans depend on nature to survive	3.0	3.3	7.9	29.7	56.2	4.33	0.97
10. Economic growth will eventually be limited by the availability of natural resources	3.4	11.7	21.8	42.9	20.2	3.65	1.04
11. The negative consequences of economic growth are greater than its benefits	7.3	24.4	37.8	23.6	6.9	2.98	1.03
12. Developing countries have a lower impact on the environment than developed nations	20.1	27.7	23.2	21.0	8.1	2.69	1.23

<sup>a</sup> Scale coding: Strongly disagree = 1, moderately disagree = 2, neither disagree nor agree = 3, moderately agree = 4, strongly agree = 5.

and interest about economic and environmental issues (*i.e.*, issue involvement); and 4) demographics (*e.g.*, gender, age, political ideology). Each is discussed in turn. These questions were part of a longer survey that is described in [Tomaselli \(2017\)](#).

### 3.1.1. General opinions about economic growth and related issues

Participants answered a set of 12 items regarding their general opinions about economic growth, techno-optimism, sustainability and humanity's place within nature on a 5-point scale (1 *strongly disagree* – 5 *strongly agree*) (see [Table 1](#)). The authors formulated six out of 12 statements based on data collected by [Tomaselli \(2017\)](#). The remaining six statements were adapted from the anthropocentric and ecocentric scales of [Thompson and Barton \(1994\)](#) (items 3, 8 and 9), the revised NEP scale ([Dunlap et al., 2000](#)) (items 4 and 5) and the DSP scale ([Shafer, 2006](#)) (item 11).

This set of 12 statements was used as input to segment the audience in different attitudinal clusters. Higher agreement with items 1 to 6 would indicate a more expansionist worldview, whereas greater agreement with items 7 to 12 would point to a more ecological worldview. In order to minimize question order effects, the order of items was randomized for each respondent.

### 3.1.2. Specific opinions about economic growth and consumption in Canada

With a set of ten statements on a 5-point scale (1 *strongly disagree* – 5 *strongly agree*), participants indicated their attitudes towards economic growth and consumption in Canada. Some statements were based on [Drews and van den Bergh \(2016\)](#) survey on economic growth (*e.g.*, items 1, 3 and 4), while the others were developed by the authors (see [Table 2](#)). In order to minimize question order effects, the order of items was randomized for each respondent.

In addition to these ten statements, participants indicated their likelihood (1 *very unlikely* – 4 *very likely*) to vote for a politician that does not pursue economic growth as a major policy goal. Also, they prioritized economic growth, environmental issues or social well-being, by assigning points to each. Finally, participants indicated the level of economic growth that the government should aim for in the next decade (1 *less than in the previous decade*, 2 *about the same*, 3 *more than in the previous decade*).

### 3.1.3. Issue involvement

Issue involvement, or the degree to which participants are concerned about environmental and economic issues ([Rothman and Salovey, 1997](#)), was gauged using a 5-point scale (1 *not at all concerned* – 5 *extremely concerned*). Participants were queried on their pre-occupation with the state of the natural environment and the shape of the Canadian economy. In addition, they indicated how often they think about how the economy and the environment affect each other on a 4-point scale (1 *never* – 4 *a great deal*).

## 3.2. Data analysis

We employed IBM SPSS Statistics 23 for carrying out descriptive statistics and correlational analyses, and Latent Gold 5.1 for identifying the audience segments applying Latent Class Analysis (LCA). LCA is a model-based clustering approach that allows for the identification of latent classes based on a set of observed categorical, ordinal or continuous variables. LCA was the preferred method because it categorizes “people into classes using the observed items and identify items that best distinguish between classes” ([Nylund et al., 2007](#), p. 539) and provides diagnostic information on model fit for determining the number of clusters that best fits the data. Other clustering methodologies (*e.g.*, K-means clustering) do not provide this detailed amount of information. The analysis was run using 50 sets of random starting values. Missing values were excluded from the analysis.

We used the set of 12 statements on general opinions about economic growth and related issues (described in [Section 3.1.1](#)) as initial input for this analysis, because these items aimed to capture worldview orientations. We tested models with solutions between 2 and 6 clusters. We used the following indicators to assess model fit: 1)  $L^2$  values, which

indicate the quality of the model (Magidson and Vermunt, 2004); 2)  $L^2$  bootstrap  $p$ -values, as models with  $p$ -values  $> 0.05$  are deemed as better models (Magidson and Vermunt, 2004); 3) information Criteria (IC) like the Bayesian Information criteria (BIC), Akaike's Information Criterion (AIC) and the consistent AIC (CAIC), with BIC being recommended as the superior measure (Nylund et al., 2007); 4) plots of ICs against the number of clusters in order to determine the point at which the curve starts levelling off (Nylund et al., 2007).

Although all of the models provided an adequate fit, improvements to each model could be made by decreasing the number of input variables included (Magidson and Vermunt, 2004). Thus, the variables with lower  $R^2$  values ( $< 0.15$ ) were removed from the analysis, which left a remainder of eight statements that were used as input in the improved model (items 6, 10, 11 and 12 were removed from the model – see Table 1).

Among the models with a good fit, we deemed the 3-cluster model to be the most appropriate based on the different diagnostic indicators. Information Criteria (ICs), especially BIC, started to level off after three clusters and even increased after five clusters. In addition, model classification errors increased with more clusters and the standard  $R^2$  of the model did not improve substantially. Lastly, we employed Chi-square and Kruskal-Wallis non-parametric tests in order to explore any significant differences between clusters in terms of their issue involvement, other attitudinal variables and demographic characteristics.

## 4. Results

### 4.1. Aggregate results

#### 4.1.1. General opinions about economic growth and related issues

Table 1 summarizes the general opinions towards economic growth and related issues. Overall, respondents revealed a high degree of agreement on two themes. First, most participants (between 81% and 86%, respectively) recognized that humans are as much a part of nature as other animals and that we depend on nature to survive (see items 8 and 9 in Table 1) indicating highly biocentric perspectives. Related to this, a majority agreed (61%) that the world is currently unsustainable and disagreed (57%) that the ecological crisis has been exaggerated (see items 5 and 7 in Table 1).

Second, close to 70% of the participants agreed that economic growth is largely a good thing (see item 1 in Table 1), although a large percentage (close to 40%) were unsure about the balance of benefits and costs of growth (see item 11 in Table 1). A majority ( $> 60\%$ ) concurred that, eventually, growth would be limited by the availability of resources (see item 10 in Table 1). Consistent with previous studies (Drews et al., 2018; Drews and van den Bergh, 2016), a slight majority of participants (52%) agreed that economic growth and environmental sustainability are compatible, with the remaining 27% being unsure and 21% disagreeing with this statement (see item 6 in Table 1).

#### 4.1.2. Opinions about economic growth and consumption in Canada

Table 2 summarizes participants' opinions about economic growth and consumption in Canada. The vast majority of respondents (between 68% and 80%) agreed with scale items related to reducing consumption (see items 5 and 9 in Table 2), while only  $< 10\%$  expressed some disagreement, which indicates a potentially high level of support for moving towards economic models that are not built on ever-expanding production and consumption.

Answers to other questions reflected more complex and possibly contradictory views. For instance, although 53% agreed that a good life is possible without continuous economic growth (see item 4 in Table 2), a similar percentage (48%) also agreed that economic growth is essential for improving people's quality of life (see item 1 in Table 2). In addition, a significant proportion of participants (between 28% and 35%) were ambivalent about growth being the best measure of social progress and about politicians giving less priority to this indicator (see items 2 and 3 in Table 2). These results may indicate that many people are unsure and possibly even indifferent about economic growth being a central policy goal and measure

of progress. Nonetheless, what is certain is that most participants disagree with a 'growth at all costs' strategy (see item 8 in Table 2).

Regarding voting intention, 57% of the respondents claimed to be somewhat or very unlikely to vote for a politician who does not pursue economic growth as a main policy goal, while 43% claimed that they would be somewhat or very likely to do so (see item 11 in Table 2). These findings are surprising in that they challenge the "assumed social consensus about the desirability of growth" (Drews et al., 2018, p. 265), indicating that growth may not be inevitable or inescapable, at least in the public eye. They also reflect a possible disconnect between dominant political discourses in Canada that focus heavily on economic growth as a central policy goal and public perceptions about the actual need to heedlessly focus on this one economic indicator.

#### 4.1.3. Issue involvement

Ninety-seven per cent of participants reported being *a little, somewhat, very* or *extremely* concerned about the state of the environment (14%, 30%, 38% and 15%, respectively), while 99% reported the same about the national economy (12%, 27%, 39% and 21%, respectively). When asked how often they have thought about how the economy and the environment affect each other, about 15% reported having thought *a great deal* about this, 56% claimed thinking about this a *fair amount*, 27% *not very much* and 2% *never*. These findings illustrate that concern for the environment has gained an almost equal footing with the state of the national economy, although only a minority of participants claim to have thought about this relationship with much depth.

### 4.2. Segmented results

Despite the aforementioned commonalities in perspectives among respondents when viewed in aggregate, a key objective of this research was to segment the sample based on general opinions about economic growth and related issues. To that end, we identified three clusters of respondents using Latent Class Analysis (LCA). We assigned a name to each cluster based on the profile of respondents that comprised the group in question: the Assured (41.1%), the Ambivalent (36.3%) and the Concerned (22.6%). Fig. 1 provides profile data for each segment in the form of mean responses on scale items.

On average, participants in the largest segment – the Assured – were the most optimistic towards economic growth, technology and human ingenuity. Although they partly recognized that the world is unsustainable, participants in this group were more likely to believe that the ecological crisis has been exaggerated. They were also more likely to believe in the possibilities of indefinite growth. Interestingly, mean scores were above the scale mid-point for most statements, indicating agreement with ecological items as well, especially about humanity's place within nature. These results may indicate that sustainability issues are becoming increasingly evident to people, even to those with more expansionist tendencies. They may also reflect a general move away from 'growth at all costs' and Promethean discourses, which tend to neglect and dismiss human impacts on nature (Dryzek, 2013).

Participants in the second largest segment – the Ambivalent – were more likely to gravitate to the middle of the scale and did not express strong opinions one way or the other about any of the statements. The uncertainty shown in this group possibly indicates that members of this cluster have put little thought about the relationship between the economy and the environment beforehand and, thus, may not have solid or well-formed opinions. While environmental topics like climate change are currently more widely discussed in the media (Schmidt et al., 2013) and people are generally more cognisant about these issues, the topics of limits and the desirability of growth are less prominently discussed, if at all. Consequently, it is possible that many people have not thought about these issues with much depth, leading to a high proportion of participants in this cluster not holding definite or strong positions.

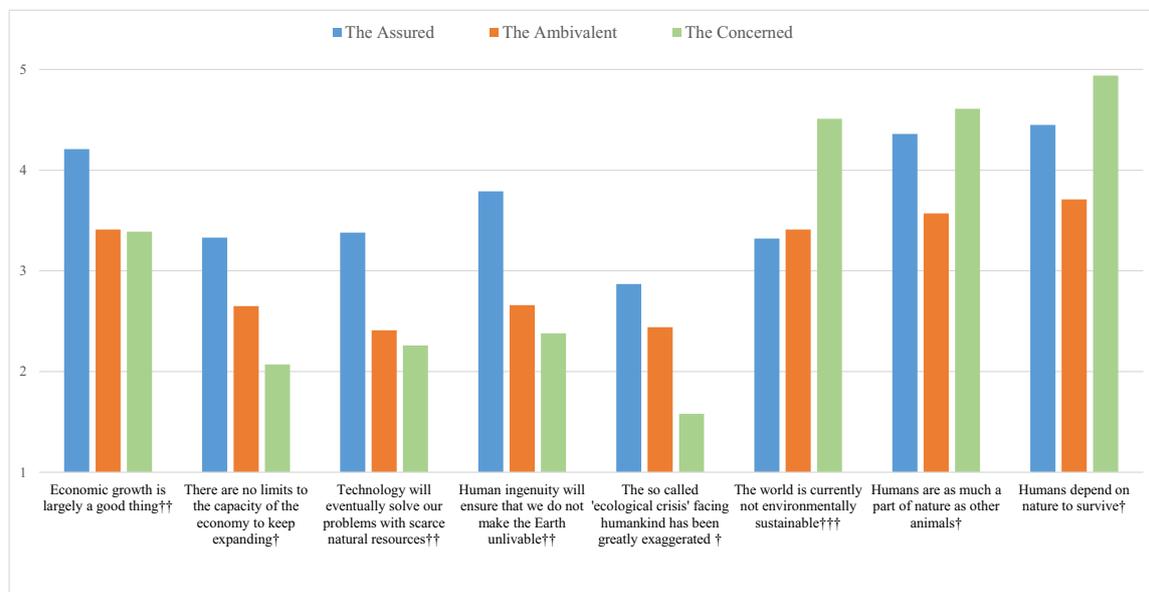
The smallest segment – the Concerned – leaned more towards ecological attitudes. Participants in this group largely agreed that humans

**Table 2**  
Frequencies, means and standard deviations for attitudinal statements for all participants.

Statement	% Distribution					Mean <sup>a</sup>	SD
	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree		
1. Continued economic growth is essential for improving people's quality of life	5.8	19.0	27.2	36.4	11.6	3.29	1.08
2. Economic growth is the best measure of social progress	10.2	29.3	32.7	22.2	5.5	2.83	1.06
3. Politicians should give less priority to economic growth as a major public policy goal	9.5	21.6	34.1	27.1	7.7	3.02	1.08
4. A 'good life' is possible without continuous economic growth	4.9	15.7	26.4	36.9	16.1	3.44	1.09
5. In view of limited natural resources, people should figure out ways to increase quality of life while reducing overall material consumption	1.5	2.9	14.5	40.1	41.1	4.16	0.88
6. Economic growth will not be limited by the availability of natural resources	12.8	26.1	28.6	26.1	6.4	2.87	1.13
7. The benefits of economic growth outweigh its negative consequences	12.1	31.3	29.9	21.5	5.2	2.77	1.08
8. We should continue growing our economy despite any large negative consequences	24.2	32.6	25.4	13.8	4.0	2.41	1.12
9. We should eventually transition into an economic model based on reduced levels of consumption	2.8	6.0	22.9	43.8	24.4	3.81	0.97
10. A sustainable economic model will only be possible if we stabilize the size of our population	7.1	17.3	34.6	27.3	13.7	3.23	1.11
11. How likely or unlikely are you to support a Canadian politician that does NOT pursue economic growth as a major policy goal?	Very unlikely	Somewhat unlikely	Somewhat likely	Very likely		Mean	SD
	17.9	39.1	34.8	8.2		2.33	0.86
12. Importance granted to issues: <sup>b</sup>							
A. Economic growth						30.91	15.68
B. Environmental issues						34.22	14.94
C. Social well-being						35.24	15.26
13. What level of economic growth do you think the government should aim for in the next 10 years?	Less	Same	More	Don't know		Mean	SD
	17.0	42.9	22.4	17.5		2.07	0.69

<sup>a</sup> Scale coding Questions 1-10: Strongly disagree = 1, moderately disagree = 2, neither disagree nor agree = 3, moderately agree = 4, strongly agree = 5. Question 11: Very unlikely = 1, somewhat unlikely = 2, somewhat likely = 3, very likely = 4. Question 13: Less = 1, same = 2, more = 3.

<sup>b</sup> Participants were asked to assign a total of 100 points to economic growth, environmental issues and social well-being, depending on the importance they granted to each.



**Fig. 1.** Profile graph of means for the 3-cluster model. Values closer to 5 indicate more agreement with the statement and values closer to 1 indicate more disagreement<sup>a</sup>. To better convey differences between clusters more clearly, items that measured expansionist attitudes are presented first (*i.e.*, first five items), while items that measured ecological attitudes (*i.e.*, three last items) are presented second.

<sup>a</sup>Scale coding: Strongly disagree = 1, moderately disagree = 2, neither disagree nor agree = 3, moderately agree = 4, strongly agree = 5.

<sup>†</sup>All cluster mean ranks are significantly different. <sup>††</sup>Mean rank for the Assured is significantly different from the Ambivalent and the Concerned. <sup>†††</sup>Mean rank for the Concerned is significantly different from the Assured and the Ambivalent. Significance:  $p < 0.05$ .

are a part of and dependent on nature. They imparted greater recognition to sustainability issues and the ecological crisis and disagreed that the economy can grow indefinitely. Moreover, they tended to disagree that technology and human ingenuity will solve our problems. Like the Ambivalent, participants in this group were slightly positive towards economic growth, reflected in the mean for the first statement in Fig. 1.

#### 4.2.1. Attitudes towards economic growth and consumption in Canada

Significant differences emerged between the three clusters on attitudes towards economic growth in Canada. Table 3 shows the means for each statement. As expected, the Assured were more positive towards economic growth, while the Ambivalent were usually in the middle of the spectrum and the Concerned were the least positive. The Concerned reported greater likelihood of voting for a politician who does not pursue economic growth as a major policy goal, while the Assured reported the least likelihood (see item 11 in Table 3). The Assured granted a higher priority to economic growth, while the Ambivalent prioritized social well-being and the Concerned prioritized environmental issues (see item 12 in Table 3). These findings suggest that members the Concerned cluster could be more open to a post-growth paradigm, while the message may be harder to be accepted by the other two segments, especially members of the Assured group.

#### 4.2.2. Demographic and other characteristics

Table 4 summarizes the demographic characteristics of each segment. Cluster membership was significantly associated with gender and political affiliation (Chi Square tests,  $p \leq 0.05$ ). Specifically, participants in the Concerned cluster were more likely to be women and to identify with the left-leaning New Democratic (NDP) and Green parties. Correspondingly, the Assured were more likely to be associated with the right-leaning Conservative party.<sup>2</sup>

<sup>2</sup>Of all participants identified as Conservatives, 49.8% were classified into the Assured group, while only 12.0% were classified into the Concerned cluster. Of the ones who identified with the Green Party, 25.0% were classified in the Assured cluster, 26.7% in the Ambivalent group and 48.3% in the Concerned cluster.

Using a Kruskal-Wallis non-parametric test, the results show that the Concerned had marginally higher levels of formal education than their counterparts in the Assured ( $p = 0.004$ ) and the Ambivalent ( $p = 0.001$ ), as well as a higher income mean ( $p = 0.025$ ) than the Ambivalent. We did not find significant differences for age. The Concerned expressed statistically higher levels of environmental concern than the other groups ( $p < 0.001$ ). Similarly, they reported having thought about the relationship between the economy and the environment significantly more frequently than the other two clusters ( $p < 0.001$ ). Concern for the Canadian economy was not significantly different between groups. Table 5 provides the means and standard deviations for these items.

## 5. Discussion

This study examined attitudes towards economic growth, prosperity and the environment among Canadians and identified distinct perspectives on the growth-environment debate. It provides four key findings. First, further evidence is provided that economic growth is initially perceived as positive by the vast majority, even in the greener segment (*i.e.*, the Concerned), supporting literature that points to growth being thought of as natural and inherently good (Gustafsson, 2013). Nonetheless, most respondents disagreed with the notion of 'growth at all costs', indicating that people's desire for a growing economy may be contingent on the impacts and costs of that growth. Interestingly, a large percentage of respondents in this study recognized the negative consequences of growth or were unsure about the overall balance of benefits and costs. This suggests that governments could be more accountable to their citizens by using more comprehensive indicators of economic welfare (*e.g.*, Genuine Progress Indicator) that do a better job at differentiating 'good growth' from 'bad growth'.

Second, a vast majority of survey participants (even in the Assured cluster) expressed high levels of agreement with biocentric statements, supporting suggestions that aspects of a new ecological worldview may indeed be emerging (Dunlap et al., 2000). Similarly, a vast majority agreed with the need to reduce overall material consumption and eventually transition into an economic model based on reduced levels

**Table 3**  
Means for each cluster profile and Kruskal-Wallis results for comparisons between cluster mean ranks for each survey statement.

Statement	Cluster means <sup>a</sup>			Mean ranks comparison (Kruskal-Wallis test)
	Assured	Amb.	Con.	
1. Continued economic growth is essential for improving people's quality of life	3.66	3.11	2.87	Assured significantly different <sup>b</sup> than Ambivalent & Concerned
2. Economic growth is the best measure of social progress	3.16	2.79	2.30	All significantly different <sup>b</sup>
3. Politicians should give less priority to economic growth as a major public policy goal	2.79	2.97	3.54	Concerned significantly different <sup>b</sup> than Assured & Ambivalent
4. A 'good life' is possible without continuous economic growth	3.27	3.34	3.91	Concerned significantly different <sup>b</sup> than Assured & Ambivalent
5. In view of limited natural resources, people should figure out ways to increase quality of life while reducing overall material consumption	4.06	3.96	4.62	Concerned significantly different <sup>b</sup> than Assured & Ambivalent
6. Economic growth will not be limited by the availability of natural resources	3.19	2.75	2.43	All significantly different <sup>c</sup>
7. The benefits of economic growth outweigh its negative consequences	3.14	2.74	2.14	All significantly different <sup>b</sup>
8. We should continue growing our economy despite any large negative consequences	2.73	2.38	1.83	All significantly different <sup>b</sup>
9. We should eventually transition into an economic model based on reduced levels of consumption	3.69	3.65	4.23	Concerned significantly different <sup>b</sup> than Assured & Ambivalent
10. A sustainable economic model will only be possible if we stabilize the size of our population	3.12	3.22	3.43	Concerned significantly different <sup>c</sup> than Assured
11. How likely or unlikely are you to support a Canadian politician that does NOT pursue economic growth as a major policy goal?	2.12	2.36	2.68	All significantly different <sup>b</sup>
12. Importance granted to issues:				
A. Economic growth	35.89	29.40	22.31	All significantly different <sup>b</sup>
B. Environmental issues	30.68	34.29	40.65	All significantly different <sup>c</sup>
C. Social well-being	33.88	37.00	35.93	Assured significantly different <sup>c</sup> than Ambivalent & Concerned
13. What level of economic growth do you think the government should aim for in the next 10 years?	2.22	2.03	1.79	All significantly different <sup>b</sup>

<sup>a</sup> Higher means indicate higher agreement with the statement. Statements 1 to 10 are ranked on a scale of 1 to 5 (1 *strongly disagree* – 5 *strongly agree*), statement 11 is ranked on a scale of 1 to 4 (1 *very unlikely* – 4 *very likely*) and statement 13 is ranked on a scale 1 to 3 (1 *less*, 2 *same*, 3 *more*).  
<sup>b</sup>  $p < 0.001$ .  
<sup>c</sup>  $p < 0.05$ .

**Table 4**  
Sociodemographic characteristics for each cluster in terms of gender, political affiliation, age, income and education.

Demographics	Assured		Ambivalent		Concerned	
Gender (% male)	50.6%	–	46.1%	–	40.1%	–
Political						
Conservatives	29.2%	–	25.6%	–	12.9%	–
Liberals	35.7%	–	33.3%	–	37.8%	–
NDP	13.3%	–	15.2%	–	19.1%	–
Green	3.8%	–	4.8%	–	13.9%	–
None	18.0%	–	21.1%	–	16.3%	–
	Mean	SD	Mean	SD	Mean	SD
Age <sup>a</sup>	3.54	1.44	3.57	1.53	3.50	1.43
Income <sup>b</sup>	2.57	1.38	2.47	1.28	2.80	1.33
Education <sup>c</sup>	3.84	1.38	3.78	1.33	4.20	1.35

<sup>a</sup> Age: < 25 = 1; 25 to 34 = 2; 35 to 44 = 3; 45 to 54 = 4; 55 to 64 = 5; 65 or above = 6.  
<sup>b</sup> Income: under 40,000 = 1; 40,000–75,000 = 2; 75,000–100,000 = 3; 100,000–150,000 = 4; 150,000 and over = 5.  
<sup>c</sup> Education: less than high school = 1; completed high school = 2; some college or university = 3; received a college or technical school certificate = 4; received a university's bachelor degree = 5; received a graduate degree = 6.

**Table 5**  
Concern for the state of the natural environment and the Canadian economy classified by cluster.

Items	Assured		Ambivalent		Concerned		Scale points
	Mean	SD	Mean	SD	Mean	SD	
How concerned are you about the state of the natural environment? <sup>a</sup>	3.25	1.03	3.39	0.94	4.06	0.80	5
How concerned are you about the state of the Canadian economy? <sup>a</sup>	3.68	1.01	3.62	0.98	3.59	0.94	5
How often do you think about how the economy and the environment affect each other? <sup>b</sup>	2.78	0.69	2.76	0.64	3.02	0.70	4

<sup>a</sup> Scale coding: not at all concerned = 1, a little concerned = 2, somewhat concerned = 3, very concerned = 4 and extremely concerned = 5.  
<sup>b</sup> Scale coding: never = 1, not very much = 2, a fair amount = 3 and a great deal = 4.

of consumption. Interestingly, these findings may reveal some degree of support in Canada – at least in theory – for the basic tenets of the steady state economy and sustainable degrowth.

Third, as found in previous studies (Drews et al., 2018; Drews and van den Bergh, 2016), a slight majority of survey respondents perceive economic growth and environmental sustainability as compatible, possibly supporting the notion of green growth. The corollary here, though, is that slightly less than half of participants were hesitant (27%) or more likely to see these two goals as incompatible (21%), which could indirectly support notions of agrowth or degrowth.

Fourth, three main clusters of participants with distinct views about growth, technology and sustainability were identified: The Assured (41.1%), the Ambivalent (36.3%) and the Concerned (22.6%). The Assured are the most positive towards growth and technology, while the Ambivalent are often in the middle of the spectrum for all variables; and the Concerned believe more strongly in limits to growth and in the ecological crisis, and expressed a greater likelihood of supporting a politician who does not pursue economic growth as a main policy goal. A recent study carried out in other jurisdictions by Drews et al. (2019) report comparable findings, with the Assured, the Ambivalent and the Concerned clusters in our study respectively resembling their *Green*

*growth*, *Agrowth* and *Degrowth* clusters. Our study also provides further evidence of relationships that occur between environmental attitudes and sociodemographic factors, supporting the premise that people with higher beliefs in limits to growth have more leftist political tendencies (Drews and van den Bergh, 2016).

The findings presented here are not representative of the Canadian population in a statistical sense due to the nonprobability sampling strategy used by the online panel (Baker et al., 2010). Future research could explore these issues using more generalizable data collection strategies and could continue testing these segments in multiple cultural contexts. Moreover, future studies could identify policy priorities and behavioural preferences of each cluster. Overall, these findings underscore the need for more cross-sectional and longitudinal studies on public opinion regarding these issues, as a means of more accurately assessing public views about growth, prosperity and the environment.

This study has important political implications as it provides new insights into peoples' attitudes and opinions regarding the current economic model and challenges the assumed social consensus about the desirability of economic growth as a main policy goal. These findings may reflect a disconnect between dominant political discourses (frequently focused on economic growth as a central policy goal) and

people's perceptions about the need of focusing so heavily on this one indicator. If supported by further research in this and other contexts, these initial findings could provide a significant 'wake-up call' to politicians and their enduring framing of continued economic growth as a *sine qua non* of political discourse.

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### Declarations of interest

The authors declare no conflict of interest.

## Appendix A. Sociodemographic characteristics of survey respondents and of the Canadian population

Survey respondents	N	Valid %	Canadian population	%
Gender			Gender	
Female	531	53.4	Female	50.4
Male	463	46.6	Male	49.6
Political identification			% of vote by political party <sup>a</sup>	
Conservative Party	238	24.4	Conservative Party	31.9
Liberal Party	351	36.0	Liberal Party	39.5
New Democratic Party (NDP)	147	15.1	New Democratic Party (NDP)	19.7
Green Party	61	6.3	Green Party	3.4
None	177	18.2	Other	5.5
Age			Age <sup>b</sup>	
Under 25	74	7.6	Under 25	8.2
25–34	222	22.7	25–34	16.9
35–44	170	17.4	35–44	16.7
45–54	213	21.7	45–54	18.5
55–64	195	19.9	55–64	18.0
65 or above	105	10.7	65 or above	21.8
Household income			Household income <sup>c</sup>	
Under \$40,000	243	28.0	Under \$40,000	26.4
\$40,000 to \$75,000	226	26.1	\$40,000 to \$79,999	29.9
\$75,000 to \$100,000	153	17.6	\$80,000 to \$99,999	11.3
\$100,000 to \$150,000	158	18.2	\$100,000 to \$149,999	17.7
\$150,000 and over	87	10.0	\$150,000 and over	14.8
Education			Education <sup>d</sup>	
Less than high school	33	3.3	No certificate, diploma or degree	11.5
Completed high school	164	16.4	High school diploma	23.7
Some college or university	180	18.0	Apprenticeship or other trades certificate	10.8
College or technical school certificate	233	23.4	College diploma	22.4
Received a bachelor's degree	269	27.0	University below bachelor's	3.1
Received a graduate university degree	119	11.9	Bachelor's degree or higher	28.5

<sup>a</sup> 2015 federal elections data. Source: <http://www.elections.ca/res/rep/off/ovr2015app/home.html>.

<sup>b</sup> Data excludes Canadians 20 years old or less. Source: [Statistics Canada, 2016 Census Profile](#).

<sup>c</sup> The income brackets \$40,000 to \$75,000 and \$75,000 to \$100,000 in our survey do not fully correspond to those used by Statistics Canada, which are \$40,000 to \$79,999 and \$80,000 to \$99,000. Source: [Statistics Canada, 2016 Census, Household total income groups](#).

<sup>d</sup> The educational categories used in this study do not fully correspond those of Statistics Canada. Source: [Statistics Canada, 2016 Census, Education in Canada](#).

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