

RESEARCH ARTICLE / ÉTUDE ORIGINALE

What Moooves Opinion? Examining the Correlates and Dynamics of Mass Support for Supply Management in the Agriculture Sector

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Abstract

Supply management is a long-standing agricultural policy in Canada that applies to dairy, poultry and eggs. To date, there exists no academic research on the correlates or dynamics of public support for supply management. We use data collected from the Digital Democracy Project's study of the 2019 Canadian election, including results from a between-subjects framing experiment, to show that support for supply management is most opposed by economic conservatives. However, we find support to be highly malleable by framing: it increases when respondents are primed to think of the policy as a way of protecting farmers and decreases when they are primed to think of its costs to consumers. Contrary to expectations, framing effects are not stronger when messages are ideologically congenial or among those with high levels of policy knowledge. If anything, effects are stronger among those with lower levels of knowledge.

Résumé

La gestion de l'offre est une politique agricole de longue date au Canada qui s'applique aux produits laitiers, à la volaille et aux œufs. À ce jour, il n'existe aucune recherche universitaire sur les corrélats ou la dynamique du soutien public à la gestion de l'offre. Nous utilisons des données recueillies dans le cadre de l'Étude sur l'élection canadienne 2019 du Projet de démocratie numérique, notamment les résultats d'une expérience de cadrage entre sujets, pour montrer que le soutien à la gestion de l'offre est le plus opposé par les conservateurs économiques. Cependant, force est de constater que le soutien est hautement influençable par la façon dont la politique est cadrée : il augmente lorsque les répondants sont amenés à penser à la politique comme un moyen de protéger les agriculteurs et diminue lorsqu'ils ont tendance à envisager ses coûts pour les consommateurs. Contrairement aux attentes, les effets de levier ne sont pas plus forts lorsque les messages sont idéologiquement convergents ou parmi ceux à qui la politique est familière. Au contraire, les effets sont plus forts chez les personnes dont les connaissances sont plus faibles.

Keywords: Public policy; supply management; public opinion; framing effects

Mots-clés : Politique publique; gestion de l'offre; opinion publique; effets de levier

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Supply management is a long-standing and little-changed Canadian agricultural policy that applies to dairy, poultry and egg products. It aims to provide consumers with healthy and safe produce while ensuring that producers receive a fair and equitable return for their work and output. This is accomplished by allowing marketing boards to set the production of supply-managed goods, buttressed by high import tariffs that heavily protect domestic producers from international competition.

We know relatively little about the determinants of support for supply management. This is curious given that economists argue that the policy imposes important financial burdens on Canadians—asymmetrically affecting lower-income families and single-parent households (Cardwell et al., 2015). Nevertheless, Canada's major political parties remain steadfastly committed to supply management, implicitly protecting the needs of the producer over those of the consumer.

Understanding public opinion on this issue allows us to shed light on whether the major political parties are echoing popular sentiment or are maintaining an unpopular public policy. While a relatively niche program, supply management directly affects consumers of dairy and poultry products—and given that these products are found in the kitchens of millions of Canadians, it affects virtually every family. To our knowledge, there exists no academic research studying the correlates of support for supply management—that is, who supports it? Is opposition stronger among conservatives? Is public opinion responsive to how the policy is framed?

Pollsters, however, have looked at supply management attitudes. In a 2017 poll, the Angus Reid Institute (2017) found that support for the policy is evenly distributed into thirds—one-third supported and opposed supply management, while the final third was uncertain. They further found that opposition to supply management was highest among Conservative party (CPC) voters (51 per cent) compared to 30 per cent for both Liberal party (LPC) and New Democratic party (NDP) voters. Their survey, however, presents only the top-line results. It does not give us a full picture of the determinants of supply management support controlling for other factors. It also takes public opinion on this topic as fixed, when the low-salience nature of supply management suggests such opinion may be highly responsive to framing effects, owing to the fact that few Canadians have strong prior beliefs on the topic.

The lack of research at the nexus of public opinion and agricultural policy is not unique to Canada. Only a handful of studies look at support for farm incomes and farm protection in the United States, the most cited of which are from the early 1990s (Variyam and Jordan, 1991; Variyam et al., 1990). Broadly, this research has found that Americans are generally willing to support the family farm (Ellison et al., 2010) and that support for farm subsidies are affected by communitarian values (Variyam and Jordan, 1991) and pocketbook considerations (Variyam et al., 1990).

In order to determine the baseline level of support for the policy, as well as whether opinion on the subject is malleable to framing, we conduct a study of public opinion toward supply management on a sample of Canadians included in wave 7 of the Digital Democracy Project's study of the 2019 Canadian election. In this survey, we ask questions regarding respondents' knowledge and support of the policy. This allows us to conduct the first systematic study of public sentiment toward

supply management in Canada. We also include a between-subjects framing experiment to test the effects of three competing frames on support for supply management and evaluate the malleability of this opinion.

Background

Canada has maintained an agricultural policy that manages the supply of dairy, poultry and eggs since the early 1970s. Supply management is a long-standing and little-changed public policy that is often criticized for its adverse effects on consumers by academics, think tanks (Busby and Schwanen, 2013; Sarlo et al., 2012) and commentators in widely read and popular outlets such as the *Globe and Mail* (2018) and the *National Post* (2018). Yet Canada's political parties, with the exception of the People's Party of Canada (PPC), remain steadfastly committed to ensuring that the supply management regime remains intact.

Although Pierre Elliott Trudeau's Liberal government officially implemented the policy in 1970, the federal government had been intervening in the dairy market since the 1950s (Goldfarb, 2009: 3; Hall Findlay, 2012: 5). In a passing word on the 1957 election, Peter C. Newman (1973) noted that the St. Laurent Liberals were not above intervening in the dairy market—in fact proposing direct government intervention in the dairy market by banning the importation of cheddar cheese and providing a price floor for poultry. These measures, however, were “interpreted as last-minute bribes” (Newman, 1973: 55). Federal governments since then have not shied away from intervening in the dairy market and have remained steadfastly committed to Canada's supply-management regime.

Supply management has remained a stable agricultural policy in Canada for over 40 years. Skogstad (2008) argues that, resulting from trade negotiations at the beginning of the twenty-first century, a “second generation” of supply management has emerged with modifications concerning pricing policy instruments, quota allocation and the prices received by processors. Nonetheless, the current policy still maintains a “striking resemblance to the first generation” (Skogstad, 2008: 175). Supply management's resilience is a result of weak internationalization in supply-managed sectors, as well as its economic and, perhaps more importantly, political viability with political elites concerned about upsetting a powerful lobby and voters in critical ridings in Ontario and Quebec (Skogstad, 2008).

At its core, the policy rests on three pillars: (1) prices are set based on a cost-of-production formula, (2) production is limited to an internally derived supply-and-demand estimate and (3) border measures are enacted to prohibit foreign competition (Barichello et al., 2009: 204). In theory, price and production stability should be beneficial for both producers and consumers alike. Consumers are afforded locally sourced milk that is heavily controlled and regulated by a central authority to ensure its safety. Stable prices benefit both producers and consumers because it allows the former to receive a stable income that was worth their labour while the latter would not be faced with price shocks due to sudden increases in the price of milk.

There are costs to this stability, however. A general consensus exists among economists and mainstream policy analysts on the harmful effects of supply management. Their work has found that (1) smaller provincial dairy boards free-ride

off the decision of boards of larger provinces (for example, Ontario and Quebec) to increase their lobbying expenditures (Baylis and Furtan, 2003); (2) changes in the milk production quota scheme in Ontario led to widespread inefficiency in the quota (production) market (Cairns and Meilke, 2012); (3) the prices of supply-managed goods in Canada are higher than in the United States (Hall Findlay, 2012: 5); and (4) supply management has had a regressive effect on low-income earners—particularly those with children (Cardwell et al., 2015; see Doyon et al., 2018, for a response).

That being said, it is important to acknowledge the reality that subsidies and protectionism are the norm in agricultural sectors cross-nationally. The Organisation for Economic Co-operation and Development's (OECD) Trade Directorate (for Food, Agriculture and Fisheries) contends that “milk producers, in virtually every OECD country and in many non-member economies, benefit from government interventions that boost the prices they receive for their raw milk production” and that “government support and protection for milk producers is also more widespread than for any of the other commodities for which the OECD calculates producer support estimates” (OECD, 2005: 97).

Canada's system of supply management differs mostly in the type of support it provides compared to other countries. Proponents of supply management have often argued that the policy is unsubsidized, unlike dairy production in the United States (Alberta Milk, n.d.; British Columbia Dairy Association, n.d.). By *unsubsidized*, proponents mean that there are no out-of-pocket government expenses in normal times. Exogenous shocks to the existing system, such as free trade agreements, can move supply-managed industries into abnormal times, necessitating direct government aid. Citing negotiations in the Comprehensive Economic and Trade Agreement (CETA) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the Canadian government agreed to compensate supply-managed industries affected by CETA and the CPTPP to the tune of \$1.75 billion over eight years for dairy farmers and \$691 million for poultry farmers over 10 years (Government of Canada, 2020)¹ in the 2019 Canadian federal budget.

Nevertheless, for much of supply management's history it was *de jure* unsubsidized but *de facto* resulted in a consumer-to-producer transfer. But as pressures to liberalize trade mount, direct government assistance is likely to rise in the future.

Ideology and Support for Government Regulation

At the moment, little is known about the determinants of public support for supply management. However, Angus Reid's finding that opposition is higher among Conservative party voters is potentially instructive of a relationship between right-leaning ideology and opposition to supply management.

As an ideology, conservatism is hard to define. O'Sullivan (2013: 293) notes that modern conservative ideology is often reduced to an “anti-ideology inspired by self-interest and fear of change” but that conservatism itself is malleable and can largely be divided into four schools of thought: reactionary, radical, moderate, and the New Right. The extant research on policy preferences has, to a degree, confirmed O'Sullivan's argument that conservatism is perhaps malleable but nevertheless committed to the defence of limited politics.

The malleability of conservatism has been expanded upon in the literature, which has largely found that conservatives are particularly capable of sectionalizing and differentiating their priorities (Cochrane, 2010, 2013). So where O'Sullivan identifies four schools of conservative thought, Zumbrennen and Gangl (2008) argue that there exist three types of conservatives: the market conservative, the limited government conservative and the cultural conservative. They defined the limited government variant as one that recognizes government is "necessary for performing certain functions [but] its economic, social, and moral influence must be kept within very definite limits" (2008: 207). Similarly, Thorisdottir et al. (2007: 179) define economic conservatism as involving "an ideological commitment to capitalism, private enterprise, and the value of competition among individuals and corporations in the context of a free market." Economic conservatism, then, prioritizes a free-market, private enterprise and competition. It is distinct from cultural conservatism, defined as the "rejection of qualitative social change as well as a belief in the importance of religion, traditional family arrangements, and conventional gender roles" (Thorisdottir et al., 2007: 179). The differentiation between social and economic conservatism is important given that both forms significantly affect ideology but economic conservatism appears to have no impact on one's stances toward social issues (Zumbrennen and Gangl, 2008; see also Johnson and Tamney, 2001).

The connection between economic conservatism and the preference for limited politics is confirmed by Bartels (2018: 1485), who finds that the likelihood of conservative self-identification increases with support for limited government and the belief that the government in Washington has gotten too powerful. Furthermore, survey items that most strongly reflect support for limited government include opposition to the welfare state and egalitarian economic policy including but not limited to reducing income inequality (see also Aspelund et al., 2013; Jost et al., 2003; Thorisdottir et al., 2007), the provision of publicly funded healthcare, increasing the minimum wage and progressive taxation (Bartels, 2018: 1484).

This economic policy-focused conservatism that favours less government involvement has also been prominent in Canada. Farney and Rayside (2013) and Patten (2013) note that ideological shifts within the Canadian Conservative party have led the decline of Red Toryism—a belief that stresses communitarianism and social order but allows for considerable government intervention—in favour of neoliberalism. Patten (2013: 61) further argues that neoliberalism has become a core ideology within the modern Conservative party, leading to the embrace of the free-market, the desire to roll back the state and the privileging of individualism and self-reliance.

Separate from social conservatism, economic conservatism is associated with support for free markets, limited government and competition. From this perspective, then, the core tenets of economic conservatism are antithetical to supply management's structures. The parochial nature of the policy—where production and prices are set by a marketing board and competition and imports are strictly limited—should result in less support for the policy among economic conservatives, though we have no such expectations for cultural or social conservatives:

H₁: Support for supply management is lower among economic conservatives.

Framing Supply Management

In addition to evaluating the correlates of support for supply management, we test how responsive this support is to framing. *Framing* has been defined as “the process by which people develop a particular conceptualization of an issue or reorient their thinking about an issue” (Chong and Druckman, 2007: 104) and as “alternative definitions, constructions, or depictions of a policy problem” (Nelson and Oxley, 1999: 1041). Frames, then, are how the issue is presented to the recipient. They “prime” individuals to conceive of the topic through the lens of the frame (Nelson and Oxley, 1999: 1043).

Framing effects have been defined as when a “speaker’s emphasis on a subset of potentially relevant considerations causes individuals to focus on these considerations when constructing their opinion” (Druckman, 2001: 1042) and when often small “changes in the presentation of an issue or an event produce (sometimes large) changes of opinion” (Chong and Druckman, 2007: 104). A successful frame will therefore lead to a framing effect that causes the individual to focus on the frame’s considerations (Druckman, 2001). These framing effects work by making new beliefs available, accessible or applicable (Chong and Druckman, 2007: 111).

Studies of framing and cueing effects have increased notably in recent years in Canada. Doberstein and Smith (2019) find that deservingness cues related to mental health increase support for government aid to the homeless across the ideological divide. Harell et al. (2012) use a conjoint experiment to show that cues signalling that individual immigrants are high in skill level increase support for granting their citizenship. Gravelle (2018) finds that Trump endorsement cues undermine Canadian public support for related trade policy, though not for energy policy. These works, however, focus on cues rather than emphasis frames.

Other work has examined the role of emphasis frames. Lachapelle et al. (2014) show that expert framing can have impacts on source credibility, which comes under strain when experts frame issues in ways that are a threat to people’s predispositions. They, however, do not look at its effects on policy attitudes. Closest to our focus here, Gravelle (2020) finds that Canadians’ views toward foreign trade are subject to framing effects in a survey experiment. Respondents were less likely to support closer economic ties with the United States when respondents were provided information about the size of Canada–US trade. Presenting respondents with information highlighting Mexico’s and China’s human rights abuses reduced their desire to seek closer economic ties with said states as well.

However, no research to date has looked at framing effects on agricultural policy in Canada. And this area of policy is likely ripe for strong framing effects because of its lack of salience. Not many people are likely to have firmly anchored beliefs related to supply management or agriculture policy more generally. Research has typically found that framing effects are weaker when people have stronger prior beliefs about a policy (Druckman and Nelson, 2003; Haider-Markel and Joslyn, 2001), though with a caveat that high levels of knowledge increase frame accessibility, which will be discussed more below.

The limited work that has been conducted so far on agriculture policy framing supports this contention. Jensen and Shin (2014) find that public attitudes toward

agricultural subsidies are incredibly malleable. When respondents were presented with a vignette that frames the current American subsidization regime as less generous than in other countries, an additional 12 per cent voiced support for increasing agricultural subsidies (Jensen and Shin, 2014: 306). To account for the success of their frames, the authors argue that “individuals’ lack of knowledge of agriculture policy provide tremendous opportunities to frame agriculture policy to generate support for farmers” (306). This lack of knowledge further allows policy makers to adopt the frame that is most conducive to public support, thus attempting to pull public opinion towards the preferences of the policy maker.

We focus on three frames for the purposes of this article. The first is the pro-farmer frame. All major political parties in the 2019 Canadian election maintained a commitment to supply management and demonstrated in their platforms their support for farmers. The LPC argued that a Liberal government will “continue to defend supply management” and will continue to implement support for dairy farmers affected by trade agreements (LPC, 2019: 25). The Conservatives promised to “defend Canada’s system of supply management” in order to “defend our farmers’ way of life” (CPC, 2019: 31). The NDP promised to protect supply management given that it “protects our family farms, rural communities, and hundreds of thousands of jobs” (NDP, 2019: 40). The Bloc Québécois forcefully defended the supply management regime and promised to propose a bill in the House of Commons to guarantee compensation promised for dairy farmers (as a result of trade agreements), as well as compensation for poultry and egg farmers (Bloc Québécois, 2019: 15).

The major parties are wedded to the notion that supply management is crucial for ensuring a fair return for farmers. Because dairy and poultry farmers’ incomes are volatile in a globalized world, these incomes must be protected by the federal government. As a result, parties are themselves framing supply management as a necessity to preserve the Canadian farm and the farmers’ way of life. Yet the family farm frame employed by political parties is not entirely accurate. In fact, the number of dairy farms with shipments of milk has declined in every subsequent year from 1967 (the first year for which we have data) to 2019, dropping from 174,139 farms in 1967 to 10,371 in 2019 under a supply management regime (Canadian Dairy Commission, 2020a).

Nevertheless, pro-farmer frames are prevalent in supply management discourse, and such sentiment is widely available, at least in the American public, especially in regards to family farms. Ellison et al. (2010: 352) find that people tend to support smaller farms over larger farms, with a large majority in favour of increasing farm subsidies for small farms and 71 per cent willing to reduce subsidies provided to large farms.² Similarly, Variyam et al. (1990: 259) find that 57 per cent agree with the statement that “government should have a special policy to ensure that family farms survive,” while Variyam and Jordan (1991) find that positive views toward the family farm are linked with support for farm subsidies.

The second frame we consider is the free-market frame. This frame emerges from existing research demonstrating that supply-managed goods are often more expensive in Canada than in America (Cardwell et al., 2015) and that, consequently, Canadian consumers pay more for dairy and poultry products. The free-market frame is often invoked by opponents of supply management—and particularly

by opinion columnists in the *National Post*, who argue that the current agricultural regime limits Canada's trade capacity and is an unfair burden on consumers (Dorosh, 2018; Ivison, 2013, 2015; Lau, 2020; Morgan, 2018; *National Post*, 2018). Consequently, eliminating the policy would allow Canadian dairy farmers to seek new external markets and would provide internal competition to Canadian consumers, thereby lowering the price of supply-managed goods. Thus, consumers would see considerable gains in a system where price and production are set by market forces.

Variyam et al. (1990) show that there is pocketbook-based opposition toward agricultural subsidies in the United States. They find that only 21 per cent agree (59 per cent disagree) with the statement that "most consumers would be willing to have food prices raised to help preserve the family farm"; only 35 per cent agree (39 per cent disagree) that "family farms should be supported even if it means higher food prices"; and a plurality of respondents (44 per cent) agree that "farmers should compete in a free market without government support" (Variyam et al., 1990: 259). The free-market frame, then, asks respondents to consider supply management from the perspective of their pocketbook.

The last frame we consider is a social inequity argument that emphasizes the asymmetrical effect of higher prices for staple goods for low-income and single-parent households. Indeed, Cardwell et al. (2015) argue that the average household faces a financial burden of \$444 per year as a result of supply management. More to the point, there is an annual burden of \$466 and \$585 imposed on low-income households and households with children, respectively. The \$466 burden on low-income households equates to an implicit tax of 2.29 per cent, which is roughly five times larger than the burden placed upon high-income households (see Doyon et al., 2018, for a direct response).

Our expectations are simply that the farmer frame should heighten support for supply management, while the free-market and inequity frames should reduce support. We test these expectations using a framing experiment included in wave 7 of a study of the 2019 study of the Canadian election by the Digital Democracy Project (DDP). We randomly assign respondents into four groups: a control condition with no frame, and three conditions that match our three frames. We expect the following:

H_{2A}: Exposure to the farmer frame is positively associated with support for supply management.

H_{2B}: Exposure to the free-market frame is negatively associated with support for supply management.

H_{2C}: Exposure to the inequity frame is negatively associated with support for supply management.

Framing effects are likely to be heterogeneous across several dimensions. First, they are moderated by individual predispositions where people with strong values are less amenable to contradicting frames (Chong and Druckman, 2007). Indeed, these values may manifest as "value frames" that are situated "between a value

and an issue [and] carr[y] an evaluative implication: It presents one position on an issue as being right (and others being wrong) by linking that position to a specific core value” (Brewer, 2001: 46). Ultimately, we expect the effectiveness of the frame to be determined by its alignment with an individual’s values. Free-marketers should find the free-market frame more persuasive, while economic progressives should be persuaded by the important social inequities fostered by supply management:

H_{3A}: The effect of the free-market frame should be stronger among economic conservatives.

H_{3B}: The effect of the social inequity frame should be stronger among economic progressives.

Second, framing effects should be moderated by knowledge. The direction of this effect, however, is contested. On the one hand, having more knowledge about a particular issue “increases the likelihood that the consideration emphasized in a frame will be available or comprehensible to the individual” (Chong and Druckman, 2007: 112). On the other hand, having knowledge about an issue may inoculate respondents from the influence of a frame (Chong and Druckman, 2007). Perhaps not surprisingly then, empirical studies have found evidence in both directions (see Bullock and Vedlitz, 2017; Haider-Markel and Joslyn, 2001; Kinder and Sanders, 1990; Nelson et al., 1997; Slothuus, 2006), though most evidence points to a reinforcing effect of political knowledge on frame acceptance (Bullock and Vedlitz, 2017). Druckman and Nelson (2003) argue that negative results in the literature are likely a result of a conflation of prior beliefs with knowledge. Strong priors inoculate respondents from framing effects, while knowledge itself allows frames to be accessible and comprehensible. Our expectation is that framing effects will be stronger among those with high levels of policy knowledge, at least when controlling for prior beliefs.

H₄: Framing effects are stronger for those with higher levels of policy knowledge, controlling for the moderating effects of prior beliefs.

Data and Method

Our data come from wave 7 of the DDP’s study of the 2019 Canadian election, fielded from October 4 to October 13, 2019 ($N = 1,545$). The sample was collected by Qualtrics, a company that provides access to online panel data, in addition to its better-known survey platform. Qualtrics draws potential respondents from a number of different panels maintained by other sample providers. Specific panels were identified to the DDP team with an embedded data field that contained the respondent’s panel identification.

Online non-probability samples are increasingly used by social scientists as a means of reliable, low-cost data collection. These scholars have been bolstered by a growing literature that has shown that while online non-probability samples provide somewhat divergent point estimates from probability-based modes (though

not always, see Ansolabehere and Schaffner, 2014), there is limited evidence of mode-based differences in the estimation of bivariate or multivariate relationships (Bytzek and Bieber, 2016; Pasek, 2016; Sanders et al., 2007; Stephenson and Crête, 2011; Yeager et al., 2011). In the Canadian context, Breton et al. (2017) compare the online opt-in component of the 2011 Canadian Election Study with the traditional phone survey and find the latter less likely to match population quantities and more likely to suffer from self-selection and social desirability bias.³ Even more importantly, sample average treatment effects and conditional average treatment effects recovered from survey experiments are comparable across modes (Mullinix et al., 2015; Coppock et al., 2018).

The DDP set quotas on gender (male, female), age (18–34, 35–54, 55+), region (Atlantic, Quebec, Ontario, West) and language (English, French) to match population benchmarks provided by the 2016 census. Our data are further weighted for our observational analyses within region by age and gender to match 2016 Canadian census population benchmarks. Sample characteristics can be found in Table S1 of the supplementary materials. They compare favourably to these benchmarks.

Outcome measure and treatment conditions

We provide respondents with a primer on supply management and then ask them to provide their level of support for supply management (strongly oppose; somewhat oppose; neither oppose, nor support; somewhat support; strongly support; don't know). Approximately 25 per cent of respondents opposed supply management at some level in the control group, compared to 22 per cent who support it; 53 per cent of respondents either took a neutral position or indicated they didn't know. The text of the prime can be found in the online supplement. We code "don't know" as missing to create a 0–1 scale.

We randomly assign respondents into four groups. In the control condition, respondents received only the prime. The other respondents were exposed to one of three frames. The first was a message consistent with the dairy lobby and Canada's major political parties, arguing that supply management stabilizes prices and provides farmers with a fair return (farmer frame). The second was consistent with the position of critics who argue that supply management privileges some farmers over others who are not under supply management, while increasing prices on consumers (free-market frame). The third emphasizes the socially regressive nature of supply management, in that its burden falls most strongly on less fortunate Canadians (social inequity frame). Our treatment conditions are described in Table 1, along with example text. The full text of the treatment conditions can be found in the online supplement.⁴ We expect the farmer frame to increase support for supply management (H_{2A}), while the free-market and social inequity frames should reduce support for supply management (H_{2B} , H_{2C}).

A few elements of the design are worth highlighting. All respondents receive some information on the nature of supply management in the control condition. This means that our estimate of support is taken after all respondents are given some information on the nature of the program. Rather than an estimate of public opinion as currently constituted, our estimate represents what public opinion

Table 1. Treatment Conditions

Condition	Example text	N
Control	N/A	385
Farmer frame	“Crucially, farmers further argue that by setting prices through marketing boards, the prices they receive ensure a fair return which reflects their hard work and effort.”	365
Free-market frame	“Critics argue that supply management forces the price of these goods to increase by limiting the supply of supply-managed products on the market. As a result, supply-managed goods are more expensive for everyday consumers compared to other countries.”	386
Social inequity frame	“Critics argue that supply management forces the price of these goods to increase by limiting the supply of supply-managed products on the market. As a result, these increased prices disproportionately hurt single-mother and low-income families.”	409
Total		1,545

would look like if people were given the information we provide. There are a few reasons why we chose this approach.

First, supply management is a low-salience issue. Many Canadians know nothing about the nature of the program. It is unclear whether there is much value in examining public opinion in such a state. Opinion is likely to change when people are exposed to a bare minimum level of information if elite debate on the issue was to take hold (Key, 1961), and politicians may seek to anticipate the public’s reaction to this change in salience (Merkley and Owen, 2020). An estimate of public support for supply management given a bare minimum understanding of the policy is important, in and of itself.

Second, and perhaps more importantly, we wanted to preserve a high degree of experimental control. Providing respondents with frames would, in effect, also provide them with some factual information about supply management (that it is an agricultural-support program that maintains a system of quotas and tariffs to guarantee a return to farmers). In the absence of factual information about supply management in the control condition, treatment effects we observe would reflect a bundling of effects from factual information about the program and the frame itself. That being said, future research should explicitly examine the effect of providing factual information related to supply management on policy support.

Another feature of this design is that we are testing the effects of frames independently of one another. We do this in order to isolate the effect of each of these frames compared to the control condition. An alternative approach would be to cross these conditions in a $2 \times 2 \times 2$ design. As Chong and Druckman (2007) note, frames often exist in competition to each other in political discourse. Understanding the degree to which these effects hold in a competitive environment is thus important.

We did not implement such a design for a number of reasons. First, we were not able to measure the strength of frames in advance of the implementation of our survey module, so we use three frames that are most common in this policy debate and infer frame strength from the magnitude and significance of the persuasion effects. Scholarship has found that strong frames dominate weak frames, and strong frames tend to cancel out the effects of other strong frames. In the absence of prior

measure of frame strength, we had limited expectations as to the interactive effects we would observe with a $2 \times 2 \times 2$ factorial design.

Second, it requires a lot of statistical power to precisely estimate heterogeneous effects with a three-way interaction. Our principle interest for this study is to estimate the effects of treatment compared to control and how these effects are moderated by observational factors such as policy knowledge and political predispositions. Future work should examine how the framing effects we identify change in light of competition from one another.

One final point on the design is that we do not examine moderation effects by the type of messenger, such as by political elites or economists. It is important to note that framing effects can be conditional on perceived credibility and trust in the messenger. For instance, Druckman (2001) finds that respondents exposed to frames were more likely to alter their opinion toward a KKK rally with more credible messengers. We do not test the effects of source cues here, or the interaction between source and message. This is an important limitation of the external validity of this study. Aggregate public opinion on this question may be shaped more by the credibility of the sources on each side of the debate (that is, political parties vs. supply management's critics) rather than the particular message they are using. Nonetheless, testing the effectiveness of important frames on this topic is a reasonable first step of inquiry.

Explanatory variables for observational analysis

We measure economic conservatism using a trio of policy questions that tap into this dimension. We recode responses as left (-1), right (1), or neutral (0) and create a 0–1 index ($M = 0.21$, $SD = 0.22$). We take the same approach with cultural or social conservatism ($M = 0.37$, $SD = 0.25$). Economic conservatism is only moderately correlated with social conservatism (0.26). All questions used in this index can be found in Table S1 of the supplement. Results replicate using a standard 0–10 ideological self-placement measure, though this measure does not distinguish between economic and social conservatism.⁵

Controls for observational analysis

We include a series of controls for characteristics that are possibly associated with our explanatory and outcome measures, such as news exposure, *National Post* news exposure, political knowledge, policy knowledge (described more below), strength of partisanship, ideological extremity, education, age, gender, rural residence, and region.⁶ We rescale all of our measures from 0–1 for comparability. Details on the construction of our measures can be found in Table S3 of the supplementary materials. Note that these controls are only featured in models that test H_1 .

Observational model

We estimate a model using ordinary least squares (OLS) regression that regresses supply management support on economic and social conservatism, our controls

(X) and a set of binary variables indicating experimental treatment (T).

$$\begin{aligned} \text{supply management support} = & \alpha + \beta_1 \text{economic conservatism} \\ & + \beta_2 \text{social conservatism} + \beta X + \beta T + \varepsilon \end{aligned}$$

We expect β_1 to be negative and significant to support H_1 . Breusch-Pagan tests allow us to rule out the presence of heteroscedasticity, so our models are estimated with OLS standard errors.

Experimental models

To evaluate the effects of our frames on support for supply management, we estimate an OLS regression where supply management support is regressed on each of our treatment conditions. There are no covariates in this estimation:

$$\text{supply management support} = \alpha + \beta_1 \text{farmer} + \beta_2 \text{freemarket} + \beta_3 \text{inequity} + \varepsilon$$

We expect β_1 to be positive and significant to support H_{2A} , while β_2 and β_3 should be negative and significant to support H_{2B} and H_{2C} , respectively.

For our experimental moderation analyses, we first estimate a pair of models where we interact economic conservatism with either a binary variable indicating a free-market frame (baseline = control, model 1) or a social inequity frame (baseline = control, model 2) to test H_{3A} and H_{3B} .

$$\begin{aligned} \text{supply management support} = & \alpha + \beta_1 \text{frame} + \beta_2 \text{economic conservatism} \\ & + \beta_3 \text{frame} * \text{conservatism} + \varepsilon \end{aligned}$$

We illustrate these results with marginal effects plots.

Then we estimate a trio of models where we interact policy knowledge with a binary indicator of each treatment condition independently (baseline = control condition). Policy knowledge, however, is observational. It may be highly correlated with other factors that moderate the treatment effect. We need to control for these factors in order to isolate the moderation effect of policy knowledge (Kam and Trussler, 2017). In particular, strong priors may dampen treatment effects while being correlated with policy knowledge (Druckman and Nelson, 2003). Druckman and Nelson (2003) use the “need to evaluate” index as a means to account for these priors. This election study lacks such an index, so we instead use political interest, partisan strength and ideological extremity to absorb the moderating effects of strong priors (X).

Our measure of policy knowledge is based on a question asking respondents to identify the commodities that fall under the umbrella of supply management from a list. We construct a variable classifying respondents as low knowledge if they failed to identify any such commodity from the list and as high knowledge if they correctly identified all three commodities. We score them as medium knowledge if they correctly identified only some of these commodities. Twenty-six per cent of our respondents correctly identified the three commodities under supply

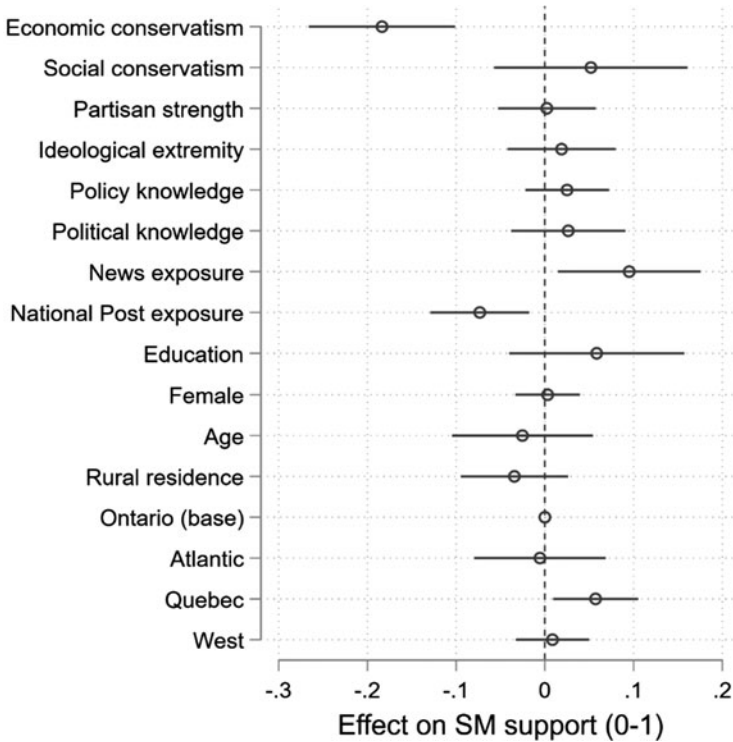


Figure 1 Estimated determinants of support for supply management. Note: 95 confidence intervals. Also controlling for treatment assignment. SM = supply management.

management from the list.⁷ We enter dichotomous variables in our model for medium- and high-knowledge respondents to account for potential nonlinear relationships, as shown below. For each model, we restrict ourselves to respondents in either the control or respective treatment condition. This allows us to directly test H_4 for each frame.

$$\begin{aligned}
 \text{supply management support} = & \alpha + \beta_1 \text{frame} + \beta_2 \text{midknow} + \beta_3 \text{highknow} \\
 & + \beta_4 \text{frame} * \text{midknow} + \beta_5 \text{frame} * \text{highknow} \\
 & + \beta X + \beta \text{frame} * X + \varepsilon
 \end{aligned}$$

We again illustrate these results with marginal effects plots. For our experimental estimates, we use HC2-robust standard errors to account for heteroscedasticity. The full estimates can be found in the supplementary materials.

Results

The estimates from our observational results are shown in Figure 1. There is support for our first hypothesis (H_1). Recall each of our variables is scaled from 0–1. Movement across the range of 0–1 economic conservatism is associated with a 0.18

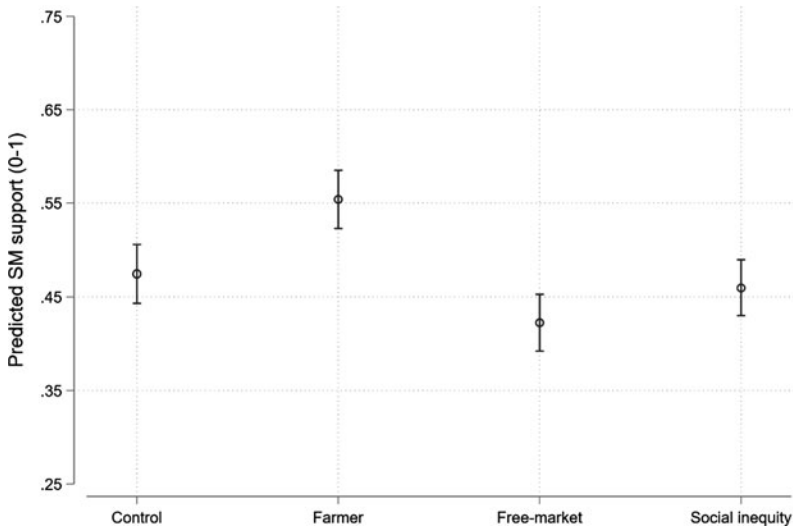


Figure 2 Mean supply management support by treatment condition.

Note: 95 per cent confidence intervals. SM = supply management.

reduction in support for supply management controlling for other factors, which is approximately 0.68 standard deviations on our outcome measure ($p < .05$). There is no such effect for social or cultural conservatism.

Aside from economic conservatism, only news consumption and province of residence appear to have bearing on supply management support. Moving from the minimum to the maximum level of news exposure is associated with a 0.10 increase in support for supply management ($p < .05$), while reading the *National Post* in the past week is associated with a 0.07 reduction in support ($p < .05$). Support for supply management is, in some respects, shaped by the information people encounter in the news media, with hostile sources like the *National Post* associated with less support even when controlling for economic and social conservatism. Finally, respondents from Quebec were 0.06 points more supportive of supply management compared to those in Ontario ($p < .05$), likely due to the heightened relevance of this policy in the province.

Experimental results

We find some support for H_2 . The unconditional mean response by treatment condition is shown in [Figure 2](#). Our respondents were influenced by the frames we introduced in advance of the supply management outcome variable. Respondents exposed to the farmer frame were eight points more supportive of supply management compared to the control ($p < .05$), which amounts to 0.28 standard deviations on our outcome (H_{2A}). Respondents in the free-market condition were five points less supportive of supply management compared to the control ($p < .05$), which is approximately 0.18 standard deviations on this measure (H_{2B}). However, the

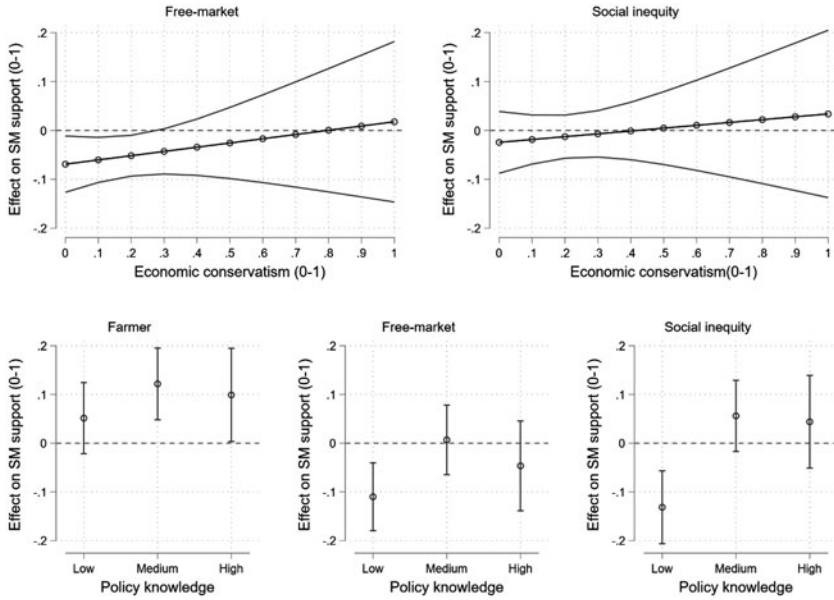


Figure 3 Marginal effects of frames across moderating variables. Effect of free-market frame across ideology (top-left). Effect of inequity frame across ideology (top-right). Effect of farmer frame across policy knowledge (bottom-left). Effect of free-market frame across policy knowledge (centre-left). Effect of inequity frame across policy knowledge (bottom-right).

Note: 95 per cent confidence intervals. SM = supply management.

inequity frame does not appear to have influenced people’s support for supply management ($p = .51$, contra H_{2C}).

We have some expectation of heterogeneous treatment effects. First, we expect the free-market and social inequity frames to be more influential for economic conservatives (H_{3A}) and economic progressives, respectively (H_{3B}). The top two panels of Figure 3 show the estimated treatment effect for each of these frames across our 0–1 economic conservatism index. We see no evidence in favour of these hypotheses.

Second, we expect framing effects to be stronger for people who are more knowledgeable about supply management after controlling for strong prior beliefs (H_4). We see little support for this hypothesis, as shown in the bottom panels of Figure 3. Only with the farmer frame is the expectation close to being met. Treatment effects are not quite significant among those low in policy knowledge, but they are significant for those with medium ($p < .05$) and high levels of knowledge ($p < .05$). The observed treatment effects for those of high and medium levels of political knowledge are not, however, significantly different from those with low levels of policy knowledge.

For the other two frames, we find the exact opposite. The free-market frame exhibits its strongest effects among those who failed to identify any commodities associated with supply management (-0.11 , $p < .05$), and these effects disappear at higher levels of knowledge. We see the same for the social inequity frame. There is a significant

framing effect in the expected direction among those who failed to identify any supply management commodities ($-0.13, p < .05$), and this becomes non-significant as knowledge increases. These results are more consistent with the notion that policy knowledge inoculates individuals from framing effects. Importantly, we see these results when controlling for a number of factors associated with strong prior beliefs such as political interest, partisan strength and ideological extremity.

Discussion

This article is a first effort at understanding the correlates of public support for supply management and its stability in response to framing. We find strong evidence that support for support management is lower among economic conservatives (H_1). The strong regulatory apparatus of supply management warns away free-marketers. In addition, we find stronger opposition to the policy among *National Post* consumers, in keeping with opposition to supply management by their opinion columnists.

These findings illustrate the importance of taking seriously the multidimensional nature of ideology. Standard unidimensional measures of conservatism would understate its importance in structuring support for supply management where it is the economic dimension that matters. The strong relationship between economic conservatism and opposition to supply management underscores the peculiarity of the Conservative party's support for the policy. This can be seen as evidence either in favour of the power of supply management-related interest groups or the lack of importance of economic conservatism in the Conservative party's voter coalition. It is worth noting the mean score on our economic conservatism index is 0.28 for Conservative partisans, compared to 0.46 for social conservatism. Economic conservatism is not particularly prevalent in the Canadian mass public.

Our framing results are more mixed. On the one hand, we see some evidence that support for supply management is responsive to framing. Exposure to the farmer frame is positively associated with support for the policy (H_{2A}), while exposure to the free-market frame is negatively associated with support (H_{2B}). On the other hand, exposure to the social inequity frame is not associated with support (H_{2C}). Our survey adds to a body of literature seeking to understand the extent to which the Canadian public is susceptible to framing and the implications that these effects might (or might not) have on the development of public policy more broadly (Doberstein and Smith, 2019; Lachapelle et al., 2014; Harell et al., 2012; Gravelle, 2018, 2020).

Our findings are also consistent with prior work in the United States highlighting the Janus-faced nature of public attitudes toward farm support. The public broadly supports protections for family farms, so we should not be surprised such appeals move public attitudes (Ellison et al., 2010; Variyam and Jordan, 1991). But at the same time, economic and pocketbook considerations do matter (Variyam et al., 1990), so closely related framing can also be highly effective.

The reason that these frames are successful—unlike social inequity—is likely because of the relative availability of these frames in public discourse. In order for a frame to be effective, it must be relatively common. The major political parties

effectively frame the policy as a way to protect farmers' way of life and the family farm, while critics, such as the *National Post* columnists, have emphasized the pocketbook costs of the policy. Thus the farmer and free-market frames dominate public discourse.

We also find no evidence that the ideological congeniality of the frame moderates the effectiveness of the frame (H_3), nor do we find that framing effects are stronger for those with higher policy knowledge (H_4). If anything, we observe stronger effects among those with lower levels of policy knowledge, which is consistent with some other previous work.

What accounts for these findings? It might be because our high-knowledge respondents are not particularly high in policy knowledge at all. Only 4.7 per cent of respondents both correctly identified the commodities under supply management *and* failed to select an incorrect commodity. When policy knowledge is extremely low, our expectations of how concepts such as political interest, knowledge, or need for cognition moderate framing effects may well be different.

The low-salience nature of supply management means that the public is largely unaware of important trade-offs between consumer prices and producer windfalls, and it guarantees that the issue will not translate into an immovable core value. Its lack of salience also ensures public opinion can be readily shaped through framing to support the status quo, such as by linking the policy to support of the family farm, which we find is highly effective at moving public sentiment toward the program. It also happens to be the dominant frame used by Canadian political parties.

We agree with the conclusions reached by Jensen and Shin (2014: 320): that the opacity of a niche public policy provides politicians with considerable opportunity to determine the dominant narrative. The dominant narrative, protecting the producer in lieu of the consumer, allows policy makers to frame the policy in a way that guarantees its survival. In so doing, policy makers effectively frame supply management as a benevolent good, thereby reducing the appetite for reform among the public—leaving ample room for lobbyists to mobilize and ensure the policy's continued existence.

Our results leave open some interesting avenues for future research. There may be other correlates of supply management support that were not covered in the DDP election study. There could be, for example, a link between populism and opposition to supply management owing to perceptions that the policy is supported by special interests and opposition to the program by populist figures such as Maxime Bernier. Or there may be a link between authoritarian predispositions and support for the policy, since it provides order and stability to the supply-managed agricultural sector. More research is needed on the correlates of supply management support.

Similarly, there are plenty of opportunities for additional framing experiments that build on our findings. Are there "stronger" or "weaker" supply management frames? How do these framing effects hold up when in competition with one another? And perhaps most importantly, are there moderating effects by the type of messenger for a given frame? Most of the public debate on supply management exists between parties and supply-managed sectors, on the one side, and assorted critics in the news media and among economists, on the other. Seeing whether the effectiveness of frames vary by messengers, or even examining cueing effects directly, can shed even more light on existing public sentiment toward supply

management. This could be paired with media content analysis of supply management news coverage to track frames and cues in public debate over time. We hope our work here opens the door for future scholarship on public attitudes toward supply management and agricultural support programs in Canada.

Supplementary material. To view supplementary material for this article, please visit <https://doi.org/10.1017/S0008423921000366>

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Notes

- 1 A dairy farm with 80 cows would receive a direct compensation of \$38,000 each year.
- 2 A question in a Harvard School of Public Health/Politico poll conducted in 2018 asked respondents: “In the new Farm Bill, do you think the subsidies paid to *large* farming businesses should be increased, decreased, or kept about the same?” (emphasis added); 16 per cent, 30 per cent and 46 per cent answered that these subsidies should be increased, decreased and kept the same, respectively. This is in stark contrast to the 46 per cent, 10 per cent and 33 per cent of respondents who said that subsidies to *small and medium* farmers should be increased, decreased or kept the same respectively (Harvard School of Public Health/Politico, 2018; emphasis added).
- 3 In light of these findings and the considerable cost advantage of moving toward non-probability online samples, the Canadian Election Study has scaled up its online component. The 2019 Canadian Election Study, fielded concurrently to this survey implemented by the DDP, also uses Qualtrics as the sample provider (Stephenson et al., 2020, 2021).
- 4 Randomization was successful. Balance tests can be found in Table S9 of the online supplementary materials.
- 5 The items load on the appropriate dimensions as shown in Table S2. However, two items do not load as strongly as we might like: retirement age for the economic conservatism dimension, and assisted suicide for the social conservatism dimension. Our results are robust to excluding these measures in their respective indices as shown in Table S7 in the supplement.
- 6 Table S7 of the online supplement shows that our results are robust to controls for language instead of region, a five-region categorization rather than four, and attitudes toward environmental protection. We also see no significant differences in the estimated effects of our explanatory variables across different treatment conditions.
- 7 As we should expect, this measure is correlated with general political knowledge (0.31), news exposure (0.25), political interest (0.24) and residence in Quebec (0.13), where the vast majority of supply-managed farms exist.

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