Political Multipliers and Rapid Reversals*

Understanding the Secularization of Canada

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Abstract

I develop a theory in which the distribution of cultural traits and institutions co-evolve through a *political multiplier*: as more individuals adopt a trait, they support policies aligned with it, incentivizing others to adopt the trait, and leading politicians to propose even more aligned policies. This feedback loop can generate multiple stable equilibria, and the stronger the multiplier, the further apart they are. Several standard mechanisms from political and social economics amplify the multiplier. Information is aggregated through the political process and diffused via public signals rather than through decentralized social networks, allowing a temporary shock to trigger a rapid, long-lasting shift from one stable equilibrium to another. The model sheds light on Quebec's sudden secularization, the "Quiet Revolution." Combining 58 historical polls, I document that Quebec went from Canada's most to least religious province in under two decades after 1960, and show that existing theories cannot account for this striking pattern. I argue that Quebec's distinctive integration of church and state gave public institutions substantial influence over religiosity, producing a strong multiplier and multiple equilibria there—but not in the rest of Canada—thus leaving it susceptible to an equilibrium shift. I find support for three additional predictions of the model, and argue that a similar mechanism drove rapid secularization in the Netherlands and Ireland.

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1 Introduction

Why do some societies experience rapid cultural and institutional change, often shifting from one extreme to another, while other societies show remarkable stability? For instance, although Christianity had been a vibrant and central part of cultures on both sides of the Atlantic until the 20th century, many European countries went through fast episodes of political and cultural secularization, going from strongly religious to strongly secular within a few decades, while the United States maintained relatively stable levels of religiosity. Why the United States and Europe had such different religious trajectories remains a central puzzle in the literature on the sociology and political economy of religion (Bruce, 2011; Norris and Inglehart, 2011).[1]

The Canadian province of Quebec followed a particularly drastic version of the European pattern. A series of reforms in the 1960s and 1970s, known as the "Quiet Revolution," led to a rapid secularization of public institutions. At the same time, Quebec's culture experienced a *rapid reversal* compared to the rest of the country: it went from being the *most* religious province in Canada—and one of the most religious regions in the West—to being the *least* religious province in two decades. Among French-speaking Catholics, weekly church attendance dropped from 93% in the mid-1950s to 51% in 1980 and then to 32.5% in 1990 (see Figure 1). In the general population, the belief in Hell fell from 91% in 1960 to 25% in 1975, and the disapproval of legal euthanasia—historically closely related to religiosity—went from 82% in the mid-1950s to 25% in 1979 (see Figure 8 in Section 5.4). The rest of Canada, in contrast, followed a pattern of relatively stable religiosity more similar to the United States. Because Canada encompasses both the European and American patterns of secularization (Lyon and Van Die, 2000; Martin, 2017), it is a natural case to study the secularization puzzle.

Existing theories of religious or cultural change are not sufficient to explain Canada's dual pattern of secularization. In particular, secularization theory (Bruce, 2011; McCleary and Barro, 2006; Norris and Inglehart, 2011) and religious-market theory (Iannaccone, 1991) do not account for the speed of Quebec's decline in religiosity. They also do not explain why it remained persistently lower than the rest of Canada afterward, despite similar levels of development and a free religious market. Preference falsification (Kuran, 1995) is also inconsistent with survey evidence showing deep, genuine changes in attitudes and beliefs. More generally, previous theories of cultural change rely on interactions between individuals,

[1] For the purpose of this study, I focus on secularization in the West as the decline of traditional Christian religious norms, behaviors, values, beliefs and institutions (Casanova, 2011; Dobbelaere, 2002).

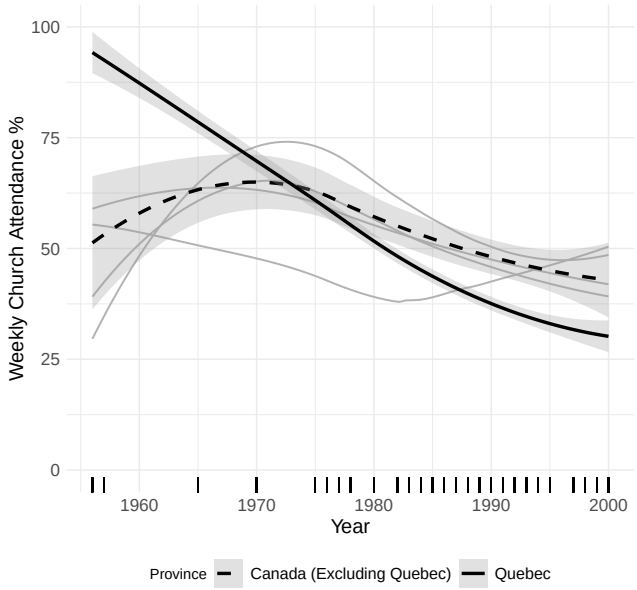


Figure 1: Weekly Church Attendance Among French-Speaking Catholics

Note: I produced this figure using multiple Gallup (Gallup, 2021) and Project Canada (Bibby, 2021) polls. The nonparametric trends and the 95% confidence intervals are computed using loess (local regression) with a standard cubic weighting function and full span. The ticks on the x-axis indicate the years for which data exists. The pale grey lines represent (in increasing order of church attendance in 1956) the Atlantic provinces, the provinces of the prairies, British Columbia, and Ontario.

who seek to match (or differentiate themselves from) other individuals' types or actions (Acemoglu and Jackson, 2015; Acemoglu and Robinson, 2021; Bikhchandani et al., 1992; Fernández, 2013; Giavazzi et al., 2019; Inglehart et al., 2017; Iyigun et al., 2021; Rubin, 2014; Wheaton, 2022). However, the speed of Quebec's reversal is hard to reconcile with gradual propagation through interactions in social networks. I argue instead that change happened *through the political process*, which aggregates citizens' preferences and diffuses them via electoral campaigns and policy changes. Hence, commonly observed signals coordinate change across the population, rather than the localized signals transmitted through social networks.

I study this mechanism using a new model in which culture, politics, and institutions dynamically interact. Individuals with heterogeneous preferences choose between two cultural types and vote for political candidates. The key driving force is that a citizen's utility depends on the alignment between his type and the policy put in place; this generates a *political multiplier* that amplifies the effects of individual behaviors on cultural and institutional outcomes through political channels. Specifically, if an individual adopts a new

type, he also shifts his vote and incentivizes politicians to adjust their platforms, which yields new policies and in turn leads other individuals to change type, and so on. If policies are culturally salient enough—i.e., citizens care enough about the alignment of their type with policies—the political multiplier gives rise to two stable equilibria. More culturally salient policies strengthen the multiplier further, polarizing the two equilibria. A temporary exogenous shock can then trigger a shift from one stable equilibrium to another, leading to rapid and long-lasting cultural and institutional change. Crucially, and in contrast with previous theories of cultural change, this mechanism does not rely on interactions between individuals: citizens respond to policy, not to one another.

I show that additional political and social economics mechanisms reinforce the political multiplier, helping rationalize some of its outsized observed impacts. First, when taxes are endogenous, they increase along with the political multiplier and finance larger state investments, reinforcing the multiplier by making public institutions more influential. Second, platform divergence gives citizens a greater range of policies to choose from, making the *expected* policy more responsive to citizens' preferences (Bernhardt et al., 2009) and thus amplifying the political multiplier. Third, a direct preference for social conformity among citizens generates a social multiplier (Bernheim, 1994; Brock and Durlauf, 2001) that compounds the political multiplier.

My theory explains Quebec's pattern of rapid institutional and cultural reversal after 1960, as well as the relative stability in the rest of Canada. I argue that, due to the Catholic Church's central role in Quebec's institutional development, religious and provincial state institutions became deeply integrated, as in many European countries, making public institutions and religious culture highly interdependent (Ferretti, 1999; Matte, 2013; Van Die, 2001; Zubrzycki, 2016). This strong interdependence places Quebec in the multiple-equilibria regime, with both a high- and a low-religiosity stable equilibrium. In contrast, in the other Canadian provinces, church and state institutions were far less intertwined, as in the U.S., producing a single moderately religious equilibrium(Beyer, 1997; Lipset, 2013; Martin, 2017; Van Die, 2001). This made Quebec, but not the rest of Canada, susceptible to a large equilibrium shift.

The model also highlights how different types of shocks could have triggered Quebec's rapid religious reversal. In particular, it shows that a shock weakening public institutions could have lowered their cultural influence enough to break the religious equilibrium and bring about a shift to a secular equilibrium. This fits particularly well with the Quebec case: cuts to federal transfers and difficulties in recruiting religious personnel in the late 1950s

considerably weakened the religious welfare state (Ferretti, 1999; Geloso, 2017; Geloso and Reilly, 2022; Murphy, 2008).

I build a new dataset on historical religious trends in Canada by combining data from 58 polls conducted between 1953 and 2005 (Gallup, 2021; Bibby, 2021). I document Quebec's rapid cultural reversal in weekly church attendance rates, belief in Hell, and disapproval of legal euthanasia—measures spanning religious practices, beliefs, and attitudes. The reversal pattern holds when the comparison is restricted to French-speakers and Catholics across provinces, and it holds across age groups, education levels, income levels, and both urban and rural populations. I also present evidence that it is not driven by Quebec's ethnonationalist movement. This is consistent with previous studies on Quebec's unique reversal in other measures related to religiosity, such as divorce, common-law unions (Laplante, 2006; Pollard and Wu, 1998), religious voting (Bibeau et al., 2023), and birth rates (Krull and Trovato, 2003).

In addition to explaining Quebec's rapid reversal, the model and its extensions make three predictions, which I assess in the Canadian case using quantitative and qualitative evidence (Bates, 1998): 1) the cultural and institutional transformations should proceed concurrently, with neither clearly preceding the other—showing mutually reinforcing processes rather than unidirectional causality; 2) Quebec's welfare state should expand significantly compared to the rest of Canada during the equilibrium shift; and 3) both major parties (Liberals and Union Nationale) should adopt more secular platforms during the transition. I find support for all three predictions. Taken together, these findings are hard to reconcile with alternative theories.

Compared to previous models studying the interaction between culture and institutions (Benabou and Tirole, 2026; Bisin and Verdier, 2024; Iyigun et al., 2021; Chen and Lind, 2016; Persson and Tabellini, 2021), my model has three features that make it well-suited as a foundation for future work. First, it characterizes how the degree of complementarity between cultural traits and institutions shapes equilibria at the intensity margin, rather than merely establishing the existence of multiple equilibria. Second, its relatively simple structure builds on the standard probabilistic voting model (Coughlin, 1992) and links naturally to the classic social interaction model of Brock and Durlauf (2001), making it readily combinable with a wide range of models in political and cultural economics. Third, it provides a framework for studying how economic, institutional, and preference shocks can trigger sudden shifts between equilibria, and hence rapid cultural and political change.

The remainder of the paper is organized as follows. In the next section, I set up and solve the model, and analyze its welfare properties. In Section 3, I extend the benchmark

model and incorporate additional mechanisms that complement and reinforce the political multiplier, while providing additional testable predictions. In Section 4, I show how the political multiplier mechanism can generate rapid cultural and institutional reversals. In Section 5, I use my theory to explain Quebec's rapid religious reversal in comparison to the rest of Canada, rule out alternative theories from previous literature as sufficient explanations, and compare and contrast with other cases: the Netherlands, Ireland, Sweden, the U.S., and Poland. Section 6 concludes with a brief discussion of applications of my model to other cultural, political and economic phenomena.

2 Model

2.1 Setup

There is a unit mass I of citizens indexed by i and two candidates from different parties $P \in \{A, B\}$. The game has two stages: a *cultural stage*, in which individuals decide which cultural type $\omega_i \in \{-1, 1\}$ to adopt, followed by a *political stage*, in which each candidate P proposes a cultural policy $R_P \in [-1, 1]$ and citizens vote.[2] I denote citizen i's vote to be v_i.[3] Politicians can credibly propose platforms, and seek to maximize their probability of winning the election. At the end of the game, the citizens' *cultural utility* as a function of their type, the politician in power P^*, and the policy implemented R^* is given by

$$U_i(\omega_i, R^*, P^*) = \frac{h}{2}\omega_i + \epsilon_i(\omega_i) + \lambda\beta\mu(\omega_i R^*) + (1-\lambda)\gamma + \delta_i(P^*), \tag{1}$$

whose terms I explain as follows.

The first term $\frac{h}{2}\omega_i$ is the *common* direct utility all individuals receive from choosing type ω_i. We assume $h < 0$ without loss of generality. The analysis with $h > 0$ is symmetrical.

The second term $\epsilon_i(\omega_i)$ is the *individual* direct utility for choosing type ω_i, which varies across individuals in the population. I assume that $\epsilon_i(-1)$ and $\epsilon_i(1)$ are independent and identically distributed according to a normal distribution $\mathcal{N}(0, \frac{\sigma^2}{2})$, with $\sigma < \frac{2}{\sqrt{2\pi}}$. Hence, $\text{Prob}(\epsilon_i(-1) - \epsilon_i(1) \leq x) = \Phi(x)$, where Φ is the CDF of a normal distribution with mean zero and variance σ^2.

[2] Placing the political stage before the cultural stage yields the same results under a local Nash equilibrium concept rather than dynamic stability (proof available upon request).

[3] One can think of the type as the behavior adopted in society (e.g., going to church, attitudes professed) given fixed preferences and varying social conditions. Nevertheless, although this is a less orthodox approach in economic models, one can also think of the type as individuals "choosing" their preferences or worldview; see Bernheim et al. (2021). Both interpretations align with my theory.

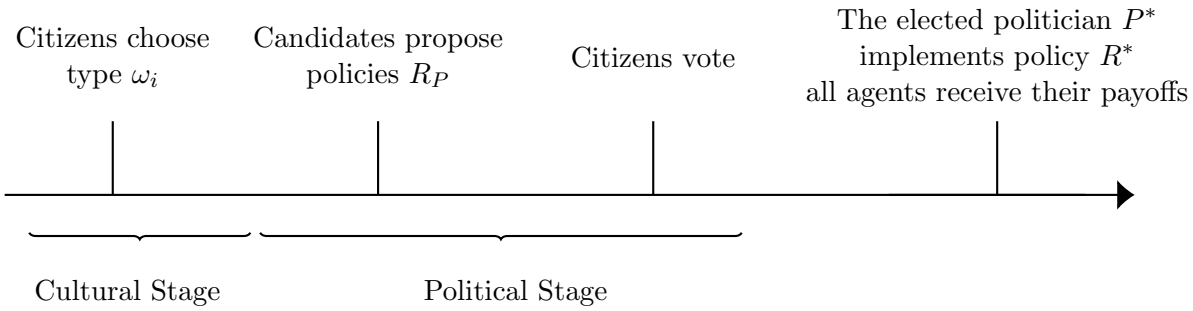


Figure 2: Sequence of Events

The third and fourth terms represent the cultural utility derived from institutions. The term $\lambda\beta\mu(\omega_i R^*)$ captures the utility obtained from *public* institutions, which depends on the cultural alignment of the government and its services (schools, hospitals, social services, courts, etc.) as represented by $R^* \in [-1, 1]$. I assume the following quadratic loss functional form for the function μ:

$$\mu(\omega_i R) = (1 + \omega_i R) - \left(\frac{1 + \omega_i R}{2}\right)^2.$$

Under this functional form, type ω_i's ideal point is in fact ω_i: the closer the government's cultural policy is to the ideal point of the individual, the higher the utility. In addition, the marginal utility decreases and converges to 0 as the policy gets closer to the ideal point. Note that μ has a codomain $[0, 1]$ and leads to convenient simplifications. $\beta \in (0, 1)$ captures the public institutions' capacity, with a higher β corresponding to a higher level of provision of cultural goods and services. Hence, $\mu(\omega_i R)$ can be interpreted as the utility per unit of public cultural goods provided.[4]

The fourth term $(1-\lambda)\gamma > 0$ represents the utility obtained from independent or private cultural institutions. These can be, for instance, private religious, linguistic and cultural schools, community centers, and churches. This term also incorporates "cultural human capital," which can be used by communities, parents, and individuals to transmit and maintain religious or secular values, languages and other cultural traits (Bisin and Verdier, 2001; Iannaccone, 1995).

[4]This functional form implicitly assumes that public cultural goods do not reduce any citizen's utility. This is reasonable because such goods are typically general public goods (e.g., education, healthcare) that benefit citizens broadly, and citizens can usually decline to consume goods that would lower their utility. This assumption can in any case be relaxed without affecting the results.

The weight parameter $\lambda \in (0,1)$ captures the relative cultural importance of public institutions versus independent institutions. [5] Certain cultural traits are more dependent on public institutions, such as religion in countries with state-integrated churches, as well as any language, values and norms taught in public schools. Other traits are more private in nature, such as religion in societies with a strong separation of church and state institutions, as well as humor, slang or cuisine.

The final term $\delta_i(P^*)$ captures random individual variation in the relative preference for the politician in power P^*. I assume $\delta_i(B) = -\delta_i(A)$. Following much of the literature on probabilistic voting (Persson and Tabellini, 2021), I assume that $\delta_i \sim U[-\frac{1}{2}, \frac{1}{2}]$, a uniform distribution centered at zero with density 1.

2.2 Static Equilibrium Analysis

For the static equilibrium analysis, I define a tuple $((\omega_i, v_i)_{i \in I}, R_A, R_B)$ to be an *equilibrium* if it satisfies the following conditions:

(i) All agents i choose their cultural type ω_i to maximize the utility given in equation (1) under rational expectations, i.e., they are forward-looking and anticipate the upcoming political stage when they choose their type in the cultural stage.

(ii) All agents i vote sincerely after the candidates choose their platforms.

(iii) Given the behavior of the agents, the candidates choose R_A and R_B in a Nash equilibrium.

In the rest of this section, I solve the model using backward induction—i.e., I solve the political stage first given a fixed distribution of types ω_i, and then I solve for the optimal choices in the cultural stage—and derive the fixed point equation characterizing the equilibria.

Consider the average type $\overline{\omega} = \int_{i \in I} \omega_i di$. For instance, if $\overline{\omega} = 0$, the two types have an equal mass. Equivalently, $k = \frac{\overline{\omega}+1}{2}$ is the fraction of types $\omega_i = 1$. The two candidates seek to maximize their chance of holding office. A citizen votes for candidate A if and only if

$$U_i(\omega_i, R_A, A) - U_i(\omega_i, R_B, B) = \lambda\beta[\mu(\omega_i R_A) - \mu(\omega_i R_B)] + 2\delta_i(A) \geq 0.^6$$

[5] Although λ and β are multipliers of the same term in equation (1), they differ in interpretation and are subject to different shocks, a distinction that matters for the case study. Furthermore, because λ also affects the utility from independent institutions, the two carry different welfare implications (Section 2.5).

[6] Since the citizens' preferences for candidates are distributed according to an atomless distribution, we can assume without loss of generality that if indifferent, a citizen will vote for A. A similar argument applies to the indifference condition in the cultural stage.

Since we have probabilistic voting, it is standard to show that each candidate P will choose R_P to maximize the average welfare $kU(1, R_P) + (1-k)U(-1, R_P)$ (Schofield, 2007).[7] In equilibrium, we must have $R_A^* = R_B^* = \overline{\omega} = R^*$. Intuitively, since candidates have to balance the interests of both types of citizens, they propose the policy corresponding to the mean voter preference. At the end of this stage, one of the two candidates is elected and policy R^* is implemented. This is summarized in the following lemma.[8]

Lemma 1 *In any equilibrium we have $R_A = R_B = \overline{\omega} = R^*$ and, given a fixed distribution of types, R^* maximizes the average citizen welfare.*

Now, let's consider the preceding cultural stage. Citizens form expectations R_i^e for the policy implemented in the final stage. Therefore, an individual will choose type 1 if and only if

$$\begin{aligned} U_i(1, R_i^e, P^*) - U_i(-1, R_i^e, P^*) =& h + \lambda\beta[\mu(R_i^e) - \mu(-R_i^e)] + [\epsilon_i(1) - \epsilon_i(-1)] \geq 0 \\ \iff & h + \lambda\beta R_i^e \geq \epsilon_i(-1) - \epsilon_i(1). \end{aligned} \tag{2}$$

Since citizens have rational expectations, they anticipate $R_i^e = R^* = \overline{\omega}$ in equilibrium. Given the distribution of $\epsilon(-1) - \epsilon(1)$, it follows that the mass of individuals who will be types 1 is $k = \Phi(h + \lambda\beta\overline{\omega})$. To simplify the analysis, I use the function $\Psi(x) = 2\Phi(x) - 1$, which is a rescaling of the normal CDF. Hence, the equilibria of the model are fixed points of the function

$$g(\overline{\omega}) := \Psi(h + \lambda\beta\overline{\omega}). \tag{3}$$

Lemma 2 *Equilibrium values of $\overline{\omega}$ are fixed points of the function g.*

This fixed point problem can admit many solutions, and thus many equilibria are possible. To understand the properties of these equilibria, we must first understand the dynamics of this problem, which I analyze next.

2.3 Equilibrium Dynamics

I now consider the dynamics of the model based on the static equilibrium analysis above. The static equilibrium can be interpreted using the following "tatonnement" procedure.[9]

[7] This is equivalent to maximizing $k\lambda\beta\lambda(R_P) + (1-k)\lambda\beta\mu(-R_P)$. Therefore, since $\lambda\beta$ affects equally the utility of both types of citizens, it does not affect the politicians' platform choice.

[8] All proofs are in Appendix B.

[9] This is not the only way to model the dynamics of the model, but, given that we have hyperbolic equilibria, any "reasonable" dynamic adjustment process (i.e., never moving away from the attracting equilibrium) is consistent with the stability analysis of equilibria in Theorem 1.

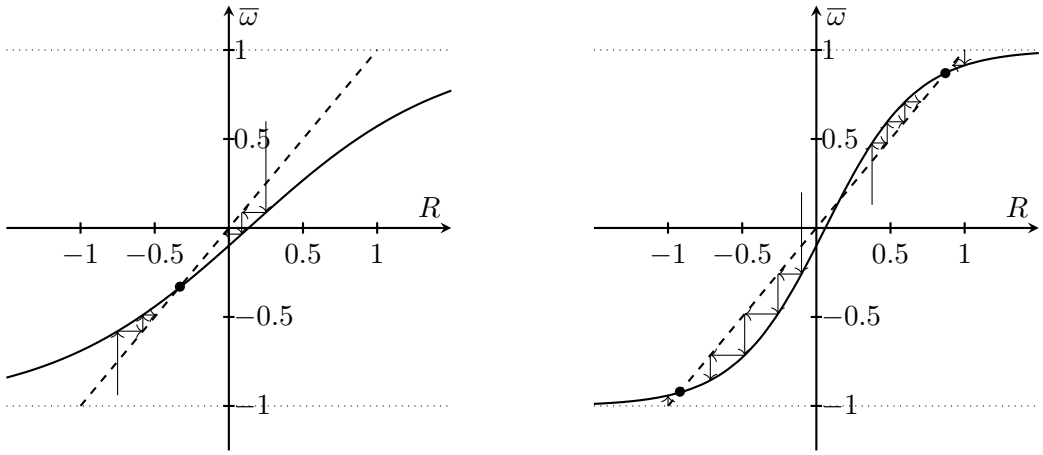


Figure 3: Fixed Points and Dynamics

Note: The left plot displays case 2(i) of Theorem 1 while the right plot displays case 2(ii). The black dots are the stable equilibria, and the arrows display the steps of the dynamic process.

Denote the iterations of this dynamic process $t \in \mathbb{N}_0$. Suppose we start out-of-equilibrium with a cultural policy R^0 and distribution of types $(\overline{\omega}_i^0)_{i\in I}$ such that $\overline{\omega}^0 = \int_{i\in I} \overline{\omega}_i^0 di$. Given this policy, some citizens adjust their behavior and we get $\overline{\omega}^1 = g(R^0)$. Then, at the next election, politicians, seeing the change in the distribution of types in the population, adjust their policy to $R^2 = \overline{\omega}^1$. Once in power, they modify the cultural alignment of the public institutions, which, in practice, takes a few years. Although citizens may face temporary psychological or social switching costs, they eventually adjust their type in reaction to this new policy and we get $\overline{\omega}^3 = g(R^2)$. This process continues and eventually converges to a fixed point $R^* = \overline{\omega}^* = g(\overline{\omega}^*)$. The public institutions and cultural traits move in interlocked steps, with the distribution of cultural types changing in uneven periods and the policy changing in even periods.

Given initial conditions $(\overline{\omega}^0, R^0)$, the dynamic process for $t > 0$ is characterized by the following piecewise recursive equation:

$$(\overline{\omega}^t, R^t) = \begin{cases} (g(R^{t-1}), R^{t-1}), & \text{if } t \text{ is odd (i.e., } t \in 2\mathbb{N} - 1) \\ (\overline{\omega}^{t-1}, \overline{\omega}^{t-1}), & \text{if } t \text{ is even (i.e., } t \in 2\mathbb{N}). \end{cases} \tag{4}$$

In Appendix A, I discuss microfoundations for this recursive process based on an infinite-horizon game, focusing on stationary equilibria.

I do not claim that this process accurately describes the dynamics of the political multiplier. A full treatment would require modeling, among other things, delays in policy

implementation and the time required for cultural adaptation—both of which affect the speed of adjustment. This is beyond the scope of this paper. The tatonnement process proposed here instead makes it possible to demonstrate the model's key properties in the simplest way possible.

First, the process highlights an important epistemic aspect of the model. Political actors, incentivized by electoral competition, aggregate information about citizens' preferences (e.g., through surveys, focus groups, town halls) and diffuse it through publicly announced platforms and policy implementation. Policy therefore acts as a public signal about the distribution of preferences: citizens do not need to keep track of other individuals' choices, only of the policies proposed—in contrast with social multiplier theories (Brock and Durlauf, 2001; Glaeser et al., 2003) and other theories of cultural change (Acemoglu and Jackson, 2015; Acemoglu and Robinson, 2021; Bikhchandani et al., 1992; Fernández, 2013; Giavazzi et al., 2019; Inglehart et al., 2017; Iyigun et al., 2021; Kuran, 1995; Rubin, 2014; Wheaton, 2022). This provides a mechanism for social coordination and thus for the multiplier effect.

Second, the dynamics are used to analyze the stability properties of the model's equilibrium. I define an equilibrium with values $(\overline{\omega}^*, R^*)$ to be *stable* if there is an $\epsilon > 0$ such that $\forall(\overline{\omega}^t, R^t)_0^\infty$ with $(\overline{\omega}^0, R^0) \in (\overline{\omega}^* - \epsilon, \overline{\omega}^* + \epsilon) \times (R^* - \epsilon, R^* + \epsilon)$, we have $(\overline{\omega}^t, R^t)_0^\infty \to (\overline{\omega}^*, R^*)$.[10]

The *basin of attraction* of an equilibrium with values $(\overline{\omega}^*, R^*)$ is defined as $B((\overline{\omega}^*, R^*)) = \{(\overline{\omega}^0, R^0) \in [-1, 1]^2 | (\overline{\omega}^t, R^t)_0^\infty \to (\overline{\omega}^*, R^*)\}$.

An equilibrium with values $(\overline{\omega}^*, R^*)$ is *globally stable* if $B((\overline{\omega}^*, R^*)) = [-1, 1] \times [-1, 1]$. Thus, in words, an equilibrium is stable if it can be slightly perturbed, either by changing the policy or the distribution of types, and then come back to the original equilibrium. The set of initial values $\overline{\omega}$ and R for which we converge to an equilibrium is its basin of attraction. If this basin of attraction corresponds to the entire space of possible policies and distributions of cultural types, then the equilibrium is globally stable.

In the following theorem, I characterize the equilibria of the model and their dynamic properties.

[10] This definition of stability corresponds to *asymptotic stability* in the mathematical literature.

Theorem 1 *All equilibrium values* $(\overline{\omega}^*, R^*)$ *are such that* $R^* = \overline{\omega}^* = g(\overline{\omega}^*)$ *and are interior, i.e.,* $(\overline{\omega}^*, R^*) \in (-1, 1) \times (-1, 1)$. *Furthermore, there exists a threshold* $\Lambda \in (0, 1)$ *for which:*

1. *If* $\lambda\beta \leq \Lambda$, *there is a unique globally stable equilibrium with values* $(\overline{\omega}^m, R^m) < 0$.
2. *If* $\lambda\beta > \Lambda$ *there exists a threshold* $H \in (0, \lambda\beta)$ *that is increasing in* $\lambda\beta$ *such that:*
   - *(i) If* $|h| > H$, *there is a unique globally stable equilibrium with value* $(\overline{\omega}^m, R^m) < 0$.
   - *(ii) If* $|h| < H$, *there are three equilibria* $(\overline{\omega}^*, R^*)$ *with respective values* $\overline{\omega}^+, R^+ > 0$, $\overline{\omega}^-, R^- < 0$, *and* $\overline{\omega}^m, R^m \in (0, \overline{\omega}^+)$. *The first two are stable equilibria with basins of attraction* $B((\overline{\omega}^+, R^+)) = \{(\overline{\omega}^0, R^0) : R^0 > R^m\}$ *and* $B((\overline{\omega}^-, R^-)) = \{(\overline{\omega}^0, R^0) : R^0 < R^m\}$. *The third equilibrium is not stable.*[11]

Theorem 1 says that as long as $\lambda\beta$ is high enough—thus, policies bear enough weight in the citizens' cultural utility—and the average preference h is close enough to zero, there are three possible equilibria to consider: There is a positive and a negative stable equilibrium, and the middle equilibrium delimits their respective basins of attraction. If a change in parameter leads to a switch from case 2(ii) to case 2(i) or 1 in Theorem 1, then $(\overline{\omega}^+, R^+)$ is eliminated and there is a smooth transition in which $(\overline{\omega}^-, R^-)$ becomes $(\overline{\omega}^m, R^m)$, the now unique and globally stable equilibrium. Henceforth, I focus on stable equilibria as possible outcomes of the game, in line with the population games literature (Sandholm, 2010).[12]

Finally, the dynamic process proposed here shows that policies and institutions can be path-dependent in the model (Acemoglu et al., 2021). In case 2(ii) of Theorem 1, the initial value of R^0 determines whether the system will converge to a positive or negative equilibrium.[13]

2.4 Comparative Statics

The state's capacity to produce cultural goods and services (β) and the relative cultural importance of public institutions (λ) affect the equilibria of the model in the same way.

[11] I ignore the case with $|h| = H$ (2(iii)) since it is a knife-edge (nongeneric) case.

[12] One way to justify this assumption is to imagine that there are tiny shocks that affect the policies proposed in the dynamic process ($R^t = \overline{\omega}^t + \zeta^t$, where ζ^t are small random shocks centered at zero). Hence, the process never stabilizes at a nonstable equilibrium.

[13] Institutional path-dependence hinges on the exact adjustment dynamics; it is observed as long as the distribution of cultural types can (at least partially) adapt to the initial policy before the policy fully adjusts to the initial distribution of types. In particular, in the extreme case in which we invert the order of the tatonnement process (4)—i.e., the policy adjusts first, in odd periods, and the distribution of types adjusts in even periods—then the basins of attraction are determined solely by $\overline{\omega}_0$.

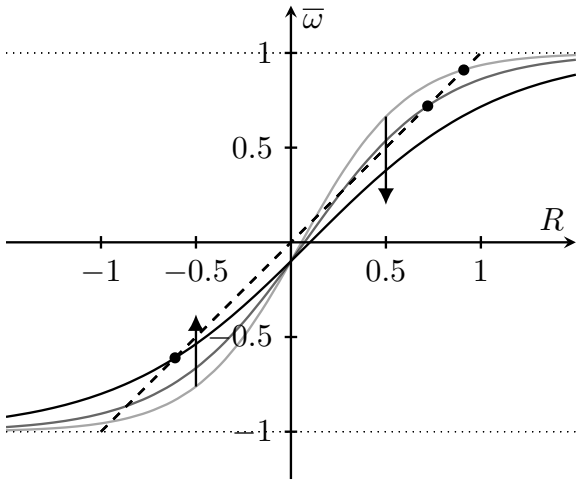


Figure 4: Changes in Equilibria as $\lambda\beta$ Decreases

Note: $h < 0$ and the darker the lines have lower $\lambda\beta$. The black dots in the graphs are the stable equilibria.

An increase in either parameter increases the salience of policies, and amplifies the effect of individual cultural choices ω_i on global outcomes $\overline{\omega}$ and R, through the political process. This strengthens the political multiplier effect: when an individual changes type, he changes his voting behavior which incentivizes politicians to adopt platforms that align more with that cultural type, which in turn encourages other citizens to adopt it. This generates greater social homogeneity ($\Uparrow |\overline{\omega}|$) and more polarized stable equilibria, as exposed in the following proposition.

Proposition 1 *In any stable equilibrium* $(R^*, \overline{\omega}^*)$, $\frac{d\overline{\omega}^*}{d\lambda\beta} = \frac{dR^*}{d\lambda\beta} > 0$ *if the equilibrium is positive, and* $\frac{d\overline{\omega}^*}{d\lambda\beta} = \frac{dR^*}{d\lambda\beta} < 0$ *if the equilibrium is negative.*

If we are in case 1 or 2(i) of Theorem 1, an increase in $\lambda\beta$ increases the unique equilibrium if it is positive and decreases it if it is negative. An increase in $\lambda\beta$ may also lead to a shift from case 1 to case 2(ii), and the middle equilibrium smoothly becomes the negative stable equilibrium $(\overline{\omega}^-, R^-)$. Then, as we increase $\lambda\beta$, the positive stable equilibrium keeps increasing while the negative stable equilibrium keeps decreasing; the equilibria are further pushed apart. Visually, this increases the S-shaped function above zero and decreases it below zero (see Figure 4).

2.5 Welfare Analysis

The political multiplier mechanism also has interesting effects on the *ex post* aggregate welfare of the citizens,[14] which for any equilibrium $(\overline{\omega}^*, R^*)$, is define as

$$WE((\overline{\omega}^*, R^*)) = \int_{i \in I} U_i(\omega_i, R^*, P^*) di. \tag{5}$$

An increase in the efficiency of the government in producing cultural goods and services ($\Uparrow \beta$) improves aggregate welfare. This is not as trivial as it may seem: although the direct effect of increasing the production of public goods $\mu(\omega_i R^*)$ is positive for both types of individuals, increasing β amplifies the political multiplier and changes the equilibrium distribution of types $\overline{\omega}^*$ and policy R^*. Hence, for some citizens, the policy moves away from their ideal point, which reduces their utility.[15] Nevertheless, at the population level, the political multiplier has no first-order welfare effect. This follows for two reasons. First, citizens who switch type in response to a marginal change in β are those at the indifference threshold; since they are exactly indifferent between $\omega_i = -1$ and $\omega_i = 1$, their decision does not change their utility. Second, the resulting shift in the equilibrium policy R^* has no net welfare effect on non-switching citizens, because electoral competition ensures that the policy maximizes average (aggregate) policy utility given the composition of types (Lemma 1); gains to citizens whose type aligns better with the new policy are exactly offset by losses to citizens whose type aligns worse. This is an instance of the sufficient statistics approach to welfare analysis (Chetty, 2009), in which the envelope theorem can be applied to welfare analysis. Therefore, only the direct, mechanical effect of β on policy utility survives, and welfare is unambiguously increasing in β.

Proposition 2 *At any equilibrium $(\overline{\omega}^*, R^*)$, the welfare effect of an increase in β is*

$$\frac{dWE}{d\beta} = \lambda \left[\frac{3 + (\overline{\omega}^*)^2}{4} \right] > 0.$$

Nevertheless, the political multiplier does affect the *magnitude* of the welfare gain from an increase in β: as can be observed from the expression of $\frac{dWE}{d\beta}$, the marginal welfare gain is increasing in $(\overline{\omega}^*)^2$. Intuitively, the stronger the political multiplier, the more homogeneous

[14] Note that whether candidate A or B gets elected is irrelevant because, given the distribution of $\delta(A)$ and $\delta(B)$, the aggregate welfare is the same in both cases.

[15] Numerical simulations show that an increase in β may not lead to Pareto-improvements; some individuals may be made worse off by such a change in parameter (see Proposition 2). Some individuals may also be made worse off by a switch from a positive to a negative stable equilibrium (see Proposition 3).

society is, and thus the more the equilibrium policy aligns with citizens' preferences on average, which implies that an increase in the production of cultural goods brings greater benefits to citizens.

The effect of λ on welfare is ambiguous, in contrast with β: λ also diminishes the weight of independent institutions in the utility function, which decreases welfare.[16]

However, changes in β and λ—through their effect on the political multiplier—have the same effect when comparing the welfare of different equilibria. Although the political multiplier does not have first-order effects on welfare at any given equilibrium, it matters when comparing equilibria. When $h < 0$ and two stable equilibria exist, the negative stable equilibrium $\overline{\omega}^-$—which is closer to the average preference h—gives higher aggregate welfare than the positive stable equilibrium $\overline{\omega}^+$, and the welfare gap widens as $\lambda\beta$ increases. In sum, the political multiplier has a polarizing effect not only on the policy and cultural equilibria, but also on their welfare.[17]

Proposition 3 *When two stable equilibria exist,* $WE((\overline{\omega}^-, R^-)) > WE((\overline{\omega}^+, R^+))$. *Furthermore,* $\frac{d}{d\lambda\beta}\Big[WE((\overline{\omega}^-, R^-)) - WE(\overline{\omega}^+, R^+)\Big] > 0$.

3 Extensions

In this section, I show that part of what makes the political multiplier so salient is that it is complemented and reinforced by other political and social mechanisms.

First, I develop an extension in which investments in public institutions and taxation levels are endogenously determined through the electoral process. I show that the political multiplier increases public spending in equilibrium—the *Public Investment Multiplier*—which in turn increases the cultural influence of public institutions and thus the political multiplier effect.

Second, I incorporate the influence of lobbies, party bases, and politicians' policy preferences, thereby allowing for platform divergence. To do so, I follow a standard approach in the political economy literature (Calvert, 1985; Grossman and Helpman, 1996; Schnakenberg and Turner, 2023; Wittman, 1977) in which politicians' utility places weight on the policy outcomes experienced by citizens of one or both types. I show that the political

[16] $\frac{dWE}{d\lambda} = \beta\left[\frac{3+(\overline{\omega}^*)^2}{4}\right] - \gamma$, and so welfare is increasing in λ if and only if $(\overline{\omega}^*)^2 > 4\frac{\gamma}{\beta} - 3$, which can only happen if $\gamma < \beta$.

[17] The welfare analysis of the model (Propositions 2 and 3) remains valid for all extensions, except for the expression for $\frac{dWE}{d\beta}$, which changes slightly.

multiplier weakens as politicians become less responsive to voters. However, it strengthens with platform divergence—an effect I call the *Policy Divergence Multiplier*: divergence allows voters to adjust their vote to improve the ex-ante welfare of the *expected* policy (Bernhardt et al., 2009). Because this expected policy becomes more responsive to changes in the distribution of cultural types, the political multiplier effect is amplified.

Third, I show that incorporating a *Social Multiplier* based on a desire for conformity (Bernheim, 1994; Brock and Durlauf, 2001)—i.e. a preference for being similar to the average type—creates additional pressures toward social homogeneity, and thus amplifies the political multiplier effect.

3.1 Endogenous State Investment

Politicians need to decide the level of provision of public goods and services such as public education, healthcare and media, in addition to their cultural alignment. Hence, in this section, I modify the benchmark model to take this possibility into account.

Suppose that citizens need to pay taxes $T \geq 0$ to support investments in public goods $G = T$. The level of provision is then βT, where $\beta \in (0, 1)$ captures the efficiency of public institutions. The candidates propose tax levels T_P and orientation R_P, and the elected politician implements T^* and R^*. The opportunity cost of paying taxes is $\frac{(T^*)^2}{2}$ (increasing and convex). The citizens' utility at the end of the game is given by

$$U_i(\omega_i, R^*, T^*, P^*) = \frac{h}{2}\omega_i + \epsilon_i(\omega_i) + \lambda\beta T^*\mu(\omega_i R^*) - \frac{(T^*)^2}{2} + (1-\lambda)\gamma + \delta_i(P^*). \quad (6)$$

Fortunately, the problem for the candidates is well-behaved and the optimal choice $R^* = \overline{\omega}$ remains the same as before. Then, the tax policy that maximizes the odds of winning is the same for both candidates and is given by $T^* = \lambda\beta[k\mu(R^*) + (1-k)\mu(-R^*)]) = \lambda\beta[\frac{3}{4} + \frac{(\overline{\omega})^2}{4}]$.

Lemma 3 *In any equilibrium,* $R_A = R_B = \overline{\omega} = R^*$ *and* $T_A = T_B = \lambda\beta[\frac{3}{4} + \frac{(\overline{\omega})^2}{4}] = T^*$.

Now, with a reasoning similar to the one that gave us equation (3), we find that the equilibria are given by fixed points of the function

$$\hat{g}(\overline{\omega}) := \Psi(h + \lambda\beta T^*(\overline{\omega})\overline{\omega}), \quad (7)$$

in which T^* is a function of $\overline{\omega}$.

Lemma 4 *Equilibrium values of* $\overline{\omega}$ *are fixed points of the function* $\hat{g}$.

We can consider dynamics analogous to those in the benchmark model (see equation 4) in which citizens change types in odd periods and policies—the cultural orientation R and the tax rate T—adjust simultaneously in even periods. Given initial conditions $(\overline{\omega}^0, R^0, T^0)$, the dynamic process for $t > 0$ is characterized by the following piecewise recursive equation, where $\hat{g}$ is defined as a function of both R^{t-1} and T^{t-1}:

$$(\overline{\omega}^t, R^t, T^t) = \begin{cases} (\hat{g}(R^{t-1}, T^{t-1}), R^{t-1}, T^{t-1}), & \text{if } t \text{ is odd (i.e., } t \in 2\mathbb{N} - 1) \\ (\overline{\omega}^{t-1}, \overline{\omega}^{t-1}, \lambda\beta[k^{t-1}\mu(\overline{\omega}^{t-1}) + (1 - k^{t-1})\mu(-\overline{\omega}^{t-1})]), & \text{if } t \text{ is even (i.e., } t \in 2\mathbb{N}). \end{cases} \tag{8}$$

Under more restrictive bounds for σ and $\lambda\beta$, the equilibria and their dynamic properties have the same structure as in Theorem 1, but with the *effective cultural investment* TR playing the role of the cultural policy R in the benchmark.[18]

Theorem 2 *Assume* $\sigma < \frac{3}{4\sqrt{2}}$ *and* $\lambda\beta > \sqrt{\frac{4\sqrt{2}\,\sigma}{3}}$. *All equilibrium values* $(\overline{\omega}^*, R^*, T^*)$ *are such that* $R^* = \overline{\omega}^* = \hat{g}(\overline{\omega}^*)$, $T^* = \lambda\beta\left[\frac{3}{4} + \frac{(\overline{\omega}^*)^2}{4}\right]$, *and are interior, i.e.,* $(\overline{\omega}^*, R^*, T^*) \in (-1, 1) \times (-1, 1) \times \left(\frac{3\lambda\beta}{4}, \lambda\beta\right)$. *Furthermore, there exists a threshold* $\hat{H} \in \left(0, (\lambda\beta)^2\right)$ *that is increasing in* $\lambda\beta$ *such that:*

(i) If $|h| > \hat{H}$, *there is a unique globally stable equilibrium* $(\overline{\omega}^m, R^m, T^m)$ *with values* $\overline{\omega}^m, R^m < 0$.

(ii) If $|h| < \hat{H}$, *there are three equilibria* $(\overline{\omega}^*, R^*, T^*)$ *with respective values* $\overline{\omega}^+, R^+ > 0$, $\overline{\omega}^-, R^- < 0$, *and* $\overline{\omega}^m, R^m \in (0, \overline{\omega}^+)$. *The first two are stable equilibria with basins of attraction* $B((\overline{\omega}^+, R^+, T^+)) = \{(\overline{\omega}^0, R^0, T^0) : T^0R^0 > T^mR^m\}$ *and* $B((\overline{\omega}^-, R^-, T^-)) = \{(\overline{\omega}^0, R^0, T^0) : T^0R^0 < T^mR^m\}$. *The third equilibrium is not stable.*[19]

In any equilibrium, increasing $\lambda\beta$ directly increases T^* ($\frac{\partial T^*}{\partial \lambda\beta} > 0$) since citizens value public institutions more in their cultural utility, and are therefore willing to pay more in taxes to fund them. Furthermore, an increase in $\lambda\beta$ directly increases $|\overline{\omega}|$ ($\frac{\partial |\overline{\omega}^*|}{\partial \lambda\beta} > 0$) in any stable equilibrium, just like in the benchmark model, which in turn increases T^* further ($\frac{\partial T^*}{\partial |\overline{\omega}^*|} > 0$). Intuitively, with more cultural homogeneity, the policy R is more aligned with the majority of citizens, and so citizens are on average more willing to pay taxes to

[18] To ensure the existence of a single inflection point for $\hat{g}$ (S-shaped function), $\lambda\beta$ needs to be sufficiently large relative to σ.

[19] In contrast with Theorem 1, no threshold Λ appears since the lower bound on $\lambda\beta$ is itself more demanding than that threshold. We also need $\sigma < \frac{3}{4\sqrt{2}}$ to ensure that the lower bound for $\lambda\beta$ is less than 1. Again, I ignore the knife-edge (nongeneric) case $|h| = \hat{H}$.

provide public goods. Then, as T^* increases, the influence of public institutions grows, and with it the political multiplier effect, so that $|\overline{\omega}|$ increases even more ($\frac{\partial|\overline{\omega}^*|}{\partial T^*} > 0$). This is what I call the *Public Investment Multiplier*: an increase in $\lambda\beta$, in addition to acting through the political multiplier, polarizes equilibria by increasing public spending. The Public Investment Multiplier is therefore complementary to the political multiplier and reinforces it, as per the total derivative in Equation 10.[20]

Proposition 4 *In any equilibrium,* $\frac{\partial T^*}{\partial \lambda\beta}, \frac{\partial T^*}{\partial|\overline{\omega}^*|} > 0$*, and in any stable equilibrium* $\frac{\partial|\overline{\omega}^*|}{\partial \lambda\beta}, \frac{\partial|\overline{\omega}^*|}{\partial T} > 0$*. Furthermore, in any stable equilibrium, we have*

$$\frac{dT^*}{d\lambda\beta} = \frac{\partial T^*}{\partial \lambda\beta} + \frac{\partial T^*}{\partial|\overline{\omega}^*|}\frac{d|\overline{\omega}^*|}{d\lambda\beta} > 0 \tag{9}$$

$$\frac{d|\overline{\omega}^*|}{d\lambda\beta} = \underbrace{\frac{\partial|\overline{\omega}^*|}{\partial \lambda\beta}}_{\textit{Political Mult.}} + \underbrace{\frac{\partial|\overline{\omega}^*|}{\partial T^*}\frac{dT^*}{d\lambda\beta}}_{\textit{Public Investment Mult.}} > 0. \tag{10}$$

This extension generates two additional predictions on levels of public spending.

First, it follows from Theorem 2 that, since $R^m > 0$, the larger the initial T^0, the larger the set of values R^0 for which the system converges to the positive equilibrium in case 2(ii). However, the positive equilibrium also happens to be the one with the lower T^*, since $|\overline{\omega}|$ is smaller in that equilibrium. Hence, paradoxically, a state with a larger initial size is, in a sense, more likely to converge to an equilibrium with smaller state size.

Second, Equation (9) tells us that if we compare two societies with different $\lambda\beta$ that are *in the same equilibrium*—for instance, $(\overline{\omega}^-, R^-, T^-)$—then the one with the higher $\lambda\beta$ will have higher public spending.

3.2 Policy-Seeking Candidates, Special Interest Groups and Platform Divergence

In this extension, candidates ($P \in \{A, B\}$) put weight on the utility derived from their proposed policies by citizens of one or both types, in addition to their probability of being elected. Calvert (1985) show this is functionally equivalent to a model of policy-seeking politicians that generates platform divergence, and Grossman and Helpman (1996) show this is implied by a model of lobbying. I assume that candidates either directly care about their vote share z_P (as in a proportional representation system) or that their winning

[20] Proposition 4 does not require Theorem 2; it holds even when the conditions of Theorem 2 are not met.

probability is equal to their vote share.[21] Their utility is

$$U_P(\pi_P, R_P, R_{-P}) = 2\pi_P^z z_P(R_P, R_{-P}) + \pi_P^{-1}U(-1, R_P) + \pi_P^1 U(1, R_P), \tag{11}$$

where the vector $\pi_P = (\pi_P^z, \pi_P^{-1}, \pi_P^1)$ gives the weight candidate P gives to the vote share, as well as to the direct utilities of types -1 and 1 as a function of the proposed platform R_P. I assume that $\pi_P^z, \pi_P^{-1}, \pi_P^1 \in [0,1]$ and $\pi_P^z + \pi_P^{-1} + \pi_P^1 = 1$.

Using a monotonic transformation, we can rewrite the candidates' utility function as a weighted average of the citizens' welfare:

$$\tilde{U}_P(\pi_P, R_P, R_{-P}) = [\pi_P^z(1-k) + \pi_P^{-1}]U(-1, R_P) + [\pi_P^z k + \pi_P^1]U(1, R_P), \tag{12}$$

where k is the fraction of type 1 citizens. Hence, candidates now maximize a weighted average of the citizens' utility instead of the simple average (Lemma 1), and we obtain the following lemma.

Lemma 5 *In any equilibrium, we have $R_P^* = \pi_P^z \overline{\omega} + b_P$, where $b_P = \pi_P^1 - \pi_P^{-1}$ is the bias of candidate P.*

Following the logic of the benchmark model, under rational expectations, citizen i chooses type 1 in the cultural stage if and only if

$$\begin{aligned}
\mathbb{E}[U_i(1)] - \mathbb{E}[U_i(-1)] = h \;&+\; \lambda\beta[z_{iA}^e[\mu(R_{iA}^e) - \mu(-R_{iA}^e)] \\
&+\; (1 - z_{iA}^e)[\mu(R_{iB}^e) - \mu(-R_{iB}^e)]] \;+\; [\epsilon_i(1) - \epsilon_i(-1)] \geq 0 \\
\iff = h \;&+\; \lambda\beta[z_A R_A^* + (1 - z_A)R_B^*] \;+\; [\epsilon_i(1) - \epsilon_i(-1)] \geq 0,
\end{aligned}$$

where $z_A R_A^* + (1 - z_A)R_B^*$ is the *expected policy* in equilibrium; the realized policy is uncertain, in contrast with the benchmark model. Henceforth, to simplify the interpretation of the model, I assume that $\pi_A^z = \pi_B^z = \overline{\pi}^z$, which is to say that candidates give equal weights to their vote share (but may have different biases). I also assume, without loss of generality, that $b_A \geq b_B$. The model can then be interpreted using three parameters: the weight politicians put on their vote share $\overline{\pi}^z$, the average bias of the candidates $\overline{b} = \frac{b_A + b_B}{2}$,

[21] Assuming that the probability of winning is equal to the vote share is a standard simplification in the literature. It can be microfounded by incorporating a common valence shock $\delta_{agg}(A)$ following a uniform distribution, unobserved by candidates, that uniformly affects *all* citizens' preferences for candidate A (relative to B) (Persson and Tabellini, 2002, Section 3.4).

and the distance between each candidate's bias and the average bias $d = |b_P - \bar{b}|$ (which is the same for both candidates).[22]

A systematic bias $\bar{b} \neq 0$ can emerge if there is a strong lobby, institution or elite capable of sufficiently influencing both parties to push the candidates policies away from the mean voter. Platform divergence ($d > 0$) happens when parties have different biases. Finally, $\overline{\pi}^z$ captures the politicians' "sensitivity" to voters. A low $\overline{\pi}^z$ can be the result, for instance, of party bases with a strong influence on their parties—through primaries, funding, or other mechanisms—which limit the capacity of politicians to set policies that appeal to the mean voter.

Assuming that the probability that candidate A wins the election is given by its vote share, I find that

$$z_A = \frac{1}{2} + \frac{\lambda\beta d}{2}[\overline{\omega} - (\overline{\pi}^z\overline{\omega} + \bar{b})],$$

where $\overline{\pi}^z\overline{\omega} + b$ is the policy midpoint, equidistant from the two candidates' policies. It can then be shown that citizens choose type 1 if and only if

$$h + \lambda\beta[1 - \lambda\beta d^2]\bar{b} + \lambda\beta[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2]\overline{\omega} + [\epsilon_i(1) - \epsilon_i(-1)] \geq 0, \tag{13}$$

and then, using the same reasoning as for the benchmark model, I deduce that the equilibria of the model are fixed points of the function

$$g^d(\overline{\omega}) := \Psi(h + \underbrace{\lambda\beta[1 - \lambda\beta d^2]\bar{b}}_{\text{Policy Deviation}} + \lambda\beta \underbrace{[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2]}_{\text{Policy Attenuator}} \overline{\omega}). \tag{14}$$

Lemma 6 *Under the assumption $\pi_A^z = \pi_B^z$, equilibrium values of $\overline{\omega}$ are fixed points of the function g^d.*

Equation (14) diverges from the benchmark model in two ways. First, there is an *attenuator* term premultiplying $\overline{\omega}$, which dampens the political multiplier effect,[23] and second, there is a *deviation* term that captures how much the average policy bias $\bar{b}$ shifts policies, similarly to how h shifts policies.

Under the assumption that $\pi_A^z = \pi_B^z$, Theorem 1 can be directly utilized to analyze the equilibrium dynamics of this extension.

[22] The distance between the two candidates' policies is $2d$.

[23] Indeed, $\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2 \leq 1$, which is to say that, at best, it leaves the political multiplier as strong as in the benchmark model.

Theorem 3 *If $\pi_A^z = \pi_B^z$, then Theorem 1 applies, replacing h with $h + \lambda\beta[1 - \lambda\beta d^2]\overline{b}$, and $\lambda\beta$ with $\lambda\beta[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2]$.*

When platform divergence between candidates increases ($\Uparrow d$), the policy attenuator term increases ($\Uparrow [\overline{\pi}^z(1-\lambda\beta d^2)+\lambda\beta d^2]$), and thus the political multiplier becomes stronger. Furthermore, the policy deviation term reduces in magnitude. Intuitively, as policy divergence increases, voters have greater range of options and can adjust their voting to make the expected policy match better the average type's ideal policy—i.e., the expected policy that maximizes voter welfare. This is in line with the results of Bernhardt et al. (2009). Policy divergence thus leads to adjustments in the election probability of candidate A (z_A) that attenuate any biases emerging from $\overline{b} \neq 0$ and $\overline{\pi}^z < 1$. These adjustments make the *expected* policy more sensitive to changes in the distribution of cultural types, thereby strengthening the political multiplier. This is what I call the Policy Divergence Multiplier.

A decrease in the politicians' sensitivity to voters $\Downarrow \overline{\pi}^z$ decreases the attenuator term and the political multiplier effect. Intuitively, when a citizen changes their type, politicians are less reactive, and thus the policy moves less and the effect on other citizens' behavior is dampened.

An increase in $\lambda\beta$—the importance of policies in the citizens' cultural utility—still increases the political multiplier, both because of its direct effect on the citizens' responsiveness to policies, as in the benchmark model, and because of the Policy Divergence Multiplier: as voters become more responsive to policies, the candidate better aligned with the mean voter is more likely to win, thus reinforcing the political multiplier.

3.3 Social Multiplier

Individuals often have a preference for social conformity, which incentivizes them to adopt the most prevalent cultural type (Bernheim, 1994; Brock and Durlauf, 2001). This is captured in the model by adding a social interaction term $\frac{\theta}{2}\overline{\omega}^*\omega_i$ to the citizens' utility, where $\theta \in (0, 1 - \lambda\beta]$:

$$U_i(\omega_i, R^*, P^*, \overline{\omega}^*) = \frac{h}{2}\omega_i + \epsilon_i(\omega_i) + \frac{\theta}{2}\overline{\omega}^*\omega_i + \lambda\beta\mu(\omega_i R^*) + (1 - \lambda)\gamma + \delta_i(P^*).$$

Following the same reasoning as in the benchmark model, I find that equilibrium values $\overline{\omega}^*$ are given by fixed points of the function

$$\breve{g}(\overline{\omega}) := \Psi(h + (\lambda\beta + \theta)\overline{\omega}).$$

The equilibrium dynamics are the same as in the benchmark model.

Theorem 4 *Theorem 1 applies, replacing $\lambda\beta$ with $\lambda\beta + \theta$.*

The Social Multiplier reinforces the political multiplier: conformity pressures push more citizens toward the dominant type, which incentivizes politicians to propose more extreme policies, which in turn increases $|\overline{\omega}|$ even further. However, the Social Multiplier is a decentralized mechanism that works through social networks, unlike the political multiplier, the Public Investment Multiplier, and the Policy Divergence Multiplier, which are centralized mechanisms working through the political process. The Social Multiplier may thus be slower to take effect, in line with the argument in the next section.

4 Rapid Cultural and Institutional Reversals

If we consider the benchmark model with $h < |H|$ and $\lambda\beta > \Lambda$, there exist two stable equilibria. Suppose the system starts in the positive equilibrium and there is a temporary negative shock to λ, β, or h. Then, this can "break" the positive equilibrium and force a rapid transition to the negative equilibrium, as illustrated in Figure 4.[24] Furthermore, no later changes in exogenous parameters can bring the system back to a positive equilibrium, as long as $h < 0$; in this sense, the negative stable equilibrium is akin to an *absorbing state.*[25] This dynamic pattern corresponds to a *cusp catastrophe* in the mathematical literature (Poston and Stewart, 2014), and is summarized in the following proposition.

Proposition 5 *Suppose we are in case 2(ii) of Theorem 1, starting in the positive stable equilibrium with values $(\overline{\omega}^+, R^+)$. Then, a sufficiently large decline in $\lambda\beta$ can diminish H enough, or a sufficiently large decrease in h can increase $|h|$ enough, so that $H < |h|$. This generates a shift to case 2(i) of Theorem 1 and, with it, a rapid transition from an equilibrium with values $(\overline{\omega}^+, R^+) > 0$ to one with values $(\overline{\omega}^m, R^m) < 0$. As long as $h < 0$, no subsequent change in exogenous parameters can bring the system back to a positive stable equilibrium.*

[24] Figure 4 shows the case with a decline in $\lambda\beta$. The system starts in the equilibrium corresponding to the black dot on the top-right and moves down-left until the positive equilibrium is broken and there is a switch to the negative equilibrium at the bottom-left of the figure.

[25] Note that shocks to *endogenous* variables (i.e., $\overline{\omega}$ and R) can nevertheless revert the system to the positive equilibrium, even if $h < 0$. Furthermore, if we assumed $h > 0$, the opposite would hold: rapid changes from the negative to the positive equilibrium would be possible, and the positive equilibrium would be "absorbing."

Similarly, a negative shock to R at the positive equilibrium can bring the system into the negative equilibrium's basin of attraction and generate an equilibrium shift.

As discussed in Section 2.3, the dynamic process I propose is not meant to realistically capture the speed of adjustments, but to show the basic properties of the model in the simplest way possible. Nevertheless, as the case study in the next section illustrates, the political multiplier can generate cultural and institutional transitions through equilibrium shifts that are particularly abrupt, a claim that requires further justification. Here, I explain the features of the political process that accelerate cultural change when λ is high:[26]

1. **Aggregation and revelation of preferences.** Politicians are incentivized to invest in gathering information on their electorate's preferences on the cultural issue through surveys, focus groups, or town halls, among other methods. Furthermore, the secret ballot allows citizens to express their true preferences—as opposed to "falsified" preferences under political or peer pressure—and forces politicians to keep policies aligned with them (Kuran, 1987). In contrast, most cultural change theories rely on decentralized behavioral coordination where information is transmitted through a social network—a much slower process.

2. **Public diffusion of the aggregate signal.** Politicians are also incentivized to publicize their position on the cultural issue through speeches, rallies, and other public actions. Crucially, platforms and election results aggregate privately expressed preferences into a single, publicly observed signal. This generates *common knowledge* (Chwe, 2001): citizens become aware of other citizens' true preferences, but also that other citizens know they are aware, and so on. Common knowledge can considerably accelerate the process of coordinating from one equilibrium to another by making each citizen confident that others will follow suit if they change their type or behavior. Public diffusion also counteracts the slowing-down effect of homophily (Golub and Jackson, 2012)—e.g., religious and secular people mostly interacting with their own—and increases information seeding through multiple parts of the network, accelerating the diffusion of norms (Akbarpour et al., 2025).

3. **Institutional effects.** Policy changes lead to concrete changes in the environment, not just norms, which makes resisting cultural change harder. For instance, once the public school curriculum changes, it becomes hard for most parents to isolate their

[26] A complete formal modeling of these mechanisms is beyond the scope of this paper. Furthermore, though not shown formally, the Public Investment, Policy Divergence, and Social Multipliers increase the size of each step in the tatonnement process, thus also contributing to faster change (see Section 3).

children from the new cultural ethos. Since state-sponsored institutions also play an important role in promoting and enforcing norms, parents are disincentivized from putting effort into the socialization of their children (Carvalho et al., 2024; Lowes et al., 2017). This can reduce children's internalization of values and replace it with a second-order norm of following institutionally backed norms,[27] which facilitates rapid cultural change when institutions change.

These three types of mechanisms can generate both intergenerational change—through changes in school curricula and socialization environments—and intragenerational change, and affect all socio-economic strata of society.

5 Case Study: The Secularization of Quebec

In this section, I study Quebec's secularization in light of the model, following the methods of Bates (1998).

In Section 5.1, I lay out how the model applies to this case study and why it explains parsimoniously Quebec's rapid reversal compared to the rest of Canada. I also derive three predictions to be tested against qualitative and quantitative evidence. In Section 5.2, I trace the historical roots of Quebec's unique institutional integration of church and state in contrast with the rest of Canada, and argue that this made religious cultural traits more dependent on public institutions in Quebec (higher λ). In Section 5.3, I examine an institutional shock that likely broke Quebec's religious equilibrium. In Sections 5.4 and 5.5, I document Quebec's rapid political, institutional, and cultural reversal compared to the rest of Canada. In Sections 5.6 and 5.7, I confirm the predictions of the model regarding the growth of Quebec's welfare state after 1960, and the rapid secularization of both parties' platforms. In Section 5.8, I discuss how Quebec's religious decline created a "cultural religion" and affected the nationalist movement. Finally, in Section 5.9, I discuss five other cases: the Netherlands, Ireland, Sweden, the U.S., and Poland. I address alternative theories from previous literature throughout Sections 5.2 to 5.9.

[27] In the social psychology framework of Kelman (1958), this would correspond to individuals replacing *internalization* of norms with *identification*, which is when individuals adopt norms to establish or maintain a satisfying self-defining relationship with powerful people or institutions. Note that identification is different from *compliance*, where individuals follow norms because of external pressures but do not agree with them.

5.1 Theory

To relate the model to the Canadian case, I argue that Quebec, due to its historically strong integration of church and state, has a higher degree of religious cultural dependence on public institutions (λ) than the rest of Canada. Specifically, I argue that Quebec's λ is high enough to place it in case 2(ii) of Theorem 1, where two stable equilibria coexist—one religious $(\overline{\omega}^+, R^+) > 0$ and one secular $(\overline{\omega}^-, R^-) < 0$. Type $\omega_i = 1$ corresponds to a religious cultural type (regular church attendance, traditional beliefs and values) and type $\omega_i = -1$ to a secular one.

For the rest of Canada, the weaker historical integration of church and state implies a lower λ. The evidence presented in Section 5.4 showing relatively stable religiosity outside of Quebec is most consistent with case 1 of Theorem 1, in which $\lambda\beta \leq \Lambda$ and only a single, middle equilibrium $(\overline{\omega}^m, R^m)$ exists, precluding a rapid equilibrium shift. To isolate the impact of a difference in λ, I assume that Quebec and the rest of Canada have the same values for other exogenous parameters.

In the religious equilibrium, Quebec's high λ pushes $(\overline{\omega}^+, R^+)$ further toward the religious end of the spectrum than any equilibrium attainable by a province with a lower λ (Proposition 1). After the shift, the same high λ pushes $(\overline{\omega}^-, R^-)$ further toward the secular end. Hence, Quebec necessarily goes from most to least religious in relative terms—in its culture, policies, institutions and laws—precisely when it transitions from the positive to the negative stable equilibrium (see Figure 5). The theory predicts a rapid reversal should happen following a sufficiently large shock (see Proposition 5), which I argue happened in the late 1950s in Quebec (Section 5.3). Note, however, that this stylized fact motivated the model, and so cannot be considered a *prediction* per se, but an explanandum.

Explanandum *Quebec transitions rapidly from the most to the least religious province in Canada following a shock.*

The model's explanation for Quebec's rapid religious reversal is not only parsimonious—it only requires a difference in λ—but also robust to alternative scenarios for the rest of Canada. Even if the other provinces had multiple equilibria, sustained the same shock, and underwent their own equilibrium shift—whether simultaneously or later—Quebec's reversal *relative* to the rest of Canada would still happen at the same time, as long as Quebec has a higher λ.

In the tatonnement process described by equation (4), cultural types and institutional policies adjust in interlocked steps: citizens adjust their behavior in response to policies, politicians then revise their platforms in response to the new distribution of types, and

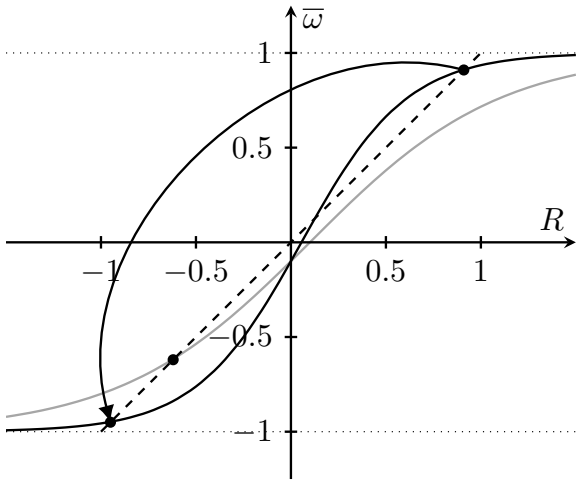


Figure 5: Quebec's Reversal Compared to the Rest of Canada

Note: $h < 0$. The dark line represents Quebec, which has a higher λ, and the pale line the rest of Canada. The black dots in the graph are the stable equilibria, and the arrow indicates Quebec's equilibrium shift following a shock.

so on. This reflects the bidirectional causality between cultural and institutional changes driven by the political multiplier, and yields the following prediction.

Prediction 1 *The cultural and institutional transformations should proceed concurrently, with neither clearly preceding the other.*

The extension with endogenous state investment (Section 3.1) generates an additional prediction. Equation (9) shows that when comparing two societies in the same secular equilibrium, the one with a higher $\lambda\beta$ will have higher public spending T^*. Since Quebec's λ is higher than that of the other provinces, once all have reached a secular equilibrium, Quebec should have more generous public institutions.

Prediction 2 *During the equilibrium shift, Quebec's welfare state should grow to become the most generous in Canada.*

Intuitively, as Quebec's population become more culturally homogeneous than in other provinces in the secular equilibrium $(\overline{\omega}^-, R^-)$, citizens are more willing to fund public institutions aligned with their secular values. This also reinforces the political multiplier, accelerating the equilibrium transition and making the new equilibrium even more secular.

Finally, the extension with policy-seeking candidates (Section 3.2) yield predictions about political parties. As the population secularizes during the equilibrium shift, both

parties should follow the mean voter ($\overline{\omega}$) and rapidly secularize their platforms, even if platforms diverge around the mean voter ($d > 0$).[28]

Prediction 3 *During the reversal, major political parties should all move rapidly toward secular platforms.*

5.2 Church-State Integration

The relationship between church and state took different paths in Quebec—the legacy "state" of New France and Lower Canada—and in the rest of Canada. I argue that this historical divergence left Quebec with a much higher degree of cultural dependence on public institutions (λ).

In Quebec, the integration of church and state has deep historical roots, which had a persistent impact on the institutions and culture of the province over time (Acharya et al., 2022). Its origin traces back to the 17^{th} century during the early days of French colonial rule. At the time, the Catholic Church and religious orders, such as the Jesuits and Ursulines, played predominant roles in welfare, education and healthcare as well as in the governance and administrative functions of the colony (Ferretti, 1999; Finkel, 2006; Jaenen, 1967).

After the conquest, the British failed to disentangle the Catholic Church from state institutions. Following the Patriotic Rebellions of the 1830s, the British governance, in exchange for popular legitimation, allowed and, in some respects, facilitated further integration of the Church within provincial state institutions (Becker and Pfaff, 2022; Zubrzycki, 2016). Despite this, the Catholic Church had no legal protection from the state—it was not an official state church—and remained fully politically subordinate to state authorities (Ferretti, 1999; Matte, 2013; Lipset, 2013).

Before 1960, all French hospitals were managed by the Catholics, and all schools were confessional with a "Council of Education" controlled by religious actors instead of a ministry of education (Matte, 2013; Henchey, 1972). These institutions were either public or heavily dependent on public funding. Furthermore, social assistance was largely managed by the Catholic Society of Saint Vincent de Paul, receiving most of its funding from the government but remaining in charge of distribution (Ferretti, 1999). This gave it multiple opportunities to remind the population of Catholic precepts. It also allowed the Church to tip the scale in favor of its preferred traditional family values and structure by limiting social assistance to single mothers and small families (Finkel, 2006). Nevertheless, the

[28] In the language of causal process tracing (Collier, 2011), predictions 1 and 3 are "hoop tests" since failing to validate them empirically would work against my theory, and prediction 2 is a "double decisive test"—the strongest kind—since it is hard to reconcile with alternative theories *and* is a hoop test.

Church remained subordinate to the state, especially under Duplessis' tenure as provincial prime minister (1936-1939, 1944-1959), during which time he used public discretionary spending to support and, when necessary, pressure religious actors (Dumas, 2016; Ferretti and Gélinas, 2010).[29]

The key components of church-state integration were thus present in Quebec, with a church in charge of multiple functions of the state. Consequently, there was little development of culturally influential institutions independent from state funding and control, such as schools and community organizations. Furthermore, parents and local social networks didn't develop the "religious human capital" necessary to transmit religion without institutions (Iannaccone, 1995; Stark and Finke, 2000).[30] Hence, these could not support popular religiosity after the state secularized in the 1960s. The Church also did not have the political or constitutional power to prevent or slow down the secularization of the state.[31]

The historical integration of church and state therefore left an indelible mark on Quebec's institutions and culture; the close connection between public institutions and the strength of religious culture remained even after transitioning to a secular socio-political equilibrium. In terms of the model, this means that Quebec's citizens assign a high weight λ to the cultural orientation of public institutions and a low weight $1-\lambda$ to private institutions and cultural capital.

The rest of Canada, since the 18^{th} century, has been marked by religious divisions between mainline protestants (e.g., Anglicans), evangelists—many of whom came from the U.S.—and Catholics from French-Canadian, Scottish and Irish origins. Although the Anglicans tried to form an established church in Upper Canada, they failed to gather sufficient popular support and political influence (Beyer, 1997; Lipset, 2013; Martin, 2017; Westfall, 2001). Moreover, the doctrine of separation of church and state, imported from the U.S., arguably had a greater influence in English-speaking than French-speaking Canada.

[29]This relates to a famous quote by Duplessis, who is said to have boastfully declared, multiple times, that "the bishops are eating in [his] hand."

[30]This resonates with one of the conclusions reached by Isabelle Matte (2013) in her anthropological research based on interviews: "If most of them [those who grew up before the Quiet Revolution] wanted to keep 'what is good' in religion (certain values, certain rituals, etc.) and pass on some of these things to their children, often they don't know how to do so, because in their time [before 1960], the 'system' took care of it." In the original French: "Si la plupart souhaitaient garder 'ce qu'il y a de bon' dans la religion (certaines valeurs, certains rituels, etc.) et transmettre certaines de ces choses à leurs enfants, souvent ils ne savent pas comment puisque, dans leur temps, le 'système' s'en chargeait". Froese and Pfaff (2005) also argue that the dearth of religious human capital can help explain the low levels of religiosity in East Germany.

[31]This essential for the model's predictions. In the extension of Section 3.2, a politically powerful church corresponds to a strong positive average political bias ($\overline{b} > 0$), which can prevent rapid reversals even if $h < 0$.

This resulted in a weak institutional integration of church and state outside of Quebec. Indeed, religious organizations did not have as much importance in public institutions; in all provinces other than Quebec, there had been numerous nonreligious public schools, hospitals and agencies for the distribution of social assistance well before 1960. This encouraged churches to develop more robust state-independent institutions, which provided religious education and community services, among other things (Finkel, 2006; "Historical Overview of Education", 2021). Furthermore, parents came to rely more on their own religious human capital to compensate for the weaker religiosity of public institutions. These religious institutions and this human capital, free from political influence, facilitated the persistence of the population's religiosity well beyond the 1960s outside of Quebec.[32] In terms of the model, this corresponds to a lower λ and a higher weight on independent institutions and cultural capital $(1 - \lambda)$.

The lower degree of religious pluralism and competition in Quebec, while it played a role in the evolution of church-state institutional integration, cannot explain on its own Quebec's rapid religious reversal. Indeed, the religious market theory (Iannaccone, 1991) would predict that Quebec should have been *less* religious than the rest of Canada when the Catholic Church had a dominant market position—less competition should reduce religious supply and innovation[33]—and religiosity should have eventually caught up with the rest of the country after the decline of the Catholic Church and the liberalization of the religious market, contrary to what we observe.

5.3 Institutional Shock

The model highlights a type of shock consistent with the case that has not been directly discussed in previous literature as a key cause of Quebec's religious decline. It predicts that a temporary decline in the efficiency of public institutions ($\Downarrow \beta$) can break the religious equilibrium $(\overline{\omega}^+, R^+)$ and trigger a rapid transition to the secular equilibrium $(\overline{\omega}^-, R^-)$. In fact, there is strong evidence that Quebec's religious public institutions were under severe duress in the 1950s, which makes it a compelling explanation for the rapid transformation of the late 1950s and 1960s.

[32] Catholic communities and, in particular, French Catholic ones, were present in all provinces. However, their church, being the one of a minority group, was not integrated with the state to the same extent as it was in Quebec and, thus, developed institutions mostly independent from it (Acheson, 2001).

[33] Note, however, that Catholic monopolies have generally performed well in maintaining high levels of adherence in other parts of the world (Diotallevi, 2002; Iannaccone, 1991), in spite of what the religious market approach predicts.

With a booming population, urbanization, and an expanding middle class demanding more education and services, efficient public institutions were needed more than ever in the 1950s (Ferretti, 1999). However, two key factors limited the ability of public religious institutions in Quebec to meet the growing demand.

First, federal transfers to the Quebec government dropped sharply, from 1.1% of GDP in 1945 to 0.3% in 1955.[34] Nonetheless, the provincial government was able to maintain spending at 5% of the GDP, while maintaining budget balance (see Figure 6 and Geloso, 2017).[35] However, this was far from enough to meet the expanding needs of the population.

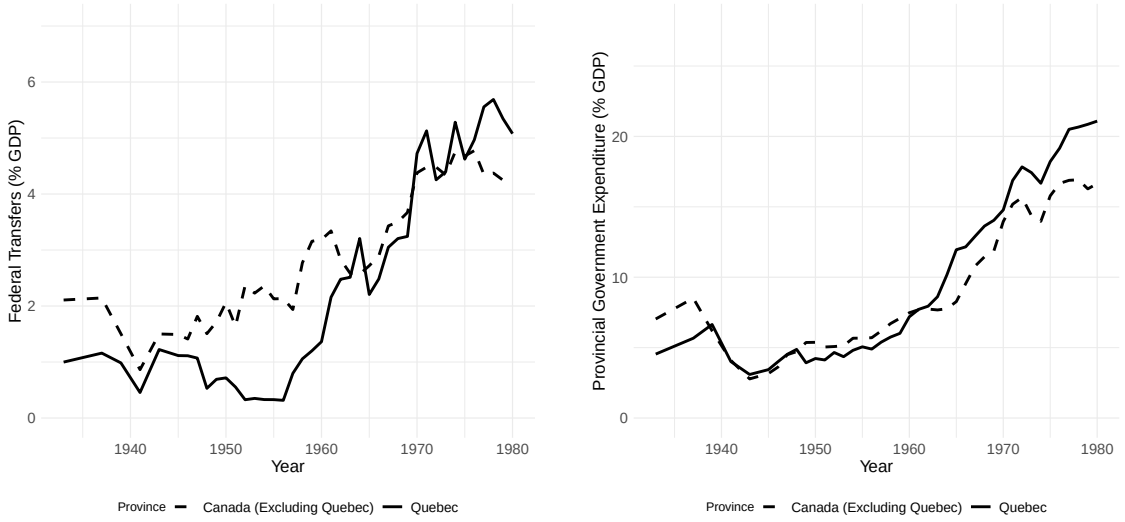


Figure 6: Total Federal Transfers to Provinces (left) and Total Provincial Government Expenditure (right), as Percentage of Provincial GDP.

Note: In each plot, the dashed line represents the Canadian average for provinces other than Quebec, weighted by population. Provincial GDP data is sourced from Finances of the Nation (2023), while federal transfers to provinces are from Tombe (2018). Provincial government expenditure data is taken from Finances of the Nation (2024; 1966-1980) and Statistics Canada (2024; 1933-1969). For overlapping years, the average of both data series is used to address discrepancies.

Second, Catholic institutions faced significant organizational challenges during the 1950s, particularly with recruitment; membership per capita in religious orders and the clergy fell drastically during that decade (see Figure 7). Low wages and poor working conditions made recruiting religious workers difficult.However, religious personnel were crucial in the

[34]For more information on the history and politics of Canadian federal transfers to provinces, see Di Matteo (2021), among others.

[35]As a whole, Canada's government spending throughout that decade stayed at a mere 15% of GDP, the lowest rate in the G7 (see Ortiz-Ospina and Roser, 2016).

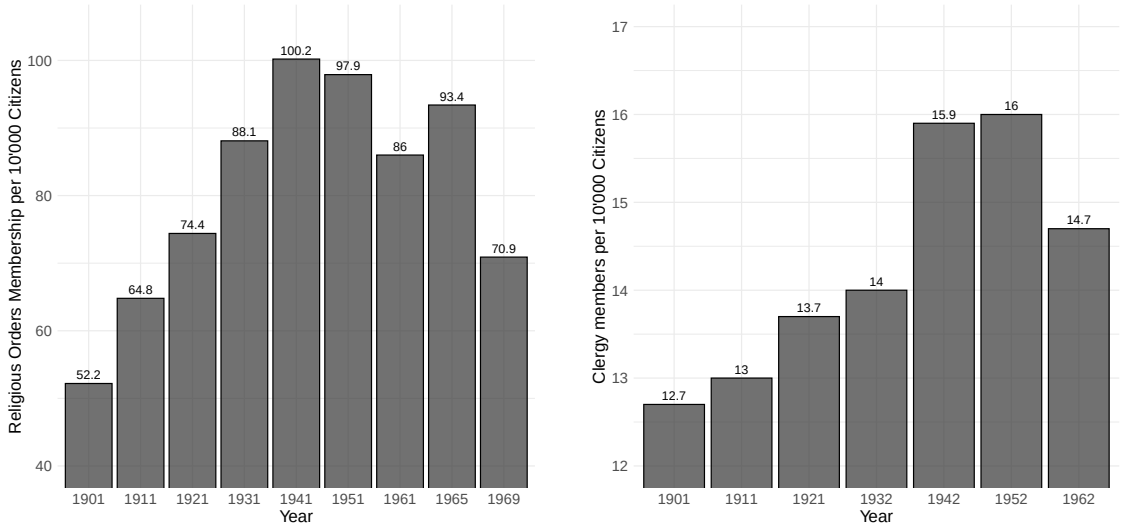


Figure 7: Members of Religious Orders (left) and Clergy (right), in Quebec, Per 10'000 Citizens (Geloso, 2017).

daily operations of institutions such as public schools, hospitals, and welfare agencies, and clergy members often held high administrative roles. Consequently, the shortage of religious workers significantly weakened public institutions, and forced the Church to replace some of the lower level workers with lay people (Ferretti, 1999; Murphy, 2008), further reducing its religious influence within these public institutions.

By the late 1950s, it had become obvious to most observers that Quebec's religious public institutions had become ineffective (Ferretti, 1999). The need to revamp and refinance state-funded institutions became the political consensus, cutting across political parties. Hence, when federal transfers increased in the late 1950s and particularly in the 1960s, they were used to build strong *secular* public institutions (Geloso and Reilly, 2022; Zylberberg and Côté, 1993)—pushing religiosity further down in the secular equilibrium $(\overline{\omega}^{-}, R^{-})$ rather than restoring the religious one (Proposition 5). The religious equilibrium, once broken, would not be reinstated.[36]

Other types of shocks can break the religious equilibrium in the model (see Section 4). Previous literature suggests two. First, the secularization thesis predicts that as Quebec

[36]This was not, however, infeasible: the transfers could have been used to support the existing religious welfare system, and the Catholic Church could have eventually solved its organizational problems—for example, by giving more responsibilities and better working conditions to religious laypeople. In contrast, the Irish Catholic Church also faced recruitment challenges but was able to adapt its institutions, allowing it to sustain its influence much longer, until the 1990s (Hornsby-Smith, 1992).

modernized the demand for religion should decline proportionally with it (Bruce, 2011; McCleary and Barro, 2006; Norris and Inglehart, 2011). This corresponds to a decline in h in the model, and once it reaches a threshold, an equilibrium shifts happens.[37] Second, a temporary backlash against religious institutions (Zubrzycki, 2016)—corresponding to $\Downarrow R$ in the model (Section 4)—could have helped shift the policy preferences of the voters enough to break the religious equilibrium and initiate an equilibrium shift.

My model does not make a sharp prediction as to the initial cause of Quebec's religious decline and does not rule out multiple causes. Compared to other theories, the value of my model is in predicting *how* this religious decline should happen in Quebec—a sudden and long-lasting reversal compared to the rest of Canada—and identifying the institutional shock of the late 1950s as a credible trigger.

5.4 Rapid Reversal

Beginning in 1960, the newly elected Liberal government of Jean Lesage launched a sweeping program of institutional secularization. A ministry of education replaced the Church-controlled Council of Education, a publicly funded hospital system was established, and social services were brought under secular state control (see Table 4 in Appendix D for a detailed timeline). This agenda was pursued by the National Union government of 1966–1970 and the Liberal government of 1970–1976.[38] The rest of Canada did not experience a similar rapid secularization of its institutions.[39]

To document Quebec's concurrent rapid cultural reversal, I built an original dataset by combining 57 polls representative of the Canadian population from Gallup (2021)[40] and Project Canada (Bibby, 2021) between 1953 and 2005. My foremost indicator of religiosity is weekly church attendance, a standard measure in the literature and the one for which I have the most data. I complement this indicator with two others capturing religiosity at the level of personal beliefs (the belief in Hell, in any form) and attitudes (the disapproval of

[37] The secularization thesis can explain in part why religious vocations went it decline and created recruitment difficulties for religious public institutions in the 1950s.

[38] The strong secularization of Quebec's institutions is still visible today with the infamous Bill 21 on state secularism, one of the world's most forceful of this kind (Bibeau et al., 2023). Quebec is also the only province other than Prince Edward Island to no longer have Catholic-run hospitals or long-term care facilities (Glauser, 2022).

[39] New Brunswick is a possible exception since it also experienced a certain secularization of its institutions in the 1960s, which can be interpreted as an equilibrium change (Belliveau and Boily, 2005).

[40] Disclaimer: the data were collected by Gallup Canada, Inc. Dictionary, and preparation and data cleaning were done by Carleton University Library Data Services, under the auspices of the National Archives of Canada.

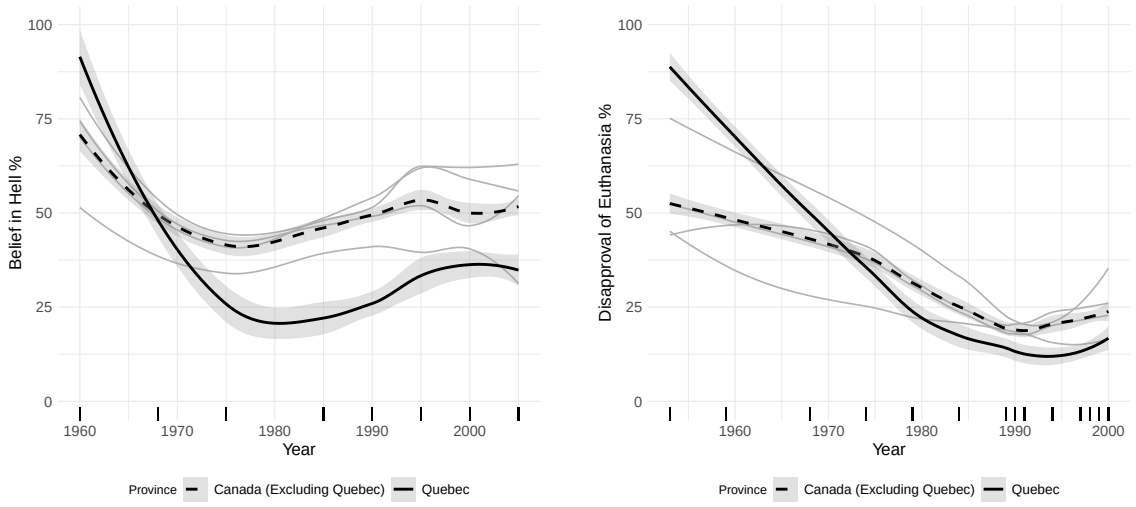


Figure 8: Belief in Hell (left) and Disapproval of Euthanasia (right), Full Sample.

Note: In both figures, the nonparametric trends and the 95% confidence intervals are computed using loess (local regression) with a standard cubic weighting function and a 65% span. The ticks on the x-axis indicate the years for which data exists. In the left figure, the grey lines represent (in increasing order of the prevalence of the belief in Hell in 1960) British Columbia, the provinces of the prairies, Ontario, and the Atlantic provinces. In the right figure, the pale grey lines represent the same provinces (in increasing order of disapproval of euthanasia in 1953).

medical euthanasia under any circumstances, imminent death or suffering).[41] I chose these three complementary indicators since they are closely related to religiosity and are present in multiple surveys over an extended period going back to 1960 or before.

For all three indicators, the data show a clear rapid religious reversal for Quebec in comparison to the rest of Canada (see Figures 1 and 8), which holds across different subsamples—French speakers, Catholics, and French Catholics (see Figure 20 in Appendix D).[42] Therefore, the rapid reversal pattern cannot be explained by Quebec's higher share of Catholics and French Canadians.

The observed rapid religious reversal is supported by an extensive literature in history and sociology (Matte, 2013; Bibby, 1990; Zubrzycki, 2016; Gauvreau, 2005; Christie and Gauvreau, 2013; Murphy, 2008; Grzymala-Busse, 2015). It is also congruent with trends observed in other measures closely connected to religiosity, such as rates of divorce, common-law unions (Laplante, 2006; Pollard and Wu, 1998), religious voting (Bibeau et al., 2023),

[41] Euthanasia has historically been strongly opposed by Catholic and mainline Protestant churches.

[42] For the belief in Hell, we are not able to go back before 1960. This limits our ability to tell if the belief in Hell was more prominent before 1960 in Quebec in the Catholic subsample. However, we can see it fell much below the rest of Canada immediately afterward.

and birth rates, which in Quebec experienced one of the fastest declines ever recorded (Krull and Trovato, 2003).[43]

The evidence supports **Prediction 1**: the secularization of public institutions began in the late 1950s and accelerated through the 1960s (Table 4), while the cultural indicators show sharp declines beginning in the same period (Figures 1 and 8).[44] Neither change clearly preceded the other, suggesting mutually reinforcing cultural and institutional change, instead of one causing the other.

The Social Multiplier (Section 3.3) helps explain the speed of the change. Sunday mass attendance, in particular, was a public act and was subject to conformity pressures: once attendance started declining, the social cost of non-attendance dropped rapidly, which plausibly created a self-reinforcing cascade that further accelerated the change.

The belief in Hell fell particularly sharply in Quebec—by almost 70% in 15 years—which, albeit surprising, is perfectly consistent with the theory. First, the existence of Hell is empirically unverifiable, making it particularly dependent on the social and institutional *plausibility structure* (Berger, 1967). Furthermore, the belief in Hell is a punitive, non-comforting belief: people have no intrinsic benefit from holding a frightening representation, so it requires social and institutional reinforcement to be sustained (Shariff and Aknin, 2014). For these reasons, the belief in Hell is poised to decline rapidly once culturally-dominant public institutions secularize.

Quebec's rapid religious reversal does not seem to have been caused by a preference cascade where individuals reveal their true preference (e.g., being secular) once they realize that enough people secretly shared the same view (Kuran, 1995; Greif and Tadelis, 2010). First, anonymous surveys suggest that people had genuine religious beliefs. Second, preference cascades usually happen under oppressive regimes, but the Catholic religion was never mandatory in Quebec and religious alternatives were tolerated. As argued before, the Catholic Church didn't have direct political power and was never a legal monopoly; it was supported through popular will by a democratic government (Geloso, 2017).

[43] Birth rates are closely related to religiosity, as recent literature shows. See Blanc (2024) and Eberstadt (2013), among others.

[44] Although it has been proposed that the changes brought on by Vatican II are responsible for the rapid decline of religion in Quebec (Murphy, 2008), the survey data clearly shows that a sharp religious decline began in the late 1950s, whereas the policies of Vatican II were implemented in the second half of the 1960s and the 1970s. Furthermore, it is unclear why the impact of Vatican II would have been significantly stronger for Catholics in Quebec than for those in other provinces.

5.5 Heterogeneity Analysis

I test whether Quebec's rapid reversal holds across age groups, education levels, income levels, as well as urban and rural populations (see Appendix D for more details and figures). To construct these harmonized variables across surveys, I collapsed age into three groups—18–29 (21-29 in the earliest surveys), 30–49, and 50 or older. I coded education as the highest level a respondent attended (no secondary; secondary but not university; some university). For income, I ranked respondents within each survey using a subjective wealth rating in the earliest polls and dollar brackets thereafter. I split each survey into low income (bottom quarter), middle income (middle half), and high income (top quarter).[45] I defined urban/rural by community size, classifying respondents in centers of 30,000 or more as living in an urban environment, as opposed to a rural or small town environment.

In general, Quebec's rapid reversal is observed across age groups, education levels, income levels, as well as urban and rural populations. However, interestingly, I find that for the less educated, more rural, and lower income population, the reversal is most clearly observed in attitudes (euthanasia) and beliefs (Hell), and less so in practices (weekly church attendance) where you see Quebec residents starting from a much higher level and rapidly converging to levels similar to the rest of the country. This is consistent with the church playing a more important social role for lower-class and rural populations, who therefore retained a stronger connection to it. For the more educated, more urban and higher income population, the reversal in church attendance is particularly stark. The decline in the belief in Hell and the disapproval of euthanasia is just as strong as for the less educated/urban/wealthy people in Quebec, but the reversal for euthanasia is less clear because the more educated/urban/wealthy Canadians outside of Quebec—the comparison group—see a stronger decline.

Some have argued that Quebec's rapid secularization was driven by its modernization around that time, characterized by an improvement in income levels, education , and urbanization (Geloso, 2017; Hungerman, 2014). This argument aligns with the classic secularization thesis, which posits that the demand for religion diminishes with modernization (Bruce, 2011; McCleary and Barro, 2006; Norris and Inglehart, 2011). However, the fact that the reversal patterns is observed across education levels, income levels, and urban and rural populations, contradicts that explanation.[46]

[45] Since the surveys provide a coarse indicator of income (a few brackets), the split between the three categories of income is not a perfect 25/50/25% split.

[46] Quebec gradually catched up with the Canadian on measures of income, education and urbanization between 1945 and 1975. Nonetheless, Geloso and Reilly (2022) shows with a synthetic control approach that there was no noticeable change in trend in the 1960s for these variables. Hence, Quebec's modernization

The reversal is observed across age groups except for euthanasia among the younger group (ages 18-29)—but, again, this is driven by young people in the rest of Canada, the comparison group, seeing a faster decline in the disapproval of euthanasia.[47]

In sum, we observe a rapid reversal across social strata and generations, which is consistent with the political multiplier mechanism (see Section 4).

5.6 The Expansion of The Welfare State

Prediction 2 states that, after the equilibrium shift, Quebec's welfare state should expand significantly and become the most generous in Canada. The right panel of Figure 6 provides direct evidence for this prediction. Quebec's provincial government expenditure, which had been at or below the Canadian average before 1960, rose sharply during the 1960s and remained well above the rest of Canada thereafter. This is further supported by Geloso and Reilly (2022), which show using a synthetic control that there was a significant trend change in 1960 where the Quebec state started to expand compared to other provinces.

My theory and the evidence presented is consistent with the argument that places that saw the rise of generous secular welfare states experienced a religious decline due to the state taking over social and cultural functions of churches (Chen and Lind, 2016; Gill and Lundsgaarde, 2004; Zylberberg and Côté, 1993). However, my theory has the advantage of predicting the rapid reversal pattern while providing a distal cause—the historical integration of church and state—for why these places experienced a concurrent decline in religion and rise of a generous secular welfare state.

5.7 Political Convergence and Divergence

Prediction 3 states that during the reversal, both political parties should move rapidly toward secular platforms, even when there is platform divergence. In fact, the secularization of Quebec's institutions was not the project of a single party. The National Union under Paul Sauvé initiated reforms in 1959, the Liberals under Jean Lesage accelerated them dramatically between 1960 and 1966, the National Union under Daniel Johnson Sr. and

process cannot explain the drastic and sudden changes in religiosity observed in the data. Furthermore, since Quebec did not modernize *more* than the rest of the country after 1975—it closely matches the Canadian averages—the secularization thesis cannot fully account for why it became comparatively less religious.

[47] In contrast with the three-step secularization model via cohort replacement of Stolz et al. (2025), Quebec experienced the first step (decline in public ritual participation) and second step (decline of individual religiosity) at the same time across cohorts. This suggests their framework is less applicable under high church-state institutional integration, since the political multiplier creates a strong connection between institutional changes (including public rituals) and individual changes throughout all segments of society.

Jean-Jacques Bertrand continued them between 1966 and 1970, and the Liberals under Robert Bourassa pursued them further through the 1970s. Each successive government deepened the secularization program of its predecessor rather than reversing it.

Nevertheless, the two parties were not identical. The Liberal party consistently positioned itself as the more strongly secular party, championing the creation of the ministry of education, the public health system, and the Charter of Human Rights and Freedoms. The National Union, while continuing these reforms once in power, generally adopted a more cautious stance. As argued in Section 3.2, such platform divergence may have help accelerate and intensify Quebec's equilibrium shift through the Policy Divergence Multiplier.

5.8 The Rise of Quebec's new Nationalism and Cultural Religion

In the second half of the 1960s, the decline of religion opened the door for a redefinition of the French Canadian identity around ethnolinguistic and territorial dimensions. This catalyzed the rise of the modern separatist movement. However, some, including Zubrzycki (2016), argue that the fall of religion in Quebec was due to a backlash against the Catholic Church for impeding Quebecers' national ambitions. They are thus arguing for the reversed causality: the rise of nationalism causing the decline of religion instead of the opposite.

As explained in Section 5.3, a temporary backlash against religious institutions ($\Downarrow R$) could have helped shift the policy preferences of the voters enough to break the religious equilibrium and initiate an equilibrium shift. However, such a backlash is not enough to explain the reversal pattern observed in Quebec.

Indeed, evidence suggests that, for the most part, there was no lasting backlash against the Church as an institution. Well into the 21st century, the vast majority of French speakers in Quebec remained affiliated with the Catholic Church (91.9% in 2001) and participated in occasional rites of passage like baptism (Meunier and Wilkins-Laflamme, 2011), hence showing their attachment to the institution. Therefore, a political backlash cannot explain their persistently lower religiosity after the 1970s. In contrast, it is the beliefs (e.g., Hell), the attitudes (e.g., the morality of euthanasia) and the common practices (e.g., weekly church attendance) that went into sharp decline in the 1960s. This is consistent with a church that, while not hated, lost its power to promote important norms and beliefs, as suggested by my theory. Catholicism thus became a "cultural religion," a concept developed by Demerath (2000) in the European context, where a population seeks to preserve its religious traditions and institutions while abandoning the deeper beliefs and more demanding practices of the faith.

Furthermore, I conducted extensive analyses to study the connection between religiosity and Quebec nationalist attitudes (see Appendix D for more details along with figures and tables). The Gallup polls and Project Canada surveys include, in addition to the three measures of religiosity, questions related to nationalism. These fall into three groups: 1) support for separation or sovereignty and for recognizing Quebec as a distinct society, 2) provincial vote intention for the separatist *Parti Québécois* (PQ; starting in 1970) and federal vote intention for the *Bloc Québécois* (BQ; starting in 1991), and 3) attitudes toward the official status of the French language in Canada and Quebec. For every nationalism question asked in a poll with a religiosity measure, I compare the religious share among the more-nationalist respondents with the share among everyone else and report the gap in percentage points. Figures 21-24 show each of these comparisons separately with confidence intervals, in four samples: all Quebec respondents, Catholics, French speakers, and French-speaking Catholics. Tables 1-3 then pool the comparisons within each group of questions and test them jointly.

I find that religiosity is significantly negatively correlated with voting for the PQ and the BQ. However, the relationship is modest: 6.7 and 6.4 percentage point difference in religiosity for the PQ and BQ vote respectively for the sample of all Quebec respondents (see Table 1), and the strength of the relationship is mostly driven by polls in the 1990s (see Table 3). Most notably, there is no significant correlation between religiosity and direct questions on Quebec separatism or distinct society status, and between religiosity and linguistic questions. The direct nationalist questions show a religiosity percentage point difference of only 1.5 for the full Quebec sample,[48] and the linguistic questions show no clear relationship with religiosity.

Taken together, these results show that more secular people voted for the PQ and BQ, which can be explained by the strong state secularization agenda of these parties. However, the relationship is modest and when Quebec residents are asked directly about their views on Quebec separatism, distinct society status or the official status of their language, we find no relationship with religiosity. This indicates that Quebec's ethnolinguistic nationalist movement cannot explain the strong decline of religion in Quebec.

[48]The Minimal Detectable Effect (MED_{80}) is 7.5, 80% of the time.

5.9 Other Cases

Netherlands. Pre-1963, Dutch society was organized into confessional "pillars"—Catholic, Protestant, Socialist, and Liberal—within which religious organizations managed education, healthcare, welfare, and media (Bryant, 1981; Dekker and Ester, 1996). Stark and Iannaccone (1996) argue that each pillar functioned much like Quebec's institutions before 1960, and produced a strong integration of church and state (high λ). As in Quebec, this system experienced inefficiencies in the 1950s ($\Downarrow \beta$) before being democratically replaced by a secular welfare state in the 1960s (Van Kersbergen, 2009). Confessional parties declined sharply between 1963 and 1977, and monthly church attendance fell from above 60% in the early 1960s to 40% in the 1980s (Barro et al., 2025). The Netherlands became notorious for irreligious policies such as its early legalization of euthanasia. The organizational infrastructure of the pillars—schools, hospitals, media, welfare organizations—persisted but shed its confessional character (Dekker and Ester, 1996). As in Quebec, citizens had historically relied on these institutions for their religious life, and their secularization left religiosity without institutional support. Furthermore, in line with the Prediction 2, the Dutch welfare state rapidly became among Europe's most generous (Van Kersbergen, 2009).

Ireland. Like Quebec, Ireland inherited a Catholic Church deeply integrated into state institutions: education, healthcare, and welfare were largely managed by religious orders (high λ). Unlike in Quebec, where the trigger was a decline in institutional capacity ($\Downarrow \beta$), the catalyst in Ireland appears to have been a series of clerical abuse scandals in the 1990s that led to a backlash against the Church (Grzymala-Busse, 2015; Matte, 2013).[49] Such a backlash can be interpreted in the model as a negative shock on R that brought the system into the secular equilibrium's basin of attraction (Section 4). Once the religious equilibrium broke, the political multiplier drove a rapid transformation: monthly church attendance fell from approximately 80% in the 1990s to 28% by 2020 (Bauluz et al., 2021). On the institutional side, Ireland legalized same-sex marriage by referendum in 2015, and repealed its constitutional ban on abortion in 2018.

Sweden. The Swedish state church had been deeply intertwined with public institutions for centuries (high λ). In the 1930s, there was a political movement to secularize these institutions. Tellingly, Arthur Engberg, a prominent politician a the time, declared that he wished to "de-Christianise the church through its connection with the state" (Ewert, 2019).

[49]The Irish Catholic Church was more successful than Quebec's at adapting to recruitment challenges, which allowed it to sustain its influence much longer (Hornsby-Smith, 1992).

Institutional and cultural secularization worked hand-in-hand during this period in making Sweden one of the least religious nations on earth (Norris and Inglehart, 2011). However, since this transition happened in the first half of the 20$^{\text{th}}$ century, it is not possible to document the scale and speed at which religious culture changed during this period.

United States. In the U.S., the First Amendment's separation of church and state and the high degree of religious fragmentation prevented institutional integration (low λ), encouraging churches to develop robust independent institutions and congregants to build religious human capital for transmitting faith outside state channels (Iannaccone, 1995; Stark and Finke, 2000; Finke and Stark, 2005). It is then congruent with the theory that the U.S. maintained comparatively stable religiosity, reminiscent of the pattern in most of Canada, with monthly church attendance hovering around 58% between 1940 and 2010 (Barro et al., 2025).

Poland. Some may argue that Poland, like Quebec, had church and state institutions that were integrated,[50] but did not experience a rapid religious reversal like Quebec. Nonetheless, Quebec and Poland diverge in the strength of their church's lobbying and legislative influence. As argued in Section 5.2, the Church was, for the most part, subordinate to the state in Quebec. In contrast, the Church's political power in Poland was much greater; notably, its influence was constitutionally enshrined, with direct institutional leverage through a "joint commission" with state authorities (Grzymala-Busse, 2015). In the model, this corresponds to a strong religious political bias ($\bar{b} > 0$) that can prevent religious reversals even if $h < 0$ (Section 3.2).[51]

Taken together, these cases strengthen the paper's argument. The instances of rapid reversal—Quebec, the Netherlands, Ireland, and most likely Sweden—span Catholic and Protestant traditions, occurred in different decades across the 20$^{\text{th}}$ century, and were triggered by different shocks, yet all share the same institutional precondition of high church-state integration. That the same mechanism can account for rapid reversals in such varied contexts suggests that the driving force is not a particular confession or historical moment, but rather the institutional structure linking religion and state. Furthermore, the United States case shows that the pattern of relatively stable religiosity observed in Canada outside

[50] This is, however, a disputable claim. In particular, the Catholic Church's institutions remained highly separate from the communist state throughout the period

[51] In particular, if $h + \lambda\beta[1 - \lambda\beta d^2]\bar{b} > 0$, equilibrium shifts from the positive (religious) stable equilibrium to the negative (secular) equilibrium are no longer possible.

of Quebec is reproduced in another country with church-state institutional separation, and Poland, as a limiting case, suggests that reversals can only happen if the church does not have too much lobbying or direct political power.

6 Conclusion

In this paper, I developed a model in which the distribution of cultural traits or behaviors dynamically interacts with institutional change through a political multiplier mechanism. When citizens' utility depends on the alignment between their type and public policy, a feedback loop emerges: as more individuals adopt a type, politicians adjust their platforms, which shifts policy and encourages further cultural change. When this multiplier is strong enough, multiple stable equilibria arise, and a shock can trigger a rapid and permanent transition from one equilibrium to another. Several standard political economy and social mechanisms—endogenous state investment, platform divergence, and social conformity—reinforce the political multiplier, helping rationalize the outsized cultural and institutional changes often observed.

I applied this framework to Quebec's religious reversal relative to the rest of Canada. Using an original dataset combining 58 historical polls, I documented that Quebec went from Canada's most to its least religious province in under two decades. I argued that Quebec's reversal can be explained by its strong integration of church and state institutions, which made religious cultural traits more dependent on public institutions than in the rest of Canada, generating a stronger political multiplier. I also found support for three predictions of the model and argued against alternative theories as sufficient explanations. I strengthened my argument by comparing and contrasting Canada's secularization with other cases, although more quantitative work needs to be done to understand the role of church-state institutional integration in patterns of religious decline—or revival—across countries.

The political multiplier mechanism has potential applications well beyond the study of religion. Any cultural trait or set of behaviors whose prevalence depends substantially on public institutions is subject to the same logic. For instance, the mechanism may help explain rapid language shifts congruent with significant changes in linguistic policies, as observed in many post-colonial and minority-language contexts (Fishman, 1991). It could also shed light on how state-led policies can rapidly reshape gender norms when public institutions—schools, childcare, parental leave systems—are the primary vehicles of socialization, as arguably occurred in the Nordic countries (Hernes, 1987). Similarly, the adoption

of new technologies such as electric vehicles may exhibit political multiplier dynamics, especially when their implementation depends heavily on public infrastructure (charging networks, emissions regulations); temporary issues with public infrastructures or state funding could then trigger a persistent transition to an equilibrium with very low adoption. If fewer citizens adopt electric vehicles, political support for public charging infrastructure and emissions regulation diminishes, which makes adoption even less attractive, prompting politicians to further deprioritize these investments—while the reverse logic sustains a high-adoption equilibrium. More broadly, the model speaks to any setting in which individual behavior and policy are mutually reinforcing through the political process, whether the relevant behaviors are cultural, political, or economic in nature.

The model also carries a broader lesson: cultural traits and economic behaviors that are channeled through public institutions are inherently more fragile. They can sustain strong homogeneity in equilibrium, but are vulnerable to rapid shifts if institutions falter—as Quebec's experience vividly illustrates. This suggests that traits and behaviors supported by strong institutions need not persist indefinitely; under certain institutional structures, their very dependence on the state can be the source of their eventual demise.

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Appendix

A Dynamic Microfoundations

In this section, I provide the framework for more rigorous microfoundations for the dynamics of the benchmark model described in Section 2.3.

Suppose that we have an infinite horizon model with $t \in \mathbb{N}$. We start with a distribution of types $(\omega_i^0)_{i \in I}$ and a policy R_0. Then, in every odd period starting from time $t = 1$, citizens choose their type ω_i and derive their utility as a function of the variables' values at that time. This corresponds to the cultural stage. Starting at $t = 2$, politicians propose policies R_A and R_B in even periods, citizens vote sincerely, and the new policy is implemented. Politicians derive their utility (1 if they win, 0 otherwise) at the end of even periods. This corresponds to the political stage. The elected politician remains in power until the next even period and her proposed policy is implemented until then. Both politicians and citizens can be assumed to be forward-looking, but behave as if myopic, as argued in the next two paragraphs.

Consider even periods. Following the same logic as the one for Lemma 1, politicians, seeking to maximize their chances of winning, will converge on $R_A = R_B = \overline{\omega} = R^*$. This corresponds to the second part of the recursive equation (4). Notice that even if we assume that politicians care about future election results, this does not change their behavior. Indeed, in every even period, the two politicians must converge on the same platform, since any deviation would make their probability of winning equal to zero. Their strategy at time t has no impact on their probability of winning in future periods, and they must act as if myopic.

Consider odd periods. Suppose citizens choose their type to maximize their current period utility, and, therefore, their choice depends on R^t. Following the reasoning for Lemma 2, we obtain $\overline{\omega}^t = \Psi(h + \lambda\beta R^t)$. This corresponds to the first part of the recursive equation (4). Note that citizens can also change their choice in the next odd period, and will do so if that increases their utility at that moment; they have no reason to do so sooner. Furthermore, since citizens are infinitesimal, they cannot, individually, affect the equilibrium and have no incentive to try to change it, say from the positive to the negative stable equilibrium, in future periods. Therefore, their best response is to act as if myopic.

An equilibrium in this context is a *stationary equilibrium*, in which

$$(\overline{\omega}^t, R^t) = (\overline{\omega}^{t+1}, R^{t+1}), \quad \forall t.$$

Finally, regarding Proposition 5, one can interpret the decline of β, λ or h as happening at the beginning of any period t, starting in a positive stationary equilibrium. This change in parameter is such that the system goes from $H^{t-1} > |h|$ to $H^t < |h|$, and undergoes a transition to a negative stationary equilibrium over infinitely many periods.

B Proofs

B.1 Proof Lemma 1

Consider the choice of R_A for the candidate of party A. Types 1 vote for A if and only if

$$U_i(1, R_A, A) - U_i(1, R_B, B) = \lambda\beta[\mu(R_A) - \mu(R_B)] + 2\delta_i(A) \geq 0$$
$$\iff \frac{\lambda\beta}{2}[\mu(R_A) - \mu(R_B)] \geq -\delta_i(A),$$

where $\mu(R_A) - \mu(R_B) = \frac{R_A - R_B}{2} - \frac{R_A^2 - R_B^2}{4}$, which reaches a maximum of 1 when $R_A = 1$ and $R_B = -1$, and a minimum of -1 when $R_A = -1$ and $R_B = 1$. Since $\lambda, \beta \in (0, 1)$, it follows that $\frac{\lambda\beta}{2}[\mu(R_A) - \mu(R_B)]$ is always within the bounds of the uniform distribution. Hence, for types 1, the probability of voting for candidate A is

$$\frac{1}{2} + \frac{\lambda\beta}{2}[\mu(R_A) - \mu(R_B)].$$

Similarly, the probability that a type -1 will vote for candidate A is

$$\frac{1}{2} + \frac{\lambda\beta}{2}[\mu(-R_A) - \mu(-R_B)].$$

Therefore, the total vote for A is

$$z_A = k[\frac{1}{2} + \frac{\lambda\beta}{2}[\mu(R_A) - \mu(R_B)]] + [1 - k][\frac{1}{2} + \frac{\lambda\beta}{2}[\mu(-R_A) - \mu(-R_B)]].$$

This means that candidate A essentially maximizes $k\mu(R_A) + [1 - k]\mu(-R_A)$ (the average citizen welfare), since these are the only terms on which she can have an influence. The first-order condition (FOC) is

$$k\mu'(R_A^*) - [1 - k]\mu'(-R_A^*) = 0.$$

This simplifies to $R_A^* = \overline{\omega}$, which must be the optimum since the second order condition (SOC) is $-\frac{1}{2}$. The optimal choice is unique and independent of R_B, which implies it is a strictly dominant strategy. The problem for B is the same, so she must also choose $R_B^* = \overline{\omega}$ as a strictly dominant strategy. □

B.2 Proof Lemma 2

The explanations provided on page 8 are essentially correct, but a more rigorous proof would consider that citizens can form anticipations on the probability that each candidate will win and on the policies proposed by each candidate.

We denote the expectations of citizen i as R^e_{iA}, R^e_{iB} and z^e_{iA}, which are respectively the proposed policy of A and B, and the probability that A gets elected. Then, we have the following payoffs for i, if he adopts type 1 or -1:

$$\mathbb{E}[U_i(1)] = \frac{h}{2} + \epsilon_i(1) + \lambda\beta[z^e_{iA}\mu(R^e_{iA}) + (1 - z^e_{iA})\mu(R^e_{iB})] + (1-\lambda)\gamma + (2 - z^e_{iA})\delta_i(A)$$
$$\mathbb{E}[U_i(-1)] = -\frac{h}{2} + \epsilon_i(-1) + \lambda\beta[z^e_{iA}\mu(-R^e_{iA}) + (1 - z^e_{iA})\mu(-R^e_{iB})] + (1-\lambda)\gamma + (2 - z^e_{iA})\delta_i(A).$$

A rational citizen will choose type 1 if and only if

$$\begin{aligned}\mathbb{E}[U_i(1)] - \mathbb{E}[U_i(-1)] = h + \lambda\beta[z^e_{iA}[&\mu(R^e_{iA}) - \mu(-R^e_{iA})] \\ &+ (1 - z^e_{iA})[\mu(R^e_{iB}) - \mu(-R^e_{iB})]] + [\epsilon_i(1) - \epsilon_i(-1)] \geq 0.\end{aligned}$$

From Lemma 1, we know that in the political stage, we have $R^*_A = R^*_B = R^* = \overline{\omega}$. To get a rational expectation equilibrium, we replace these values in the inequality above, simplify, and we get

$$h + \lambda\beta\overline{\omega} \geq \epsilon_i(-1) - \epsilon_i(1).$$

Notice that the expectations z^e_{iA} do not matter for the result. The rest of the proof follows the logic explained on page 9. □

B.3 Proof Theorem 1

The proof consists of four parts (claims) that culminate in the full proof of Theorem 1. Although Theorem 1 is stated under the assumption that $h < 0$, I will present the proof for the case $h \leq 0$. Since the argument for $h \geq 0$ is symmetrical, this will establish the theorem for any value of h. Furthermore, I will use the function $\chi(\overline{\omega}) = \Psi(h + \lambda\beta\overline{\omega}) - \overline{\omega}$. It follows from Lemma 2 that equilibrium values $\overline{\omega}^*$ are given by $\chi(\overline{\omega}^*) = 0$. Since in equilibrium $R^* = \overline{\omega}$ (Lemma 1), I will ignore R and focus solely on $\overline{\omega}$ for most of the proof. I will discuss the role of R in Claim 4.

Claim 1 *The function χ crosses zero only at interior values $\overline{\omega} \in (-1, 1)$. Furthermore:*

1. *If $h = 0$, then χ crosses zero at $\overline{\omega} = 0$. Also:*
   (a) *χ crosses zero once in the interval $(-1, 0)$ if an interior minimum exists, and does not cross zero otherwise.*
   (b) *χ crosses zero once in the interval $(0, 1)$ if an interior maximum exists, and does not cross zero otherwise.*
2. *If $h \in (-\lambda\beta, 0)$, it crosses zero once in the interval $(-1, 0)$. In the interval $(\frac{-h}{\lambda\beta}, 1)$:*
   (a) *χ does not cross zero if $\max_{\overline{\omega} \in (\frac{-h}{\lambda\beta}, 1)} \chi(\overline{\omega}) < 0$ or if an interior maximum does not exist.*
   (b) *χ crosses zero once if $\max_{\overline{\omega} \in (\frac{-h}{\lambda\beta}, 1)} \chi(\overline{\omega}) = 0$.*
   (c) *χ crosses zero twice if $\max_{\overline{\omega} \in (\frac{-h}{\lambda\beta}, 1)} \chi(\overline{\omega}) > 0$.*
3. *If $h \leq -\lambda\beta$, χ crosses zero only once and in the interval $(-1, 0)$.*

Proof. The function χ crosses zero only for interior values since $\Psi(h + \lambda\beta\overline{\omega}) = 2\Phi(h + \lambda\beta\overline{\omega}) - 1 \in (-1, 1)$, which implies that $\chi(-1) > 0$ and $\chi(1) < 0$.

Note that

$$\chi''(\overline{\omega}) = 2(\lambda\beta)^2\phi'(h + \lambda\beta\overline{\omega}) \implies \text{sign}(\chi''(\overline{\omega})) = \text{sign}(\phi'(h + \lambda\beta\overline{\omega})).$$

Hence, χ conserves the normal CDF's properties of having one inflection point when $h + \lambda\beta\overline{\omega} = 0$, and being strictly convex for $\overline{\omega} < -\frac{h}{\lambda\beta}$ and strictly concave for $\overline{\omega} > -\frac{h}{\lambda\beta}$. Thus, there is at most one interior minimum for values of $\overline{\omega} < -\frac{h}{\lambda\beta}$ and at most one interior maximum for values of $\overline{\omega} > -\frac{h}{\lambda\beta}$.

The value of χ at the inflection point $\overline{\omega} = -\frac{h}{\lambda\beta}$ is below zero when $h < 0$ and equal to zero when $h = 0$. This follows from $\chi(-\frac{h}{\lambda\beta}) = 2\Phi(0) - 1 - (-\frac{h}{\lambda\beta}) = \frac{h}{\lambda\beta}$.

Consider case 1 with $h = 0$.

Examine the convex part of the function ($\overline{\omega} < 0$). First, suppose there exists an interior minimum $\overline{\omega}^{min}$. Then, because of strict convexity, the minimum must be unique and $\chi(\overline{\omega}^{min}) < \chi(0) = 0$. Moreover, the function must be strictly decreasing between -1 and $\overline{\omega}^{min}$. The Intermediate Value Theorem for strictly monotone functions (IVT-SM) tells us that there must exist exactly one value of $\overline{\omega}$ that crosses 0 in the interval $(-1, \overline{\omega}^{min})$. Then, the function must be strictly increasing between $\overline{\omega}^{min}$ and 0, which implies it cannot cross zero in the interval $(\overline{\omega}^{min}, 0)$; this follows from the properties of continuous strictly monotone

functions. Second, suppose an interior minimum does not exist. Then, $\chi(-1) > 0 = \chi(0)$ and, because of strict convexity, the function must be strictly decreasing between -1 and 0. From the properties of continuous strictly monotone functions, the function cannot cross zero in the interval $(-1, 0)$.

Next, consider the concave part of the function ($\overline{\omega} > 0$). First, if there is an interior maximum $\overline{\omega}^{max}$, then, because of strict concavity, it must be that $\chi(\overline{\omega}^{max}) > 0 = \chi(0)$. Moreover, the function increases between 0 and $\overline{\omega}^{max}$, and then decreases and crosses zero once, since $\chi(1) < 0$. The latter follows from the IVT-SM. Second, if no interior maximum exists, then $\chi(0) = 0 > \chi(1)$ and strict concavity implies the function is strictly decreasing between 0 and 1. It follows from the properties of continuous strictly monotone functions that χ does not cross zero in the interval $(0, 1)$.

Consider case 2 with $h \in (-\lambda\beta, 0)$.

Examine the convex part of the function ($\overline{\omega} < -\frac{h}{\lambda\beta}$). First, suppose there exists an interior minimum $\overline{\omega}^{min}$. Then, because of strict convexity, the minimum must be unique and $\chi(\overline{\omega}^{min}) < \chi(-\frac{h}{\lambda\beta}) < 0$. Moreover, the function must be strictly decreasing between -1 and $\overline{\omega}^{min}$. The IVT-SM tells us that there must exist exactly one value of $\overline{\omega}$ that crosses 0 in the interval $(-1, \overline{\omega}^{min})$. Then, the function must be strictly increasing between $\overline{\omega}^{min}$ and 0, which implies it cannot cross zero in the interval $(\overline{\omega}^{min}, 0)$; this follows from the properties of continuous strictly monotone functions. Second, suppose an interior minimum does not exist. Then, since $\chi(-1) > 0 > \chi(-\frac{h}{\lambda\beta})$, strict convexity tells us that the function is strictly decreasing between -1 and $-\frac{h}{\lambda\beta}$, and the IVT-SM tells us that the function must cross zero exactly once. Hence, in all cases, χ crosses zero exactly once in the interval $(-1, -\frac{h}{\lambda\beta})$. Furthermore, since $h < 0$, for any $\overline{\omega} \in [0, -\frac{h}{\lambda\beta})$ we have $\chi(\overline{\omega}) = 2\Phi(h + \lambda\beta\overline{\omega}) - 1 - \overline{\omega} < 0$. It follows that, more precisely, χ must cross zero once in the interval $(-1, 0)$.

Next, consider the concave part of the function ($\overline{\omega} > -\frac{h}{\lambda\beta}$). First, if there is an interior maximum such that $\chi(\overline{\omega}^{max}) < 0$, then, because of strict concavity, it follows that $\chi(\overline{\omega}) < 0$ for all $\overline{\omega} \in (-\frac{h}{\lambda\beta}, 1)$. Second, if there is an interior maximum such that $\chi(\overline{\omega}^{max}) = 0$, then strict concavity implies that χ crosses zero exactly once at $\overline{\omega}^{max}$. Third, if there is an interior maximum such that $\chi(\overline{\omega}^{max}) > 0$, strict concavity with the IVT-SM tell us that χ crosses zero twice, once in the interval $(-\frac{h}{\lambda\beta}, \overline{\omega}^{max})$ and once in the interval $(\overline{\omega}^{max}, 1)$. Fourth, if no interior maximum exists, then, because of strict concavity, the function must either be strictly increasing or decreasing in the interval $(-\frac{h}{\lambda\beta}, 1)$. Since $\chi(-\frac{h}{\lambda\beta}) < 0$ and $\chi(1) < 0$, it follows from the properties of continuous strictly monotone functions that we must have $\chi(\overline{\omega}) < 0$ for all $\overline{\omega} \in (-\frac{h}{\lambda\beta}, 1)$.

Consider case 3 with $h \leq -\lambda\beta$. Then, $-\frac{h}{\lambda\beta} \geq 1$ and there is no interval for which the function is concave. Then, the analysis for the convex part of χ is the same as for the last case ($h \in (-\lambda\beta, 0)$), and we deduce that χ crosses zero once and in the interval $(-1, 0)$. □

Claim 2 *Suppose $h = 0$. There is a threshold $\Lambda \in (0,1)$ such that an interior maximum $\overline{\omega}^{max} \in (0,1)$ exists if and only if $\lambda\beta > \Lambda$. Furthermore:*

1. *If $\lambda\beta > \Lambda$, χ crosses zero three times.*
2. *If $\lambda\beta \leq \Lambda$, χ crosses zero once.*

Proof. We have an interior maximum if the FOC for the function χ holds for some $\overline{\omega} \in (0,1)$. The FOC is $\chi'(\overline{\omega}) = 2\lambda\beta\phi(\lambda\beta\overline{\omega}) - 1 = 0$.

$\chi(0) = 0 > \chi(1)$ which, by the Mean Value Theorem, implies $\exists\overline{\omega} \in (0,1)$ s.t. $\chi'(\overline{\omega}) < 0$.

Consider the interval $[0,1]$. Since χ is strictly concave in this interval, the derivative reaches its maximum at $\overline{\omega} = 0$ with a value of $2\lambda\beta\phi(0) - 1$. Furthermore, the derivative decreases continuously until it reaches its lowest point at $\overline{\omega} = 1$. When $\lambda\beta = 0$, the maximum derivative is negative. However, as we increase $\lambda\beta$, the maximum derivative increases and, since we assumed that $\sigma < \frac{2}{\sqrt{2\pi}}$, $\phi(0) > \frac{1}{2}$, the maximum derivative eventually becomes positive for some values of $\lambda\beta \in (0,1)$. This implies there exists a threshold $\Lambda \in (0,1)$ such that $\chi'(0) > 0$ if and only if $\lambda\beta > \Lambda$.

Therefore, if $\lambda\beta > \Lambda$ there exists a value $\overline{\omega} \in (0,1)$ that meets the FOC, and otherwise there does not exist one. This follows from the IVT-SM, the fact that the minimum derivative is always negative, and the fact that the maximum derivative is positive if and only if $\lambda\beta > \Lambda$. Note that if $\lambda\beta = \Lambda$, then the FOC is met at $\overline{\omega} = 0$, which, by strict concavity, implies the FOC is not met with $\overline{\omega} \in (0,1)$. Hence, there exists an interior maximum in this interval if and only if $\lambda\beta > \Lambda$.

A similar reasoning tells us that an interior minimum exists in $(-1,0)$ if and only $\lambda\beta > \Lambda$.

Finally, from what we deduced on the existence of an interior minimum and maximum, Claim 1 tells us that χ crosses zero once if $\lambda\beta \leq \Lambda$ and three times otherwise. □

Claim 3
1. *If $\lambda\beta \leq \Lambda$, χ crosses zero once.*
2. *If $\lambda\beta > \Lambda$, there exists a threshold $H \in (0, \lambda\beta)$, increasing in $\lambda\beta$, such that:*
   - *(a) χ crosses zero three times if and only if $|h| < H$.*
   - *(b) χ crosses zero twice if and only if $|h| = H$.*
   - *(c) χ crosses zero once if and only if $|h| > H$.*

Proof. If $h \leq -\lambda\beta$, we know from Claim 1 that χ crosses zero only once and in the interval $(-1, 0)$. This works with this claim since for any $H \in (0, \lambda\beta)$, $|h| > H$, which implies χ can cross zero only once. If $h = 0$, then $|h| < H$, for any $H > 0$, and the rest follows directly from Claim 2. For the rest of the proof, suppose that $h \in (-\lambda\beta, 0)$.

Consider the interval $(-\frac{h}{\lambda\beta}, \infty)$. From the properties of the Normal PDF, we know that $\lim_{\overline{\omega}\to\infty} \chi'(\overline{\omega}) = \lim_{\overline{\omega}\to\infty} 2\lambda\beta\phi(h + \lambda\beta\overline{\omega}) - 1 < 0$. Furthermore, $\chi'(-\frac{h}{\lambda\beta}) = 2\lambda\beta\phi(0) - 1 > 0$ if and only if $\lambda\beta > \Lambda$ (see Claim 2). This does not depend on h. Then, strict concavity tells us that the derivative is strictly decreasing in that interval and, therefore, the IVT-SM tells us that the FOC must be met for exactly one value if and only if $\lambda\beta > \Lambda$. In other words, there exists an interior maximum in the interval $(-\frac{h}{\lambda\beta}, \infty)$ if and only if $\lambda\beta > \Lambda$.

If an interior maximum does not exist in $(-\frac{h}{\lambda\beta}, \infty)$, it must not exist in $(-\frac{h}{\lambda\beta}, 1)$. Using Claim 1, we deduce that χ must cross zero only once if $\lambda\beta \leq \Lambda$.

For the rest of the proof, suppose that $\lambda\beta > \Lambda$ and, thus, an interior maximum always exists in $(-\frac{h}{\lambda\beta}, \infty)$.

Using the Envelope Theorem, we deduce that the maximum must be increasing in h in this interval:

$$\frac{d\chi(\overline{\omega}^{\max})}{dh} = 2\phi(h + \lambda\beta\overline{\omega}^{\max}) > 0.$$

Furthermore, using the Implicit Function Theorem with the FOC, we find that the maximum argument $\overline{\omega}^{max}$ is decreasing in h in this interval:

$$\frac{d\overline{\omega}^{\max}}{dh} = -\frac{1}{\lambda\beta} < 0.$$

When $h = 0$, we know from Claim 2 that an interior maximum exists in the interval $(-\frac{h}{\lambda\beta}, 1)$ and is positive. Then, from the derivative we obtained above, we deduce that as we decrease h, the maximum diminishes and its argument $\overline{\omega}^{max}$ increases. Hence, eventually, $\overline{\omega}^{max}$ goes out of bound (greater than 1) or the maximum reaches zero. I claim the latter must always happen first. To see this, suppose the opposite is true. Then, when h diminishes enough so that $\overline{\omega}^{max} = 1$, we get $\chi(\overline{\omega}^{max}) = \chi(1) \geq 0$, which contradicts the fact that $\chi(1) < 0$, obtained in Claim 1.

Hence, we can define the bound H as the absolute value of $h \in (-\lambda\beta, 0)$ for which the maximum is equal to zero. By the argument above, at $h = -H$ the maximizer has not yet left the interval, i.e., $\overline{\omega}^{max}(-H) < 1$. Moreover, the interior maximum lies in the concave

part of χ, so $\overline{\omega}^{max}(-H) > -\frac{h}{\lambda\beta}\big|_{h=-H} = \frac{H}{\lambda\beta}$. Combining the two inequalities,

$$\frac{H}{\lambda\beta} < \overline{\omega}^{max}(-H) < 1 \implies H < \lambda\beta.$$

Since we know from Claim 2 that χ crosses zero three times when $h = 0$ and $\lambda\beta > \Lambda$, we have $H > 0$, and therefore $H \in (0, \lambda\beta)$.

Then, we derive the following conclusions using Claim 1: if $|h| < H$, the interior maximum is positive and χ crosses zero three times; if $|h| = H$ the interior maximum equals 0 and χ crosses zero twice; if $|h| > H$, the interior maximum is either negative or it does not exist in $(-\frac{h}{\lambda\beta}, 1)$, which in both cases implies χ crosses zero once.

Finally, by definition, for $h^* = -H$, we must have

$$2\Psi(h^* + \lambda\beta\overline{\omega}^{\max}) - 1 - \overline{\omega}^{\max} = 0.$$

Using the Implicit Function Theorem and the Envelope Theorem, we deduce that

$$\frac{dh^*}{d\lambda\beta} = -\overline{\omega}^{max} < 0.$$

Hence, h^* is decreasing in $\lambda\beta$, which implies that H is *increasing* with $\lambda\beta$. □

Putting everything together, except the dynamics, we derive the statements of Theorem 1.

All equilibrium values $(\overline{\omega}^*, R^*)$ are such that $R^* = \overline{\omega}^* = g(\overline{\omega}^*)$ and are interior, i.e., $(\overline{\omega}^*, R^*) \in (-1, 1) \times (-1, 1)$.

This follows from Claim 1.

If $\lambda\beta \leq \Lambda$, there is a unique equilibrium with values $(\overline{\omega}^m, R^m) < 0$.

The equilibrium uniqueness follows from Claim 3. Claim 1 then implies that the equilibrium is negative if $h < 0$ and 0 if $h = 0$. If we had assumed $h > 0$, the proof would have been the same *mutatis mutandis* and we would have found the equilibrium to be positive.

If $\lambda\beta > \Lambda$ there exists a threshold $H \in (0, \lambda\beta)$ that is increasing in $\lambda\beta$ such that:

(i) *If $|h| > H$, there is a unique equilibrium with value $(\overline{\omega}^m, R^m) < 0$.*

(ii) *If $|h| < H$, there are three equilibria with respective values $(\overline{\omega}^+, R^+) > 0$, $(\overline{\omega}^-, R^-) < 0$, and $(\overline{\omega}^m, R^m)$ with $\overline{\omega}^m \in (\frac{-h}{\lambda\beta}, \overline{\omega}^+)$.*

(iii) *If* $|h| = H$*, there is an equilibrium with values* $(\overline{\omega}^-, R^-) < 0$ *and an equilibrium with values* $(\overline{\omega}^m, R^m) > 0$*.*

The number of equilibria in each case and the comparative statics on H follow from Claim 3. The signs of the equilibria follow from Claim 1 (the signs are the opposite with $h > 0$).

Claim 4 *For the dynamics:*

1. *If we are in case 1 or case 2(i) of the theorem, the unique equilibrium with values* $(\overline{\omega}^m, R^m)$ *is globally stable.*

2. *If we are in case 2(ii), the equilibria with values* $(\overline{\omega}^+, R^+)$ *and* $(\overline{\omega}^-, R^-)$ *are stable with basins of attraction* $B((\overline{\omega}^+, R^+)) = [-1, 1] \times (R^m, 1]$ *and* $B((\overline{\omega}^-, R^-)) = [-1, 1] \times [-1, R^m)$*. The equilibrium with values* $(\overline{\omega}^m, R^m)$ *is nonstable.*

3. *If we are in case 2(iii), the equilibrium with values* $(\overline{\omega}^-, R^-) < 0$ *is stable and the equilibrium with values* $(\overline{\omega}^m, R^m) > 0$ *is nonstable.* $B((\overline{\omega}^{\pm}, R^{\pm})) = [-1, 1] \times [-1, R^m)$ *and* $B((\overline{\omega}^m, R^m)) = [-1, 1] \times [R^m, 1]$*.*

Proof. Consider the recursive equation (4). Given initial conditions $(\overline{\omega}^0, R^0)$, at $t = 1$ we get $(g(R^0), R^0)$. For the following periods, in odd periods, we have $(g(\overline{\omega}^{t-1}), \overline{\omega}^{t-1})$, and in even periods, we have $(\overline{\omega}^{t-1}, \overline{\omega}^{t-1})$. Notice that $\overline{\omega}^0$ does not affect this dynamic process, which is why this dimension of the equilibria's basins of attraction is always $[-1, 1]$.

We can simplify the process by focusing only on even periods. Then, for $t \in 2\mathbb{N}$, we have $R^t = \overline{\omega}^t$ and

$$\overline{\omega}^{t+2} = \chi(\overline{\omega}^t) + \overline{\omega}^t. \tag{15}$$

If we replace the initial condition with $\overline{\omega}^0 = R^0$, then, for the rest of this argument, we can discuss only $\overline{\omega}^t$ for $t \in 2\mathbb{N}_0$, while ignoring R^t. This will be perfectly equivalent to studying the initial two-dimensional dynamic system.

Suppose that we are in case 1 or 2(i) of the theorem, with one value $\overline{\omega}^m$ such that $\chi(\overline{\omega}^m) = 0$. Then, since $\chi(-1) > 0$, the contrapositive of the IVT implies $\forall \overline{\omega} \in [-1, \overline{\omega}^m)$ we have $\chi(\overline{\omega}) > 0$. Furthermore, for any $\overline{\omega}^t$ such that $\chi(\overline{\omega}^t) > 0$, we must have $\chi(\overline{\omega}^{t+2}) > 0$.

This results from the following reasoning:

$$\begin{aligned}
\chi'(x) = 2\lambda\beta\phi(h + \lambda\beta x) - 1 > -1 \\
\implies \int_{\overline{\omega}^t}^{\overline{\omega}^{t+2}} \chi'(x)dx > \int_{\overline{\omega}^t}^{\overline{\omega}^{t+2}} -1dx \\
\implies \chi(\overline{\omega}^{t+2}) - \chi(\overline{\omega}^t) > \overline{\omega}^t - \overline{\omega}^{t+2} \\
\implies \chi(\overline{\omega}^{t+2}) > 0.
\end{aligned}$$

Note that with a similar reasoning, we can deduce that $\chi(\overline{\omega}^t) < 0 \implies \chi(\overline{\omega}^{t+2}) < 0$.

We deduce that with $\overline{\omega}^0 \in [-1, \overline{\omega}^m)$, the sequence given by (15) is strictly increasing. Moreover, it is bounded above by $\overline{\omega}^m$, since any $\overline{\omega} > \overline{\omega}^m$ has $\chi(\overline{\omega}) < 0$, which, as we have shown, cannot be part of the sequence. Therefore, from the Monotone Convergence Theorem, the sequence must converge to a value $L \leq \overline{\omega}^m$. Then, it follows that

$$\begin{aligned}
\lim_{t\to\infty} \chi(\overline{\omega}^t) + \overline{\omega}^t = \lim_{t\to\infty} \overline{\omega}^{t+2} \\
\chi(L) + L = L \\
\chi(L) = 0.
\end{aligned}$$

Since the only $\overline{\omega}$ such that $\chi(\overline{\omega}) = 0$ is $\overline{\omega}^m$, we deduce that $L = \overline{\omega}^m$.

We can use a similar reasoning to deduce that if $\overline{\omega}^0 \in (\overline{\omega}^m, 1]$, $\lim_{t\to\infty} \overline{\omega}^t = \overline{\omega}^m$. If $\overline{\omega}^0 = \overline{\omega}^m$, then it follows directly from $\chi(\overline{\omega}^m) = 0$ that we also have $\lim_{t\to\infty} \overline{\omega}^t = \overline{\omega}^m$. In sum, we find that the equilibrium with values $(\overline{\omega}^m, R^m)$ is globally stable: $B((\overline{\omega}^m, R^m)) = [-1, 1] \times [-1, 1]$. Note that, from the definitions provided in the text, global stability implies stability in its more restrictive sense.

Cases 2 and 3 of Claim 4 can be deduced using essentially the same reasoning. This exercise is left for the reader. Note that, for case 2, $(\overline{\omega}^m, R^m)$ cannot be stable, since any deviation ϵ of R brings the sequence into the basin of attraction of another equilibrium. Similarly, for case 3, supposing $h < 0$, a deviation $-\epsilon < 0$ of R away from the positive equilibrium brings the sequence into the basin of attraction of the negative equilibrium. In this case, we have semi-stability (one-sided stability), which, for the purposes of this paper, simply means that this equilibrium is nonstable. □

B.4 Proof Proposition 1

Consider any stable equilibrium with values $(\overline{\omega}^*, R^*)$. From Theorem 1, we know that $\chi'(\overline{\omega}^*) \in (-1, 0)$, which implies

$$\left.\frac{d\Psi(h+\lambda\beta\overline{\omega})}{d\overline{\omega}}\right|_{\overline{\omega}=\overline{\omega}^*} = \Psi'(h+\lambda\beta\overline{\omega}^*)\lambda\beta \in (0,1).$$

I use the Implicit Function Theorem with the fixed point equation given by (3) to find that the derivative as a function of $\lambda\beta$ is

$$\left.\frac{d\overline{\omega}}{d\lambda\beta}\right|_{\overline{\omega}=\overline{\omega}^*} = \frac{\Psi'(h+\lambda\beta\overline{\omega}^*)\overline{\omega}^*}{1-\lambda\beta\Psi'(h+\lambda\beta\overline{\omega}^*)} \implies \left.\text{sign}(\frac{d\overline{\omega}^*}{d\lambda\beta})\right|_{\overline{\omega}=\overline{\omega}^*} = \text{sign}(\overline{\omega}^*).$$

The rest of the proposition follows directly from Theorem 1. □

B.5 Proof Proposition 2

The proof consists of one claim, which establishes that the behavioral response has no first-order welfare effect, from which the proposition follows directly.

Consider the *ex post* aggregate welfare at an equilibrium $(\overline{\omega}^*, R^*)$ (per Lemma 1, $\overline{\omega}^* = R^*$):

$$WE((\overline{\omega}^*, R^*)) = \int_{i\in I} U_i(\omega_i, R^*, P^*)di = \int_{i\in I} \frac{h}{2}\omega_i + \epsilon_i(\omega_i) + \lambda\beta\mu(\omega_i R^*) + (1-\lambda)\gamma + \delta_i(P^*)di.$$

To simplify the notation, I will write $WE((\overline{\omega}^*, R^*)) = WE$ for the rest of the proof. Then, distributing the integral and simplifying, we find

$$WE = \frac{h}{2}\overline{\omega}^* + \int_{i\in I}\epsilon_i(\omega_i)di + \lambda\beta\Big[k\,\mu(R^*) + (1-k)\,\mu(-R^*)\Big] + (1-\lambda)\gamma.$$

The term $\int_{i\in I}\delta_i(P^*)di$ disappears since $\int_{i\in I}\delta_i(A)di = \int_{i\in I}\delta_i(B)di = 0$.

Then, we can subtract $\epsilon_i(1)$ of the utility of all citizens. For all citizens, this is a monotonic transformation of their utility and won't change their behavior: they still choose their type based on inequality (2). This leaves the equilibrium $\overline{\omega}^*$ unchanged. For aggregate welfare, this is essentially subtracting $\int_{i\in I}\epsilon_i(1)di$, and since this does not depend on the equilibrium, this will not affect comparisons between equilibria.

Now, denote $e_i = \epsilon_i(-1) - \epsilon_i(1)$ and its distribution in the population ϕ, which is normal, as previously shown. Since citizens now get a idiosyncratic utility of e_i if they are type -1

and a utility of 0 otherwise, we can rewrite the aggregate welfare as

$$WE = \frac{h}{2}\overline{\omega}^* + \int_{e_i=h+\lambda\beta\overline{\omega}^*}^{\infty} e_i\phi(e_i)de_i + \lambda\beta\Big[k\,\mu(R^*) + (1-k)\,\mu(-R^*)\Big] + (1-\lambda)\gamma.$$

The lower bound on the integral is based on inequality (2), which we can denote $c = h+\lambda\beta\overline{\omega}$.

In equilibrium, $\overline{\omega} = \Psi(c)$, $k = \Phi(c)$. Writing welfare as a function of (c, β):

$$WE = \frac{h}{2}\Psi(c) + \int_c^{\infty} e_i\,\phi(e_i)\,de_i + \lambda\beta\Big[\Phi(c)\,\mu(\Psi(c)) + (1-\Phi(c))\,\mu(-\Psi(c))\Big] + (1-\lambda)\gamma.$$

Claim 1 *At any equilibrium,* $\left.\dfrac{\partial WE}{\partial c}\right|_{\beta} = 0.$

Proof. Differentiating term by term:

1. $\frac{\partial}{\partial c}\left[\frac{h}{2}\Psi(c)\right] = h\,\phi(c)$.
2. By Leibniz's rule, $\frac{\partial}{\partial c}\int_c^{\infty} e_i\,\phi(e_i)\,de_i = -c\,\phi(c)$.
3. For the policy utility term, both the composition $k = \Phi(c)$ and the policy $R = \Psi(c)$ depend on c. Applying the product rule:

$$\begin{aligned}&\frac{\partial}{\partial c}\Big[\lambda\beta\big[\Phi(c)\,\mu(\Psi(c)) + (1-\Phi(c))\,\mu(-\Psi(c))\big]\Big] \\ &\quad= \lambda\beta\,\phi(c)\underbrace{\Big[\mu(\overline{\omega}^*) - \mu(-\overline{\omega}^*)\Big]}_{=\overline{\omega}^*} + \lambda\beta\,\Psi'(c)\underbrace{\Big[k\,\mu'(\overline{\omega}^*) - (1-k)\,\mu'(-\overline{\omega}^*)\Big]}_{=0 \text{ by Lemma 1}}.\end{aligned}$$

   The first part is the *composition effect*: a marginal agent switches type, gaining $\mu(\overline{\omega}^*)$ in policy utility but losing $\mu(-\overline{\omega}^*)$. The second part is the *policy effect*: as $\overline{\omega}^*$ shifts, $R = \overline{\omega}^*$ adjusts, affecting all non-switching agents. This term is zero because electoral competition ensures that $R^* = \overline{\omega}^*$ maximizes average policy utility $k\,\mu(R) + (1-k)\mu(-R)$ given the current composition (Lemma 1), so a marginal policy shift creates equal gains and losses across types.

Collecting terms:

$$\frac{\partial WE}{\partial c} = \phi(c)\Big[h - c + \lambda\beta\overline{\omega}^*\Big] = 0,$$

where the last equality follows from the equilibrium condition $c = h + \lambda\beta\overline{\omega}^*$. This term vanishes because the marginal agent—the one at the indifference threshold $e_i = c$—obtains

exactly zero net utility from switching type: their idiosyncratic preference $e_i = c$ exactly offsets the combined deterministic (h) and political ($\lambda\beta\overline{\omega}$) incentives. □

Putting everything together, we derive the statement of Proposition 2. By the chain rule, $\frac{dWE}{d\beta} = \frac{\partial WE}{\partial \beta}\big|_c + \frac{\partial WE}{\partial c}\big|_\beta \cdot \frac{dc}{d\beta}$. Since Claim 1 establishes that $\frac{\partial WE}{\partial c} = 0$, the change in welfare driven by the behavioral response drops out entirely and the welfare effect reduces to the direct effect of β holding the cutoff fixed:

$$\frac{dWE}{d\beta} = \frac{\partial WE}{\partial \beta}\bigg|_c = \lambda\Big[\Phi(c)\,\mu(\overline{\omega}^*) + (1-\Phi(c))\,\mu(-\overline{\omega}^*)\Big] = \lambda\left[\frac{3+(\overline{\omega}^*)^2}{4}\right] > 0.$$

In summary, the behavioral response $\frac{d\overline{\omega}^*}{d\beta}$ has no first-order welfare effect because of two conditions: (i) electoral competition ensures that the equilibrium policy is locally welfare-maximizing given the composition, so a marginal policy shift has zero net effect on non-switching agents; and (ii) individual optimality ensures that the marginal switching agent is indifferent, so composition changes have zero welfare effect. □

B.6 Proof Proposition 3

The proof consists of two claims, which together give the two statements of the proposition.

Claim 1 $WE(\overline{\omega}^-) > WE(\overline{\omega}^+)$.

Proof. When $h = 0$, the fixed point equation $\overline{\omega} = \Psi(\lambda\beta\overline{\omega})$ is symmetric around zero, so $\overline{\omega}^- = -\overline{\omega}^+$. Since welfare depends on $\overline{\omega}$ only through $\frac{h}{2}\overline{\omega}$ and $(\overline{\omega})^2$, we have $WE(\overline{\omega}^-) = WE(\overline{\omega}^+)$ when $h = 0$.

Using the same reparametrization as in the proof of Proposition 2, I write the aggregate citizen welfare as a function of the cutoff $c = h + \lambda\beta\overline{\omega}$ and the parameters (h, c). Since $\frac{\partial WE}{\partial c} = 0$ at any equilibrium, we find that, for the same reason, the welfare effect of a change in h change reduces to its direct effect holding the cutoff fixed.

Now consider the effect of h on the welfare gap. Since $\frac{\partial WE}{\partial c} = 0$, the only term in WE that depends explicitly on h (holding c fixed) is $\frac{h}{2}\Psi(c)$, so:

$$\frac{dWE}{dh} = \frac{\overline{\omega}^*}{2}.$$

Therefore:

$$\frac{d}{dh}\Big[WE(\overline{\omega}^-) - WE(\overline{\omega}^+)\Big] = \frac{\overline{\omega}^- - \overline{\omega}^+}{2} < 0,$$

since $\overline{\omega}^- < \overline{\omega}^+$. The welfare gap is zero at $h = 0$ and strictly increasing as h decreases below zero, so $WE(\overline{\omega}^-) > WE(\overline{\omega}^+)$ for all $h < 0$. □

Claim 2 *The welfare gap between the two stable equilibria is increasing in $\lambda\beta$.*

Proof. By Proposition 2:

$$\frac{d}{d\beta}\Big[WE(\overline{\omega}^-) - WE(\overline{\omega}^+)\Big] = \lambda\frac{(\overline{\omega}^-)^2 - (\overline{\omega}^+)^2}{4} > 0,$$

since $|\overline{\omega}^-| > |\overline{\omega}^+|$ when $h < 0$. A similar argument applies for λ. □

Putting the two claims together, we derive the statements of Proposition 3. □

B.7 Proof Lemma 3

Consider the choice of R_A and T_A of the candidate of party A. Types 1 vote for A if and only if

$$U_i(1, R_A, T_A, A) - U_i(1, R_B, T_B, B) = \lambda T_A\beta\mu(R_A) - \frac{(T_A)^2}{2} - \lambda T_B\beta\mu(R_B) + \frac{(T_B)^2}{2} + 2\delta_i(A) \geq 0$$
$$\iff \frac{\lambda T_A\beta\mu(R_A)}{2} - \frac{(T_A)^2}{4} - \frac{\lambda T_B\beta\mu(R_B)}{2} + \frac{(T_B)^2}{4} \geq -\delta_i(A).$$

Since $\lambda\beta \in (0, 1)$ and $T_A, T_B \in [0, 1]$ in equilibrium (as I will show), the left-hand side (LHS) is always within the bounds of the uniform distribution. Indeed, the LHS value is bounded by $\frac{1}{2}$, which is given by $T_A = 1$, $T_B = 1$, $R_A = 1$, $R_B = -1$, and $\lambda\beta = 1$. Similarly, the LHS value is bounded below by $-\frac{1}{2}$, which is given by $T_B = 1$, $T_A = 1$, $R_B = 1$, $R_A = -1$, and $\lambda\beta = 1$. Hence, for types 1, the probability of voting for candidate A is

$$\frac{1}{2} + \frac{\lambda T_A\beta\mu(R_A)}{2} - \frac{(T_A)^2}{4} - \frac{\lambda T_B\beta\mu(R_B)}{2} + \frac{(T_B)^2}{4}.$$

Similarly, the probability that a type -1 will vote for candidate A is

$$\frac{1}{2} + \frac{\lambda T_A\beta\mu(-R_A)}{2} - \frac{(T_A)^2}{4} - \frac{\lambda T_B\beta\mu(-R_B)}{2} + \frac{(T_B)^2}{4}.$$

We can drop the terms that depend on T_B and R_B since they do not affect A's maximization problem. Therefore, A maximizes its total vote by maximizing

$$k_A[\frac{1}{2} + \frac{\lambda T_A\beta\mu(R_A)}{2} - \frac{(T_A)^2}{4}] + [1 - k_A][\frac{1}{2} + \frac{\lambda T_A\beta\mu(-R_A)}{2} - \frac{(T_A)^2}{4}].$$

We multiply by 2, subtract 1 and simplify, and we get

$$T_A\lambda\beta[k_A\mu(R_A)+(1-k_A)\mu(-R_A)]-\frac{(T_A)^2}{2}.$$

We see that the choice of R_A is given by maximizing $k_A\mu(R_A)+(1-k_A)\mu(-R_A)$, which is independent of T_A and corresponds to the same problem as in Lemma 1. Hence $R_A^*=\overline{\omega}$. Then, the problem for T_A is clearly strictly concave and the optimum is

$$T_A^*=\lambda\beta[k_A\mu(R_A)+(1-k_A)\mu(-R_A)].$$

Since $R_A^*=\overline{\omega}$ and $k_A=\frac{1+\overline{\omega}}{2}$, we can deduce with some algebra that

$$k_A\mu(R_A^*)+(1-k_A)\mu(-R_A^*)=\frac{3}{4}+\frac{(\overline{\omega})^2}{4}\in(0,1).$$

Since the optimal choice is unique and independent of R_B and T_B, it constitutes a strictly dominant strategy. The problem for B is the same, so she must also choose $R_B^*=R_A^*=R^*$ and $T_B^*=T_A^*=T^*$ as a strictly dominant strategy. □

B.8 Proof Lemma 4

The logic is essentially the same as for the proof of Lemma 2.

We denote the expectations of citizen i as R_{iA}^e and T_{iA}^e, R_{iB}^e and T_{iB}^e, and z_{iA}^e, which are respectively the proposed policies of A and B, and the probability that A gets elected. Then, we have the following payoffs for i, if he adopts type 1 or -1:

$$\mathbb{E}[U_i(1)]=\frac{h}{2}+\epsilon_i(1)+\lambda\beta[z_{iA}^eT_{iA}^e\mu(R_{iA}^e)+(1-z_{iA}^e)T_{iB}^e\mu(R_{iB}^e)]+(1-\lambda)\gamma+(2-z_{iA}^e)\delta_i(A)$$
$$\mathbb{E}[U_i(-1)]=-\frac{h}{2}+\epsilon_i(-1)+\lambda\beta[z_{iA}^eT_{iA}^e\mu(-R_{iA}^e)+(1-z_{iA}^e)T_{iB}^e\mu(-R_{iB}^e)]+(1-\lambda)\gamma+(2-z_{iA}^e)\delta_i(A).$$

A rational citizen will choose type 1 if and only if

$$\begin{aligned}\mathbb{E}[U_i(1)]-\mathbb{E}[U_i(-1)]=h+\lambda\beta[&z_{iA}^eT_{iA}^e[\mu(R_{iA}^e)-\mu(-R_{iA}^e)]\\&+(1-z_{iA}^e)T_{iB}^e[\mu(R_{iB}^e)-\mu(-R_{iB}^e)]]+[\epsilon_i(1)-\epsilon_i(-1)]\geq 0.\end{aligned}$$

From Lemma 3, we know that in the political stage, we have $R_A^*=R_B^*=R^*=\overline{\omega}$ and $T_A^*=T_B^*=T^*(\overline{\omega})=\lambda\beta[\frac{3}{4}+\frac{(\overline{\omega})^2}{4}]$. To get a rational expectation equilibrium, we replace

these values in the inequality above, simplify, and we get

$$h + \lambda\beta T^*(\overline{\omega})\overline{\omega} \geq \epsilon_i(-1) - \epsilon_i(1).$$

Notice that the expectations z^e_{iA} do not matter for the result. The rest of the proof follows from the same logic explained on page 9. □

B.9 Proof of Theorem 2

As in the proof of Theorem 1, I present the proof for the case $h \leq 0$, since the argument for $h \geq 0$ is symmetrical. I define the *effective cultural investment* $S = TR$ and the function $S^*(\overline{\omega}) = \lambda\beta\left[\frac{3}{4} + \frac{\overline{\omega}^2}{4}\right]\overline{\omega}$, which gives the equilibrium value of S as a function of $\overline{\omega}$. I use the function $\hat{\chi}(\overline{\omega}) = \Psi(F(\overline{\omega})) - \overline{\omega}$, where $F(\overline{\omega}) \equiv h + \lambda\beta\, S^*(\overline{\omega})$. It follows from Lemma 4 that equilibrium values $\overline{\omega}^*$ are given by $\hat{\chi}(\overline{\omega}^*) = 0$. Since in equilibrium $R^* = \overline{\omega}$ (Lemma 3) and T^* is determined by $\overline{\omega}^*$, I focus on $\overline{\omega}$ for most of the proof.

Structure of the argument. The proof of Theorem 1 is organized in four claims, and none of them requires the specific functional form of χ: each rests on a handful of qualitative properties. The strategy here is therefore to go through those four claims in order and verify, for each, that the properties of χ on which it rests are also properties of $\hat{\chi}$. Once this is done, the four claims of Theorem 1—and hence every statement of Theorem 2—can be reproduced with $\hat{\chi}$ in place of χ, the inflection point $\overline{\omega}_0$ in place of $-\frac{h}{\lambda\beta}$, the bound $\overline{H}$ in place of $\lambda\beta$, and the threshold $\hat{H}$ in place of H. The threshold Λ requires no analogue, for the reason given in (2a).

Notation and assumptions. Write $a \equiv \frac{3(\lambda\beta)^2}{4}$, so that

$$F(\overline{\omega}) = h + \frac{a\,\overline{\omega}(3+\overline{\omega}^2)}{3}, \qquad F' = a(1+\overline{\omega}^2) > 0, \qquad F'' = 2a\,\overline{\omega}, \qquad F''' = 2a.$$

Note that F is strictly increasing. Recall that $\Psi = 2\Phi - 1$, where Φ and ϕ are the CDF and PDF of a normal distribution with mean zero and variance σ^2; hence $\Psi'(x) = 2\phi(x) > 0$ and $\Psi''(x) = 2\phi'(x) = -\frac{2x}{\sigma^2}\phi(x)$. By the chain rule,

$$\hat{\chi}''(\overline{\omega}) = \Psi''(F)(F')^2 + \Psi'(F)F'' = 2\phi\big(F(\overline{\omega})\big)\, G(\overline{\omega}), \qquad G \;\equiv\; F'' - \frac{F\,(F')^2}{\sigma^2}, \tag{16}$$

so that $\operatorname{sign}(\hat{\chi}'') = \operatorname{sign}(G)$. Throughout I maintain the two assumptions of Theorem 2,

$$(\lambda\beta)^2 > \frac{4\sqrt{2}}{3}\,\sigma \quad \Big(\text{equivalently, } a^2 > 2\sigma^2\Big), \qquad \text{and} \qquad \sigma < \frac{3}{4\sqrt{2}}, \tag{17}$$

the second of which is exactly what makes the lower bound on $\lambda\beta$ smaller than 1, so that the admissible range for $\lambda\beta$ is nonempty. Note that this upper bound on σ is strictly tighter than the one maintained in Theorem 1, where $\sigma < \frac{2}{\sqrt{2\pi}}$ is needed only for $\phi(0) > \frac{1}{2}$: their ratio is $\frac{3}{4\sqrt{2}} \Big/ \frac{2}{\sqrt{2\pi}} = \frac{3\sqrt{\pi}}{8} \approx 0.66$. Endogenizing T therefore requires a more concentrated distribution of idiosyncratic tastes than the baseline model, which is the price of the stronger curvature that the convex–concave structure of $\hat{\chi}$ demands in (1b).

Properties needed for Claim 1

(1a) $\hat{\chi}(-1) > 0$ and $\hat{\chi}(1) < 0$. Since $\Psi = 2\Phi - 1 \in (-1, 1)$ for any finite argument and $F(\pm 1)$ is finite, $\hat{\chi}(-1) = \Psi(F(-1)) + 1 > 0$ and $\hat{\chi}(1) = \Psi(F(1)) - 1 < 0$. Hence $\hat{\chi}$ crosses zero only at interior values and all equilibria are interior.

(1b) Convex–concave structure. By (16) it suffices to study the sign of G. I show that $G' < 0$ at every zero of G, which gives single crossing. Differentiating,

$$G' = F''' - \frac{(F')^3}{\sigma^2} - \frac{2FF'F''}{\sigma^2}.$$

At any $\overline{\omega}$ with $G(\overline{\omega}) = 0$ we have $F = \frac{\sigma^2 F''}{(F')^2}$, so the last term equals $\frac{2(F'')^2}{F'}$ and F — hence h — drops out entirely:

$$G'(\overline{\omega})\big|_{G=0} = F''' - \frac{(F')^3}{\sigma^2} - \frac{2(F'')^2}{F'} = a\left[2 - \frac{a^2(1+\overline{\omega}^2)^3}{\sigma^2} - \frac{8\overline{\omega}^2}{1+\overline{\omega}^2}\right]. \tag{18}$$

The third term in the bracket is non-positive and the second is at most $-\frac{a^2}{\sigma^2} < -2$, because $a^2 > 2\sigma^2$ under (17). The bracket is therefore strictly negative, so $G' < 0$ at every zero of G; consequently G has at most one zero on $[-1, 1]$ and, where it has one, crosses it from positive to negative. Denoting that zero $\overline{\omega}_0$, the function $\hat{\chi}$ is strictly convex on $(-1, \overline{\omega}_0)$ and strictly concave on $(\overline{\omega}_0, 1)$. Note also, for later use, that the bound $a^2 > 2\sigma^2$ is tight: at $h = 0$ the inflection point is $\overline{\omega}_0 = 0$ by (1c), where the bracket in (18) equals $2 - \frac{a^2}{\sigma^2}$.

(1c) Location of the inflection point. Since $F(0) = h$, $F'(0) = a$, and $F''(0) = 0$

$$G(0) = F''(0) - \frac{F(0)[F'(0)]^2}{\sigma^2} = -\frac{a^2 h}{\sigma^2}.$$

If $h = 0$ then $G(0) = 0$, so $\overline{\omega}_0 = 0$ by uniqueness; if $h < 0$ then $G(0) > 0$, and since G crosses zero from above, $\overline{\omega}_0 > 0$. This is the analogue of $-\frac{h}{\lambda\beta} \geq 0$, with equality if and only if $h = 0$. Setting $G(\overline{\omega}_0) = 0$ also gives F at the inflection point in closed form,

$$F(\overline{\omega}_0) = \frac{\sigma^2 F''(\overline{\omega}_0)}{[F'(\overline{\omega}_0)]^2} = \frac{2\sigma^2\,\overline{\omega}_0}{a\,(1+\overline{\omega}_0^2)^2} \;\geq\; 0, \tag{19}$$

with equality if and only if $h = 0$.

(1d) Disappearance of the concave region. At the endpoints $F'(\pm 1) = 2a$ and $F''(\pm 1) = \pm 2a$, so

$$G(\pm 1) = \pm 2a - \frac{4a^2 F(\pm 1)}{\sigma^2} = \frac{4a^2}{\sigma^2}\left[\pm\frac{\sigma^2}{2a} - F(\pm 1)\right].$$

For $h \leq 0$ we have $F(-1) \leq -\frac{4a}{3}$, hence $G(-1) \geq 2a\left[\frac{8a^2}{3\sigma^2} - 1\right] > 0$ under $a^2 > 2\sigma^2$: the left endpoint always lies in the convex region. At the right endpoint, $G(1) < 0$ if and only if $F(1) > \frac{\sigma^2}{2a}$, that is, if and only if

$$|h| \;<\; \overline{H} \;\equiv\; (\lambda\beta)^2 - \frac{2\sigma^2}{3(\lambda\beta)^2} \;\in\; \big(0, (\lambda\beta)^2\big).$$

Hence, if $|h| < \overline{H}$ the function G has exactly one zero $\overline{\omega}_0 \in (-1, 1)$ and $\hat{\chi}$ has a nonempty concave region; if $|h| \geq \overline{H}$ then $G(1) \geq 0$, which with $G(-1) > 0$ and single crossing gives $G > 0$ on $[-1, 1)$, so $\hat{\chi}$ is strictly convex throughout. A convex function with $\hat{\chi}(-1) > 0 > \hat{\chi}(1)$ crosses zero exactly once, so in that case there is a unique equilibrium. The threshold $\overline{H}$ thus plays the role played by $\lambda\beta$ in case 3 of Claim 1, where $h \leq -\lambda\beta$ pushes $-\frac{h}{\lambda\beta}$ above 1.

(1e) Sign of $\hat{\chi}$ at the origin. Since $F(0) = h$,

$$\hat{\chi}(0) = \Psi(h) = 2\Phi(h) - 1 \;\leq\; 0,$$

with equality if and only if $h = 0$, because Φ is symmetric about zero with $\Phi(0) = \frac{1}{2}$. Despite its simplicity this delivers both of the remaining ingredients of Claim 1. First, for $h < 0$ the interior minimum satisfies $\overline{\omega}^{min} < \overline{\omega}_0 < \overline{\omega}^{max}$ by (1b)–(1c), and $0 < \overline{\omega}^{max}$ by (1c), so $\hat{\chi}(\overline{\omega}^{min}) \leq \hat{\chi}(0) < 0$: the interior minimum is always negative, which is what makes three crossings possible. Second, whenever there are three crossings $\overline{\omega}^{-} < \overline{\omega}^{m} < \overline{\omega}^{+}$, we have $\overline{\omega}^{+} > \overline{\omega}^{max} > \overline{\omega}_0 > 0$ and $\hat{\chi} < 0$ on $(\overline{\omega}^{-}, \overline{\omega}^{m})$; since $\hat{\chi}(0) < 0$, the origin must lie in that interval, so

$$\overline{\omega}^{-} < 0 < \overline{\omega}^{m} < \overline{\omega}^{+}.$$

The same argument applied to a unique crossing places it in $(-1, 0)$. The signs asserted in Theorem 2 therefore hold exactly as in Theorem 1.

With (1a)–(1e), the argument of Claim 1 applies to $\hat{\chi}$ with $\overline{\omega}_0$ in place of $-\frac{h}{\lambda\beta}$ and $\overline{H}$ in place of $\lambda\beta$.

Property needed for Claim 2

(2a) $\hat{\chi}'(0) > 0$ **when** $h = 0$**.**

$\overline{\omega}_0 = 0$ and $F(0) = 0$. Using $\Psi'(0) = 2\phi(0) = \frac{2}{\sigma\sqrt{2\pi}}$ and $F'(0) = a$,

$$\hat{\chi}'(0) = \Psi'(0)F'(0) - 1 = \frac{3(\lambda\beta)^2}{2\sigma\sqrt{2\pi}} - 1,$$

which is strictly positive if and only if $(\lambda\beta)^2 > \frac{2\sqrt{2\pi}}{3}\sigma$. This holds under the maintained assumption (17), which requires $(\lambda\beta)^2 > \frac{4\sqrt{2}}{3}\sigma$, since

$$\frac{4\sqrt{2}}{3} > \frac{2\sqrt{2\pi}}{3} \iff 2\sqrt{2} > \sqrt{2\pi} \iff 4 > \pi.$$

Hence $\hat{\chi}'(0) > 0$: at $h = 0$ the function rises above $\hat{\chi}(0) = 0$ and, with (1e), crosses zero three times. Note that no threshold on $\lambda\beta$ analogous to Λ in the proof of Theorem 1 is needed here, because the curvature required for the convex–concave structure of (1b) already exceeds the curvature required for $\hat{\chi}'(0) > 0$ (see footnote 19).

Properties needed for Claim 3

Let $\overline{\omega}^{max}$ denote an interior maximum of $\hat{\chi}$ in the concave region, so $\overline{\omega}^{max} > \overline{\omega}_0 \geq 0$. Since F is strictly increasing, (19) gives

$$F(\overline{\omega}^{max}) > F(\overline{\omega}_0) \geq 0. \tag{20}$$

(3a) $\dfrac{d\hat{\chi}(\overline{\omega}^{max})}{dh} > 0$**.** Since $\frac{\partial F}{\partial h} = 1$, the Envelope Theorem gives

$$\frac{d\hat{\chi}(\overline{\omega}^{max})}{dh} = \frac{\partial \hat{\chi}}{\partial h}\bigg|_{\overline{\omega}^{max}} = \Psi'\big(F(\overline{\omega}^{max})\big) = 2\phi\big(F(\overline{\omega}^{max})\big) > 0.$$

(3b) $\dfrac{d\overline{\omega}^{max}}{dh} < 0$**.** Write the first-order condition as $Q(\overline{\omega}, h) \equiv \Psi'(F)F' - 1 = 0$. Then $Q_{\overline{\omega}} = \hat{\chi}''(\overline{\omega}^{max}) < 0$ and, using $\frac{\partial F}{\partial h} = 1$, $Q_h = \Psi''(F)F' = -\frac{2F}{\sigma^2}\phi(F)F'$. The Implicit Function Theorem gives

$$\frac{d\overline{\omega}^{max}}{dh} = -\frac{Q_h}{Q_{\overline{\omega}}} = \frac{2\,F(\overline{\omega}^{max})\,\phi\big(F(\overline{\omega}^{max})\big)F'(\overline{\omega}^{max})}{\sigma^2\,\hat{\chi}''(\overline{\omega}^{max})} \;<\; 0,$$

by (20) and $\hat{\chi}''(\overline{\omega}^{max}) < 0$. As in Claim 3, the interior maximum must reach zero before $\overline{\omega}^{max}$ leaves $(-1, 1)$, since $\overline{\omega}^{max} = 1$ would give $\hat{\chi}(\overline{\omega}^{max}) = \hat{\chi}(1) < 0$ by (1a).

(3c) $\dfrac{dh^*}{d\lambda\beta} < 0$**.** Let $h^* = -\hat{H}$ be defined by $\hat{\chi}(\overline{\omega}^{max}) = 0$ together with the first-order condition. Applying the Implicit Function Theorem to the first equation and the Envelope Theorem to eliminate the indirect effect through $\overline{\omega}^{max}$,

$$\frac{dh^*}{d\lambda\beta} = -\frac{\partial\hat{\chi}/\partial(\lambda\beta)}{\partial\hat{\chi}/\partial h}\bigg|_{\overline{\omega}^{max}} = -\frac{\partial F}{\partial(\lambda\beta)} = -\frac{\lambda\beta\,\overline{\omega}^{max}\big(3 + (\overline{\omega}^{max})^2\big)}{2} \;<\; 0,$$

since $\overline{\omega}^{max} > 0$. Hence h^* is decreasing in $\lambda\beta$, i.e. $\hat{H}$ is *increasing* in $\lambda\beta$.

(3d) $\hat{H}$ **is well defined (existence and uniqueness).** Claim 3 of Theorem 1 uses the fact that χ' at the inflection point, $2\lambda\beta\phi(0) - 1$, does not depend on h; here $\hat{\chi}'(\overline{\omega}_0)$ does, so I construct $\hat{H}$ directly. Let

$$\overline{M}(h) \;\equiv\; \max_{\overline{\omega}\in[0,1]} \hat{\chi}(\overline{\omega}),$$

which is well defined and continuous, being the maximum of a continuous function over a fixed compact set, and strictly increasing in h because $\frac{\partial\hat{\chi}}{\partial h} = \Psi'(F) > 0$ at every $\overline{\omega}$. Moreover

$\overline{M}(0) > 0$ by (2a), and $\overline{M}(-\overline{H}) < 0$: at $h = -\overline{H}$ property (1d) gives $\overline{\omega}_0 = 1$, so $\hat{\chi}$ is convex on $[0,1]$ with $\hat{\chi}(0) < 0$ and $\hat{\chi}(1) < 0$ by (1e) and (1a), hence negative throughout. By the Intermediate Value Theorem for strictly monotone functions there is therefore a unique $h^* \in (-\overline{H}, 0)$ with $\overline{M}(h^*) = 0$, and setting $\hat{H} = |h^*|$ gives $\hat{H} \in (0, \overline{H}) \subset \big(0, (\lambda\beta)^2\big)$ by (1d). Since $\overline{M}$ is strictly increasing, $\overline{M}(h) > 0$ if and only if $|h| < \hat{H}$.

Property needed for Claim 4

(4a) $\hat{\chi}' > -1$ on $[-1,1]$. Claim 4 studies the recursion in even periods, $\overline{\omega}^{t+2} = \hat{\chi}(\overline{\omega}^t) + \overline{\omega}^t$, and the only property of χ it uses is $\chi' > -1$, which yields $\hat{\chi}(\overline{\omega}^t) > 0 \Rightarrow \hat{\chi}(\overline{\omega}^{t+2}) > 0$ (and the counterpart for negative values) by integration. Here

$$\hat{\chi}'(\overline{\omega}) = \Psi'\big(F(\overline{\omega})\big)F'(\overline{\omega}) - 1 > -1,$$

since $\Psi' > 0$ and $F' > 0$. The Monotone Convergence argument and the description of the basins of attraction therefore carry over unchanged, with TR replacing R as the state variable inherited across periods.

Conclusion

Properties (1a)–(1e), (2a), (3a)–(3d) and (4a) are precisely the features of χ used in Claims 1–4 of the proof of Theorem 1. Under (17) the function $\hat{\chi}$ possesses all of them, with $\overline{\omega}_0$ in place of $-\frac{h}{\lambda\beta}$ and $\overline{H}$ in place of $\lambda\beta$, and with no analogue of Λ required by (2a). Every statement of Theorem 2 therefore follows by repeating the argument of Theorem 1, with $\hat{H}$ defined as in (3d). □

B.10 Proof Proposition 4

From Lemma 4, $T^* = \lambda\beta\left[\frac{3}{4} + \frac{(\overline{\omega}^*)^2}{4}\right]$. Differentiating:

$$\frac{\partial T^*}{\partial \lambda\beta} = \frac{3}{4} + \frac{(\overline{\omega}^*)^2}{4} > 0, \qquad \frac{\partial T^*}{\partial |\overline{\omega}^*|} = \frac{\lambda\beta|\overline{\omega}^*|}{2} > 0,$$

where the second inequality uses $|\overline{\omega}^*| > 0$. From the fixed point Equation (7), $\overline{\omega}^* = \Psi(h + \lambda\beta T^*\overline{\omega}^*)$, and differentiating $\hat{g}(\overline{\omega}) = \Psi(h + \lambda\beta T^*(\overline{\omega})\overline{\omega})$ gives:

$$\hat{g}'(\overline{\omega}^*) = \Psi'(\cdot)\lambda\beta T^* + \frac{\Psi'(\cdot)(\lambda\beta)^2(\overline{\omega}^*)^2}{2}.$$

Since the second term is non-negative, stability of the fixed point of $\hat{g}$ ($\hat{g}'(\overline{\omega}^*) \in (0,1)$) implies $\Psi'(\cdot)\lambda\beta T^* \leq \hat{g}'(\overline{\omega}^*) < 1$. Implicit differentiation of Equation (7) with respect to $\lambda\beta$ (holding T^* fixed) and with respect to T^* then gives:

$$\frac{\partial|\overline{\omega}^*|}{\partial\lambda\beta} = \frac{\Psi'(\cdot)T^*|\overline{\omega}^*|}{1-\Psi'(\cdot)\lambda\beta T^*} > 0, \qquad \frac{\partial|\overline{\omega}^*|}{\partial T^*} = \frac{\Psi'(\cdot)\lambda\beta|\overline{\omega}^*|}{1-\Psi'(\cdot)\lambda\beta T^*} > 0,$$

where positivity follows from $\Psi'(\cdot) > 0$, $|\overline{\omega}^*| > 0$, and $\Psi'(\cdot)\lambda\beta T^* \in (0,1)$.

Equations (9) and (10) follow from total differentiation of the two-equation system with respect to $\lambda\beta$. Solving yields:

$$\frac{d|\overline{\omega}^*|}{d\lambda\beta} = \frac{\frac{\partial|\overline{\omega}^*|}{\partial\lambda\beta} + \frac{\partial|\overline{\omega}^*|}{\partial T^*}\frac{\partial T^*}{\partial\lambda\beta}}{1-\frac{\partial|\overline{\omega}^*|}{\partial T^*}\frac{\partial T^*}{\partial|\overline{\omega}^*|}}.$$

The numerator is positive since all partial derivatives are positive. For the denominator, the product of the partial derivatives is:

$$\frac{\partial|\overline{\omega}^*|}{\partial T^*}\frac{\partial T^*}{\partial|\overline{\omega}^*|} = \frac{\Psi'(\cdot)(\lambda\beta)^2(\overline{\omega}^*)^2}{2(1-\Psi'(\cdot)\lambda\beta T^*)} = \frac{\hat{g}'(\overline{\omega}^*) - \Psi'(\cdot)\lambda\beta T^*}{1-\Psi'(\cdot)\lambda\beta T^*}.$$

Therefore:

$$1 - \frac{\partial|\overline{\omega}^*|}{\partial T^*}\frac{\partial T^*}{\partial|\overline{\omega}^*|} = \frac{1-\hat{g}'(\overline{\omega}^*)}{1-\Psi'(\cdot)\lambda\beta T^*} > 0,$$

since $\hat{g}'(\overline{\omega}^*) \in (0,1)$ and $\Psi'(\cdot)\lambda\beta T^* \in (0,1)$. Hence $\frac{d|\overline{\omega}^*|}{d\lambda\beta} > 0$.

Since $\frac{d|\overline{\omega}^*|}{d\lambda\beta} > 0$ and $\frac{\partial T^*}{\partial\lambda\beta}, \frac{\partial T^*}{\partial|\overline{\omega}^*|} > 0$, Equation (9) immediately gives $\frac{dT^*}{d\lambda\beta} > 0$. □

B.11 Proof Lemma 5

The proof consists of two claims. Claim 1 establishes the monotonic transformation claimed in the main text (Equation 12), and Claim 2 derives R_P^*.

Claim 1 *Candidate P's maximization problem over R_P is equivalent to maximizing the weighted average*

$$\widetilde{U}_P = [\pi_P^z k + \pi_P^1]\, U(1, R_P) + [\pi_P^z(1-k) + \pi_P^{-1}]\, U(-1, R_P),$$

which is equation (12).

Proof. Consider candidate A's optimization over R_A. From the voting analysis in Lemma 1 (which carries over since the voting stage is unchanged), the vote share of candidate A is

$$z_A = \frac{1}{2} + \frac{\lambda\beta}{2}\big[k\mu(R_A) + (1-k)\mu(-R_A) - k\mu(R_B) - (1-k)\mu(-R_B)\big].$$

Substituting into $U_A = 2\pi_A^z z_A + \pi_A^{-1}U(-1, R_A) + \pi_A^1 U(1, R_A)$ and expanding:

$$U_A = \pi_A^z + \pi_A^z\lambda\beta\big[k\mu(R_A) + (1-k)\mu(-R_A)\big] - \underbrace{\pi_A^z\lambda\beta\big[k\mu(R_B) + (1-k)\mu(-R_B)\big]}_{\text{does not depend on } R_A}$$
$$+ \pi_A^{-1}U(-1, R_A) + \pi_A^1 U(1, R_A).$$

Dropping terms that do not depend on R_A (a monotonic transformation that preserves the argmax) and noting that the only R_A-dependent component of $U(\omega_i, R_A)$ is $\lambda\beta\mu(\omega_i R_A)$, the candidate's problem reduces to maximizing

$$\lambda\beta\big[(\pi_A^z k + \pi_A^1)\mu(R_A) + (\pi_A^z(1-k) + \pi_A^{-1})\mu(-R_A)\big].$$

Dividing by $\lambda\beta > 0$ and restoring the full (but R_A-irrelevant) terms of U, this is equivalent to maximizing $\widetilde{U}_A$. The argument for candidate B is identical. □

Claim 2 *The unique optimal platform is $R_P^* = \pi_P^z\overline{\omega} + b_P$, where $b_P = \pi_P^1 - \pi_P^{-1}$, and it is a strictly dominant strategy.*

Proof. From Claim 1, candidate P maximizes $(\pi_P^z k + \pi_P^1)\mu(R_P) + (\pi_P^z(1-k) + \pi_P^{-1})\mu(-R_P)$ over R_P. Using $\mu(R) = (1+R) - \frac{(1+R)^2}{4}$, we have $\mu'(R) = \frac{1-R}{2}$ and $\frac{d\mu(-R)}{dR} = -\frac{1+R}{2}$. The first-order condition is

$$(\pi_P^z k + \pi_P^1)\frac{1 - R_P^*}{2} - (\pi_P^z(1-k) + \pi_P^{-1})\frac{1 + R_P^*}{2} = 0.$$

Expanding and collecting terms:

$$\underbrace{\big[\pi_P^z(2k-1) + \pi_P^1 - \pi_P^{-1}\big]}_{=\pi_P^z\overline{\omega} + b_P} - R_P^* \underbrace{\big[\pi_P^z k + \pi_P^1 + \pi_P^z(1-k) + \pi_P^{-1}\big]}_{=\pi_P^z + \pi_P^1 + \pi_P^{-1} = 1} = 0,$$

where I used $2k - 1 = \overline{\omega}$ and defined $b_P = \pi_P^1 - \pi_P^{-1}$. Hence $R_P^* = \pi_P^z\overline{\omega} + b_P$. The second-order condition is $-\frac{1}{2}(\pi_P^z + \pi_P^1 + \pi_P^{-1}) = -\frac{1}{2} < 0$, confirming a maximum. Since R_P^* does not depend on R_{-P}, it is a strictly dominant strategy. □

Putting the two claims together, we derive the statements of Lemma 5. □

B.12 Proof Lemma 6

The proof consists of three claims. Assume $\pi_A^z = \pi_B^z = \overline{\pi}^z$. From Lemma 5, the equilibrium platforms are $R_A^* = \overline{\pi}^z\overline{\omega} + b_A$ and $R_B^* = \overline{\pi}^z\overline{\omega} + b_B$, with $b_A \geq b_B$ (WLOG). Define $\overline{b} = \frac{b_A + b_B}{2}$ and $d = \frac{b_A - b_B}{2} \geq 0$, so that $R_A^* = \overline{\pi}^z\overline{\omega} + \overline{b} + d$ and $R_B^* = \overline{\pi}^z\overline{\omega} + \overline{b} - d$.

Claim 1 *The vote share of candidate A is*

$$z_A = \frac{1}{2} + \frac{\lambda\beta d}{2}\big[\overline{\omega} - (\overline{\pi}^z\overline{\omega} + \overline{b})\big].$$

Proof. Using the identity $k\mu(R) + (1-k)\mu(-R) = \frac{3}{4} + \frac{\overline{\omega}R}{2} - \frac{R^2}{4}$ (which follows from direct computation), the vote share is

$$z_A = \frac{1}{2} + \frac{\lambda\beta}{2}\Big[\frac{\overline{\omega}(R_A - R_B)}{2} - \frac{R_A^2 - R_B^2}{4}\Big] = \frac{1}{2} + \frac{\lambda\beta}{2} \cdot \frac{R_A - R_B}{2}\Big[\overline{\omega} - \frac{R_A + R_B}{2}\Big].$$

Substituting $R_A - R_B = 2d$ and $\frac{R_A + R_B}{2} = \overline{\pi}^z\overline{\omega} + \overline{b}$ gives the result. □

Claim 2 *The expected policy is*

$$z_A R_A^* + (1 - z_A)R_B^* = \big[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2\big]\overline{\omega} + (1 - \lambda\beta d^2)\overline{b}.$$

Proof. The expected policy is

$$z_A R_A^* + (1 - z_A)R_B^* = R_B^* + z_A(R_A^* - R_B^*) = (\overline{\pi}^z\overline{\omega} + \overline{b} - d) + 2d\, z_A.$$

Substituting z_A from Claim 1:

$$= \overline{\pi}^z\overline{\omega} + \overline{b} + \lambda\beta d^2\big[(1 - \overline{\pi}^z)\overline{\omega} - \overline{b}\big] = \big[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2\big]\overline{\omega} + (1 - \lambda\beta d^2)\overline{b}. \qquad \square$$

Claim 3 *The type choice of citizens is governed by equation* (13) *and the equilibria are the fixed points of g^d, given by equation* (14).

Proof. As in Lemma 2, we denote citizen i's expectations as R^e_{iA}, R^e_{iB}, and z^e_{iA}. Under rational expectations, citizen i chooses type 1 if and only if

$$\mathbb{E}[U_i(1)] - \mathbb{E}[U_i(-1)] = h + \lambda\beta\big[z^e_{iA}[\mu(R^e_{iA}) - \mu(-R^e_{iA})] + (1 - z^e_{iA})[\mu(R^e_{iB}) - \mu(-R^e_{iB})]\big] + [\epsilon_i(1) - \epsilon_i(-1)] \geq 0.$$

Using $\mu(R) - \mu(-R) = R$, and substituting the expected policy from Claim 2, under rational expectations:

$$h + \lambda\beta(1 - \lambda\beta d^2)\bar{b} + \lambda\beta\big[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2\big]\overline{\omega} + [\epsilon_i(1) - \epsilon_i(-1)] \geq 0,$$

which is equation (13). Given the distribution of $\epsilon_i(-1) - \epsilon_i(1)$, the mass of type-1 individuals satisfies $k = \Phi\big(h + \lambda\beta(1 - \lambda\beta d^2)\bar{b} + \lambda\beta[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2]\overline{\omega}\big)$. Applying the rescaling $\Psi = 2\Phi - 1$, the equilibria are fixed points of

$$g^d(\overline{\omega}) = \Psi\Big(h + \underbrace{\lambda\beta(1 - \lambda\beta d^2)\bar{b}}_{\text{Policy Deviation}} + \lambda\beta \underbrace{[\overline{\pi}^z(1 - \lambda\beta d^2) + \lambda\beta d^2]}_{\text{Policy Attenuator}}\overline{\omega}\Big),$$

which is equation (14). □

Putting the three claims together, we derive the statements of Lemma 6. □

B.13 Proofs Theorem 3 and 4

Theorem 3 follows directly from Lemmas 5 and 6 and Theorem 1 properly interpreted. For the Social Multiplier extension, there are lemmas almost identical to Lemmas 1 and 2 that can be derived, and Theorem 4 then follows directly from Theorem 1 properly interpreted.

B.14 Proof Proposition 5

The proof consists of three claims. Throughout, suppose we start in case 2(ii) of Theorem 1, in the positive stable equilibrium with values $(\overline{\omega}^+, R^+) > 0$.

Claim 1 *A sufficiently large decline in $\lambda\beta$ eliminates the positive equilibrium and generates a rapid transition to a negative equilibrium. Moreover, this occurs before $\lambda\beta$ reaches Λ.*

Proof. Since H is increasing in $\lambda\beta$ (Theorem 1), a sufficiently large decline in $\lambda\beta$ diminishes H until $H < |h|$. At that point, we shift to case 2(i) of Theorem 1: all positive equilibria disappear and only the unique globally stable equilibrium $(\overline{\omega}^m, R^m) < 0$ remains. Since

this equilibrium is globally stable, the dynamics of equation (4) generate a rapid transition from $(\overline{\omega}^+, R^+) > 0$ to $(\overline{\omega}^m, R^m) < 0$.

Note that as we diminish $\lambda\beta$, we reach $H < |h|$ before $\lambda\beta$ reaches Λ. To see this, note that, when $h < 0$, for all $\lambda\beta > \Lambda$, an interior maximum $\overline{\omega}^{max} \in (\frac{-h}{\lambda\beta}, 1)$ of χ exists in the concave region (following the reasoning in Claim 3 in the proof of Theorem 1). By the Envelope Theorem,

$$\frac{d\chi(\overline{\omega}^{max})}{d(\lambda\beta)} = 2\overline{\omega}^{max}\phi(h + \lambda\beta\overline{\omega}^{max}) > 0,$$

so $\chi(\overline{\omega}^{max})$ is continuous and strictly increasing in $\lambda\beta$. As $\lambda\beta \to \Lambda^+$, the interior maximum converges to the inflection point $\frac{-h}{\lambda\beta}$, at which $\chi(\frac{-h}{\lambda\beta}) = \frac{h}{\lambda\beta} < 0$ (see the proof of Claim 3 of Theorem 1). Since $\chi(\overline{\omega}^{max}) > 0$ initially (we are in case 2(ii)) and $\chi(\overline{\omega}^{max}) \to \frac{h}{\lambda\beta} < 0$ as $\lambda\beta \to \Lambda^+$, by the IVT-SM $\chi(\overline{\omega}^{max})$ must cross zero at some $\lambda\beta > \Lambda$. By Claim 3 of Theorem 1, this is precisely the point at which $H = |h|$ and the positive equilibria are eliminated. This implies the positive stable equilibrium must be broken *before* $\lambda\beta$ reaches Λ, which can only occur via $H < |h|$. □

Claim 2 *A sufficiently large decline in h eliminates the positive equilibrium and generates a rapid transition to a negative equilibrium.*

Proof. Since $H \in (0, \lambda\beta)$ is finite for any fixed $\lambda\beta > \Lambda$, a sufficiently large decrease in h increases $|h|$ until $|h| > H$. This again shifts the system to case 2(i) of Theorem 1, eliminating the positive equilibrium and generating a rapid transition to $(\overline{\omega}^m, R^m) < 0$ by the same global stability argument. □

Claim 3 *Suppose the system has transitioned to a negative equilibrium, so that the current policy satisfies $R < 0$. Then, as long as $h < 0$, no subsequent change in exogenous parameters can bring the system back to a positive stable equilibrium.*

Proof. Consider any admissible values of the exogenous parameters $h < 0$, λ, and β. There are two cases. First, if we are in case 1 or 2(i) of Theorem 1, the unique globally stable equilibrium is negative, and the system necessarily converges to it regardless of the current state. Second, if we are in case 2(ii), three equilibria exist with respective values $(\overline{\omega}^+, R^+) > 0$, $(\overline{\omega}^-, R^-) < 0$, and $(\overline{\omega}^m, R^m) \in (0, \overline{\omega}^+)$. By Theorem 1, the basin of attraction of the positive stable equilibrium is $B((\overline{\omega}^+, R^+)) = \{(\overline{\omega}^0, R^0) : R^0 > R^m\}$, where $R^m > 0$. Since the system's current policy satisfies $R < 0 < R^m$, the system lies in the basin of attraction of the negative stable equilibrium $(\overline{\omega}^-, R^-)$, and converges to it.

In both cases, the system converges to a negative stable equilibrium. Since this holds for *any* admissible parameter values with $h < 0$, no change in exogenous parameters can restore the system to a positive stable equilibrium. □

Putting the three claims together, we derive the statements of Proposition 5. □

C Construction of Variables

Weekly church attendance. I coded weekly attendance as a binary indicator from each survey's church-attendance question, which asks whether the respondent attended a religious service (church or place of worship) in the past week. I coded an affirmative response as attending (1) and a negative response as not attending (0), setting don't-know, refused, and not-stated responses to missing. I dropped the 1974 survey, whose data were defective. The measure therefore captures attendance in the past week rather than self-reported habitual frequency. I did not incorporate the data on church attendance from Project Canada since the questions are phrased differently and correspond better to self-reported habitual frequency.

Belief in Hell. I coded belief in Hell as a binary indicator (believes vs. does not), drawing on three item formats. Most Gallup polls (1968, 1975, 1985, 1990) asked a single yes/no question. The 1960 Gallup poll instead asked separately about a literal "fiery" Hell and about any kind of Hell, and I counted a respondent as a believer if they affirmed either. The Project Canada surveys (1975–2005) used a four-point scale (yes, definitely" / yes, I think so" / no, I don't think so" / "no, definitely not"), which I split into belief (the two affirmative responses) and non-belief (the two negative responses). Throughout, don't-know, undecided, and not-stated responses were set to missing. I dropped the 1995 Gallup poll, whose data were defective.

Disapproval of medical euthanasia. I coded approval of legal medical euthanasia from each survey's euthanasia item and report its complement, disapproval, in the figures. In surveys that asked a single question I used it directly; in surveys that asked about euthanasia under more than one circumstance, I counted a respondent as approving if they approved in any of them. I dropped the 1995 survey, whose data were defective. The measure is a binary indicator (disapproves vs. approves).

Age. I built the age variable by harmonizing each survey's age question onto three bands: 18–29, 30–49, and 50 and over. The surveys did not record age uniformly—some reported it in decade bands beginning at 21 (21–29, 30–39, 40–49, 50+), some already used the three target bands, one early poll used seven narrow bands, and the most recent surveys recorded only year of birth, from which I computed age directly. I chose a three-category scheme because it is the finest partition every Gallup survey can accommodate. The one compromise is at the lower edge—the earliest surveys begin their youngest band at 21 rather

than 18, so respondents aged 18–20 are slightly underrepresented in those years. Several Project Canada waves recorded age in bands (18–34 / 35–54 / 55+) that do not align with this scheme; for those I could not build the variable and coded age as missing.

Income. I built the income variable as a within-survey relative position rather than an absolute level, because the surveys measured income in two incompatible ways and on incomparable scales. The earliest polls asked only for a subjective "relative wealth" self-rating (wealthy, above average, average, poor); later polls used dollar brackets whose boundaries and top category drifted upward with inflation across the series. To place these on a common footing I divided respondents within each survey into a bottom quarter (low income), a middle half (middle income), and a top quarter (high income) using weighted cuts at the 25th and 75th percentiles. I used a 25/50/25 split rather than equal thirds because the distributions, particularly the heavily peaked "average" category of the subjective years, fit a broad middle with two smaller tails far more naturally. Two limitations follow from the source data. Because income is banded, the cut points fall between brackets and the resulting groups only approximate a 25/50/25 split: a bracket that straddles a cut is assigned whole to one side, so a single wide bracket can leave the bands noticeably uneven. And in a few early dollar-bracket years the open-ended top category begins near the contemporary median income, so the "high income" group there is a bit larger and less selective than in later years.

Education. I built the education variable as the highest level of schooling a respondent attended, in three categories: no secondary (elementary only or none), secondary but not university (including completed high school, trades, and college or CEGEP), and some university. The surveys recorded education in three different ways over time—a coarse four-category scheme in the earliest polls, a detailed "some/graduated" ladder across the middle decades, and an institution-type classification in the most recent surveys. I deliberately defined the categories by the level a respondent entered ("reached secondary," "reached university") rather than by the credential they completed, because the coarse early surveys record only the level attained and cannot, for instance, distinguish a high-school graduate from someone who left before finishing. An attended-level scheme is therefore the only three-category coding that all three measurement regimes can express without imputation.

Urban/rural. I built the urban/rural variable from each survey's community-size question, classifying respondents living in communities of 30,000 or more as urban and the

remainder (farm, rural, and small town) as rural/small town. I chose 30,000 because it is the finest community-size break available consistently across all the surveys: it is the distinction the Project Canada waves record, and it also falls on a bracket boundary in every Gallup community-size scheme. This threshold also matches the substantive contrast of interest—metropolitan and mid-sized-city life versus rural and small-town life.

Voting Parti Québécois. I coded support for the Parti Québécois as a binary indicator (supports vs. does not) from each survey's provincial vote question. Most items asked which provincial party the respondent preferred or would vote for; one 1991 Gallup item instead recorded the party the respondent had voted for at the most recent provincial election. I counted a respondent as a PQ supporter (1) if they named the Parti Québécois and as a non-supporter (0) if they named any other actual party, setting undecided, "no party," refused, and not-stated responses to missing. The measure runs from 1970 through 2005 and draws on both Gallup and Project Canada polls; the 1975 Project Canada wave is excluded because its provincial-party item offered no PQ option.

Voting Bloc Québécois. I coded support for the Bloc Québécois as a binary indicator (supports vs. does not) from each survey's federal vote question, beginning in 1991, the year the Bloc was founded. I counted a respondent as a Bloc supporter (1) if they named the Bloc and as a non-supporter (0) if they named any other actual federal party, again setting undecided, "no party," refused, and not-stated responses to missing. Most Gallup polls asked federal vote intention in two parts: a first question recording the party the respondent would vote for "today," and a follow-up, put only to those who answered that they were undecided, recording the party they leaned toward. Because these are two halves of a single measure of current vote intention rather than separate questions, I merged them for each respondent, taking the decided answer where one was given and the leaning answer otherwise, and leaving undecided respondents who named no lean as missing. I kept separate, and did not fold into this measure, the items asking which party the respondent had voted for at the *previous* federal election. The measure draws on Gallup polls from 1991 through 1999 and Project Canada waves from 1995 through 2005; one 1998 Gallup leaning item is excluded because it contained only empty values.

Support for separation and distinct-society status. I combined two related families of question into a single indicator of constitutional nationalism (more nationalist vs. less). The first family asks directly about Quebec's political future—whether the respon-

dent favored Quebec's separation, its sovereignty, or sovereignty-association—and includes a 1990 Project Canada item that asked, in personal terms, whether Quebec should remain in Canada, separate, or pursue sovereignty-association. The second family asks about recognizing Quebec as a "distinct society," whether as a specific clause, as a general proposition, or as a provision to be entrenched in the Constitution. I coded the more nationalist response—favoring separation, sovereignty, or sovereignty-association, or approving distinct-society status—as 1 and the opposing response as 0, setting undecided, don't-know, and not-stated responses to missing. Two features of the retained questions warrant note. The earliest item (1968) bundles outright separation together with a milder "special status" option, so it captures autonomism as well as separatism; and the 1990 personal-preference item was asked only in the French-language questionnaire.

Linguistic attitudes. I coded pro-French language attitudes as a binary indicator from two kinds of question. The bulk of the measure comes from a single question repeated across the Project Canada waves (1975–2005) on whether Canada should have French as an official language alongside English; I coded the pro-French response as 1 and the opposing response as 0. To this I added a single Gallup item (1991) on whether the province should have two official languages; this item is reverse-coded relative to the others, because within Quebec it is *opposition* to provincial bilingualism—that is, support for French as the sole official language of Quebec—that marks the nationalist pole.

D Additional Evidence

Composite plots. Each row corresponds to a different indicator. In descending order, they correspond to the percentage of individuals who: 1) attended church in the last seven days, 2) disapprove of legal euthanasia, and 3) believe in Hell. Each column corresponds to a different subsample of the Canadian population: 1) everyone, 2) self-identified Catholics, 3) those with French as their mother tongue, and 4) French Catholics. For weekly church attendance, comparing Catholics (French or not) is more informative since, given that Sunday mass attendance is a central practice for Catholics, they are more likely to attend church at least once a week. For the belief in Hell, there is not enough data on individuals' mother tongue to generate plots in columns 3 and 4. Additionally, the data does not extend further back than 1960, which limits our ability to observe the full reversal in the Catholic subsample.

The nonparametric trends and the 95% confidence intervals are computed using loess (local regression) with a standard cubic weighting function. I use a span of 65% for the first two columns and 100% for the last two columns, which is necessary given the small samples for French speakers outside of Quebec. The ticks on the x-axis indicate the years for which data exists. The grey lines represent British Columbia, the Prairie provinces, Ontario, and the Atlantic provinces. I produce the same composite plots in the subsample of each group for age, income, education, and urban/rural. I use the same spans for these plots to make them directly comparable with the first composite plot. However, in these plots, the smaller samples generate erratic lines for individual provinces, especially for the French and Catholic subsamples.

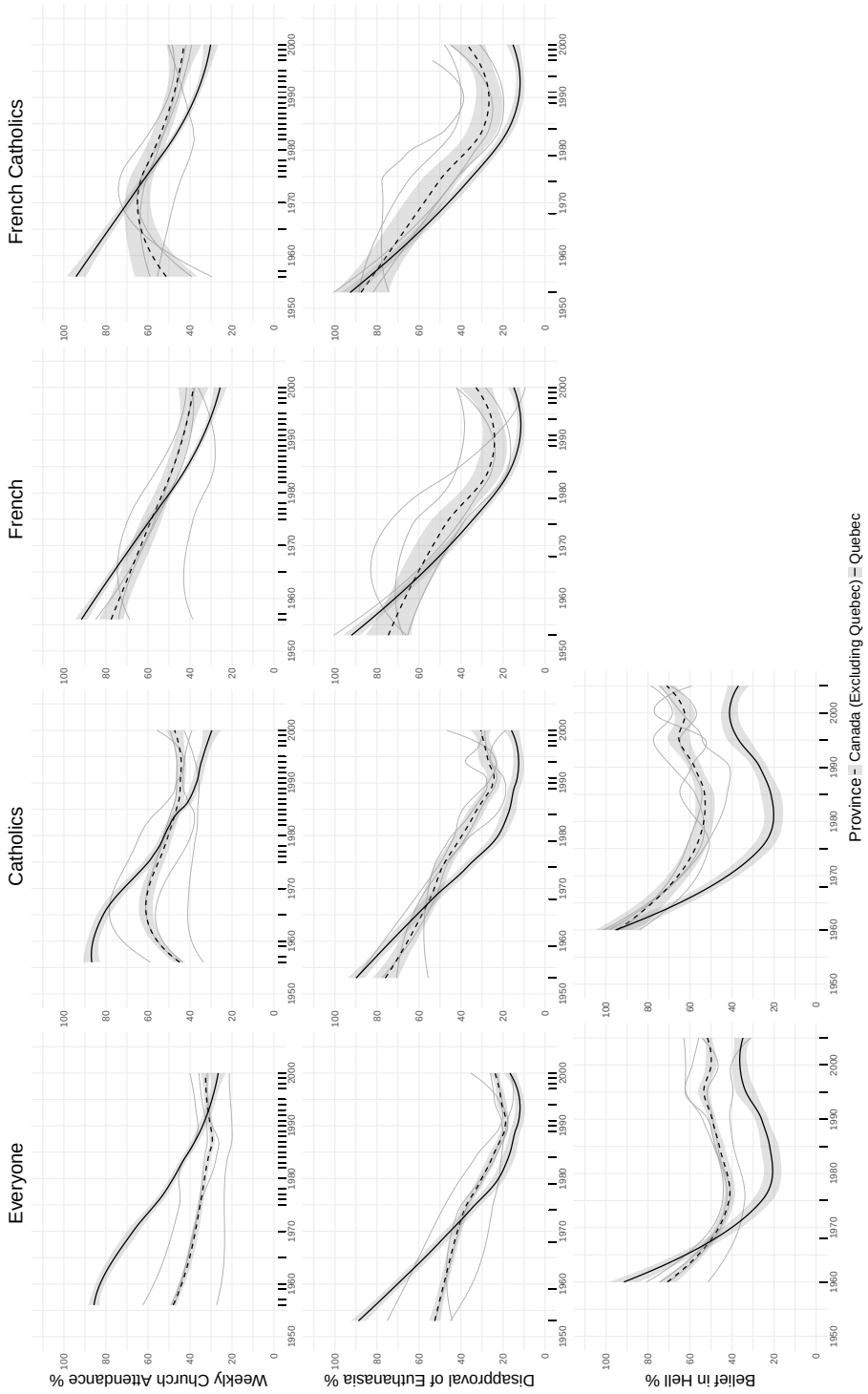


Figure 9: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Full Samples.

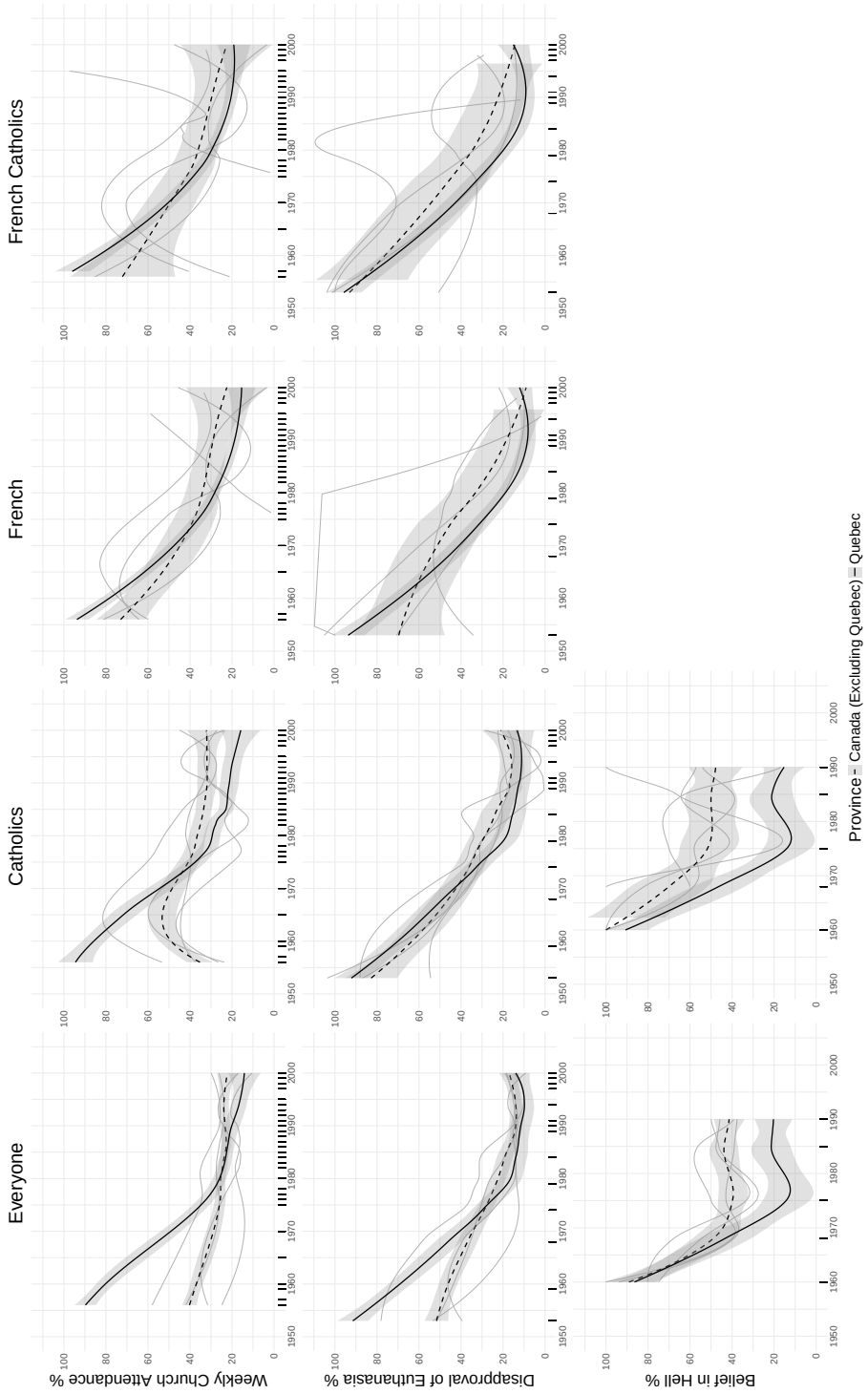


Figure 10: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Ages 18-29.

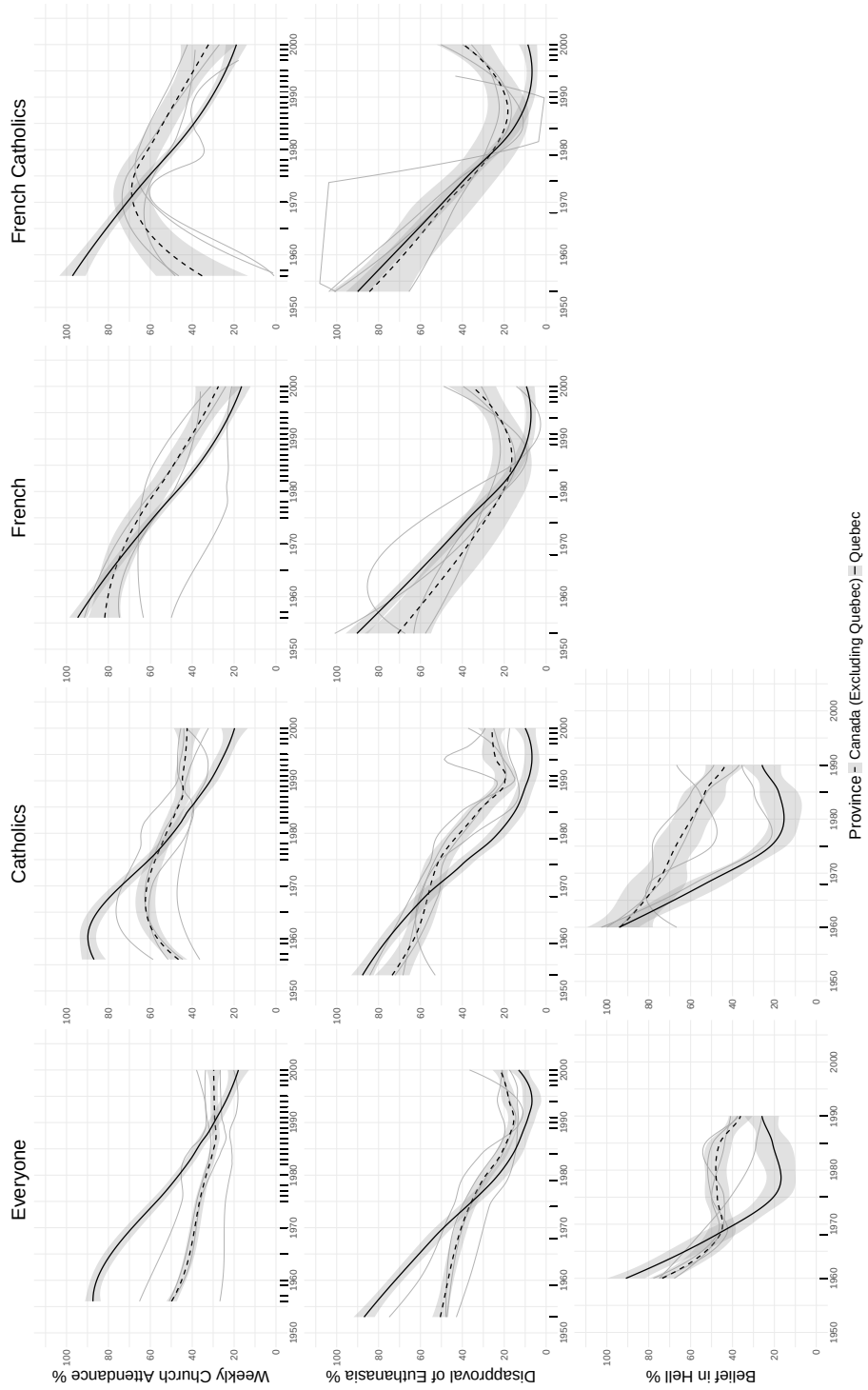


Figure 11: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Ages 30-49.

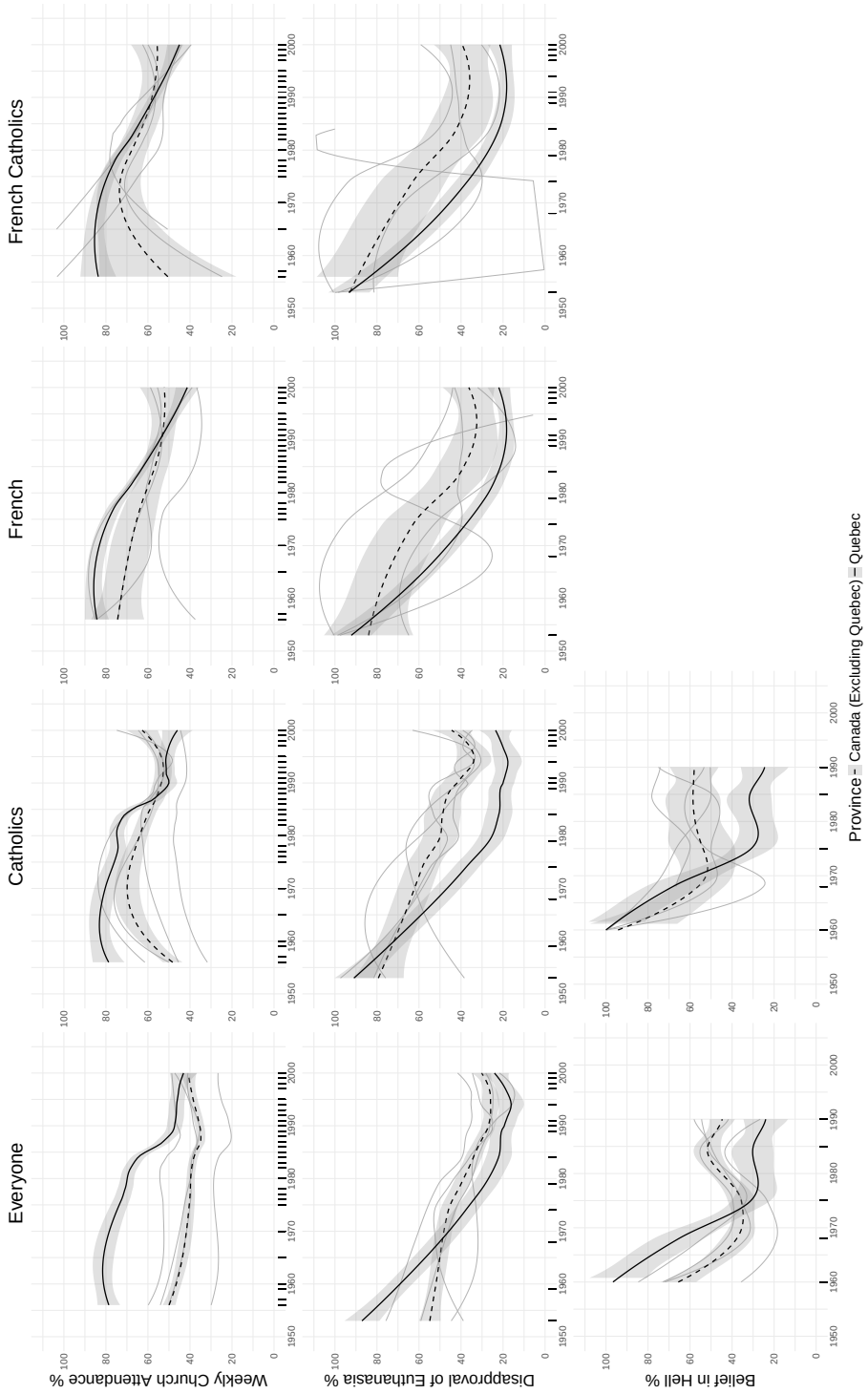


Figure 12: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Ages 50+.

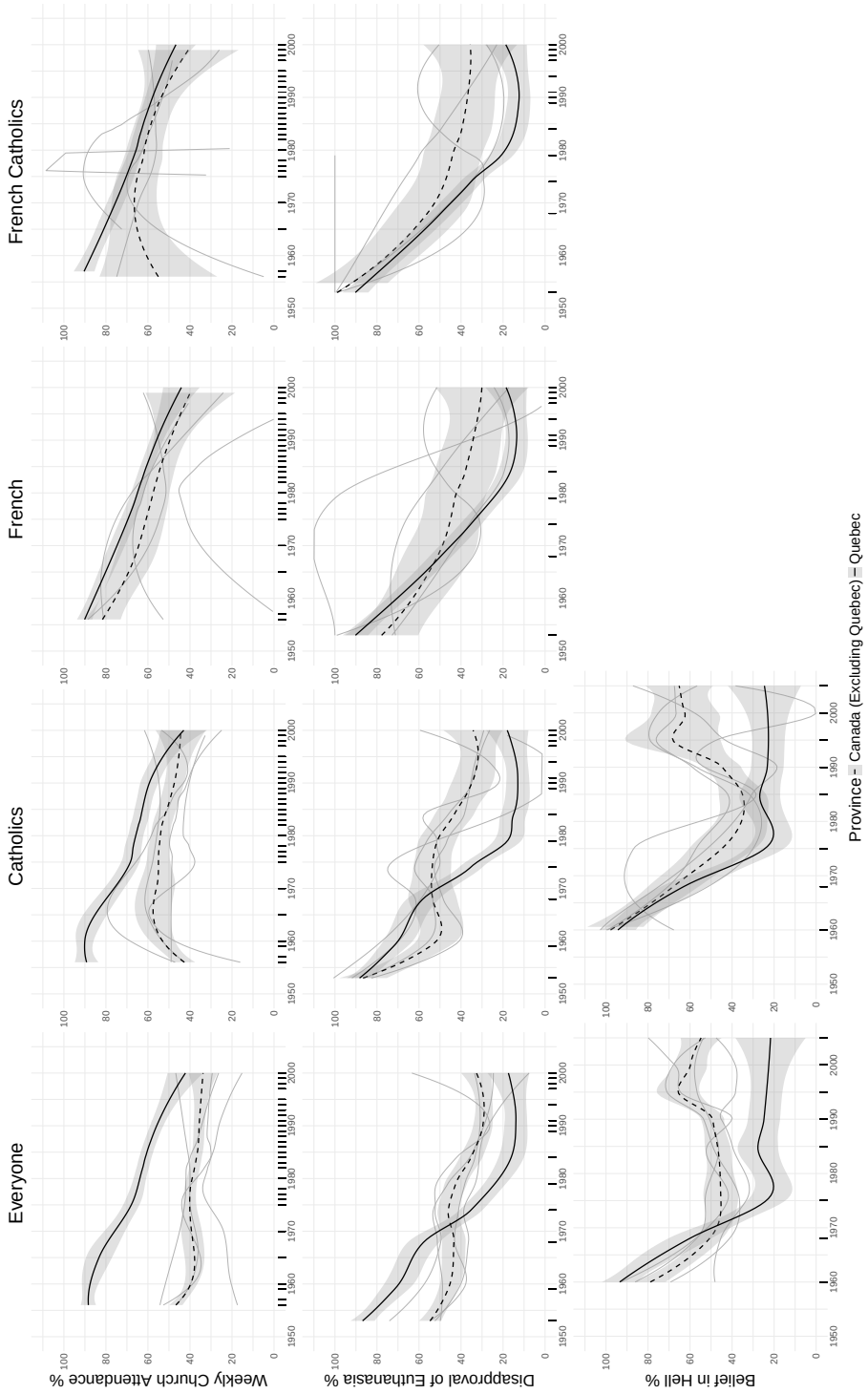


Figure 13: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, No Secondary Education.

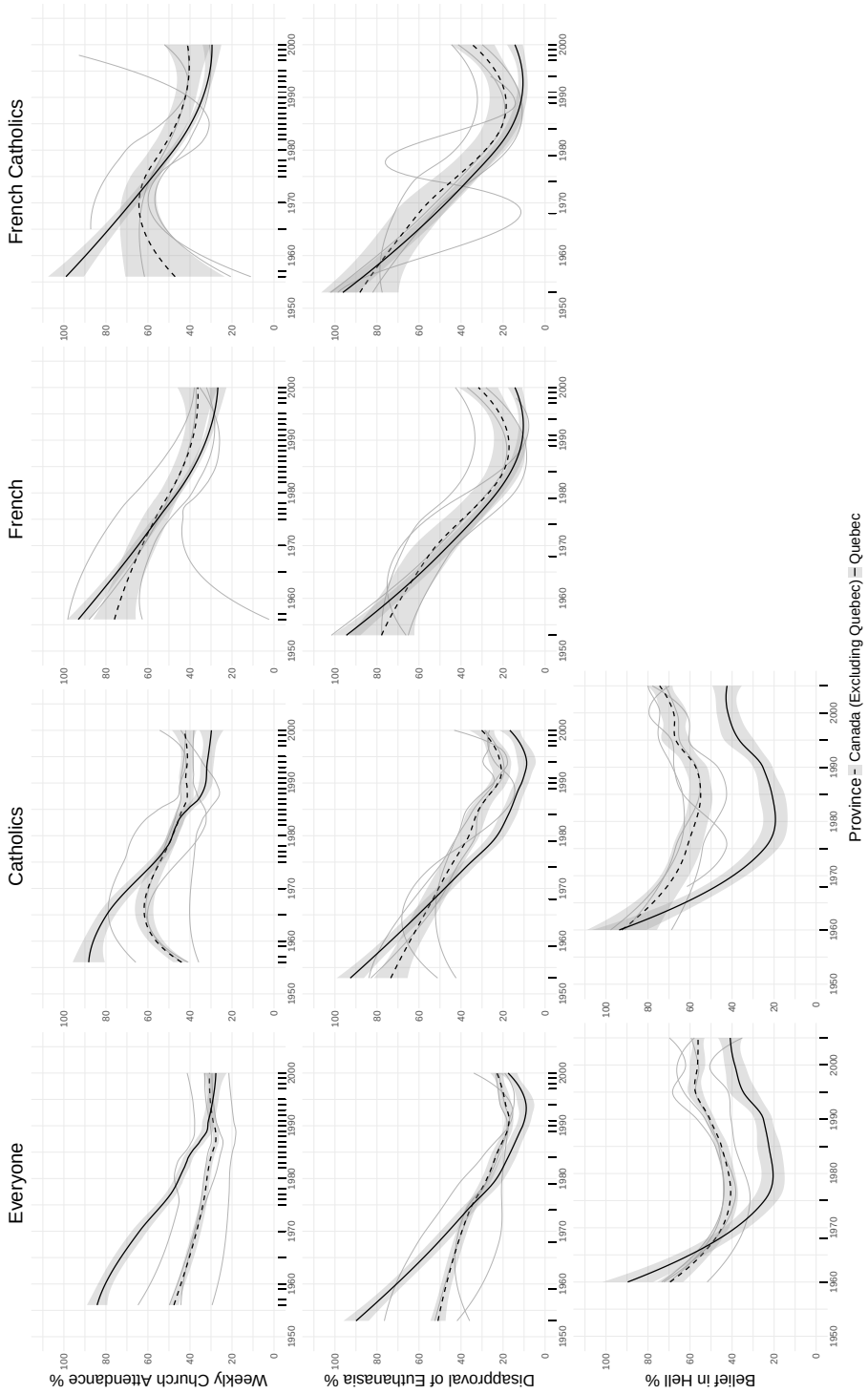


Figure 14: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Secondary Education (Partial/Completed).

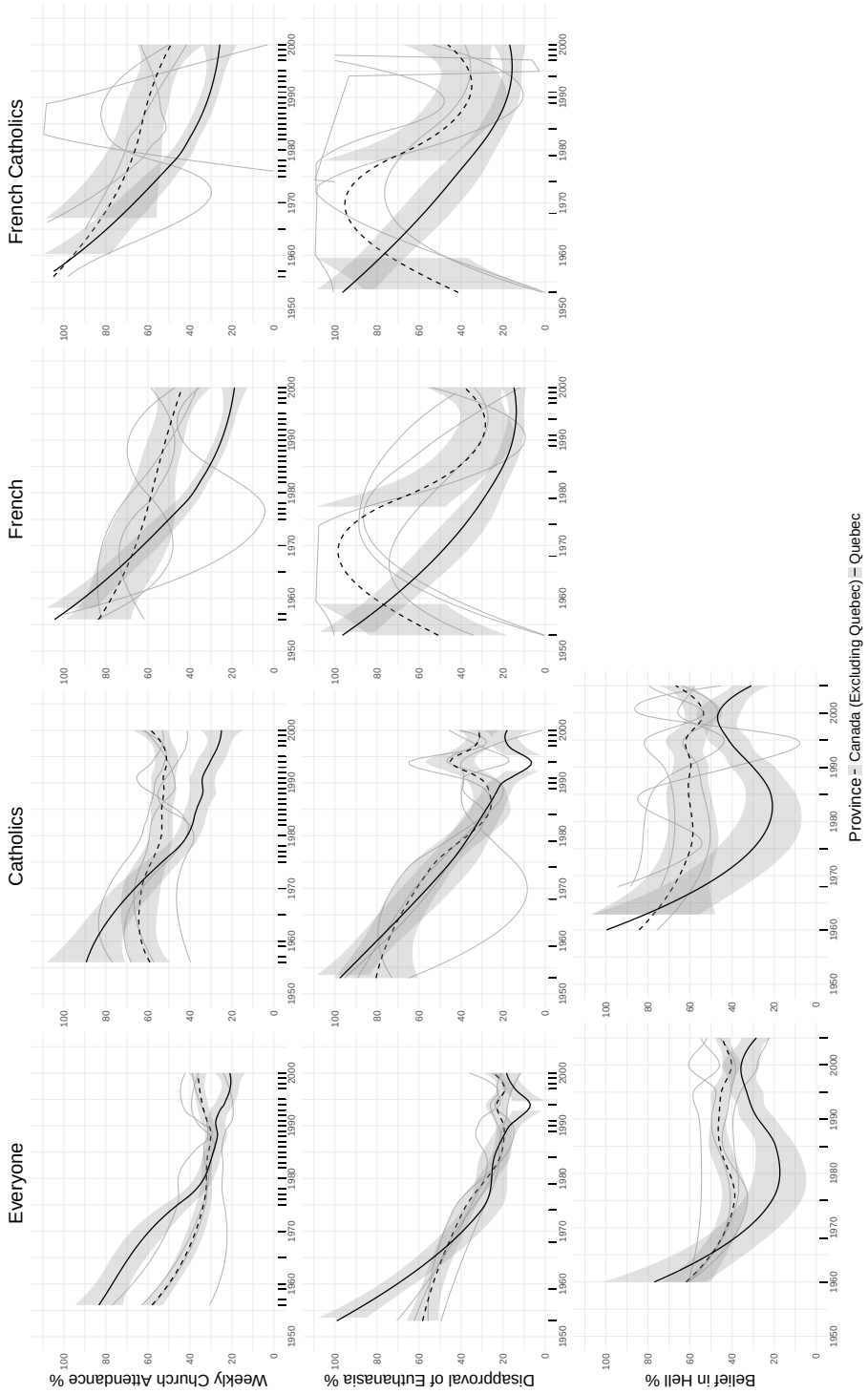


Figure 15: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, University Education (Partial/Completed).

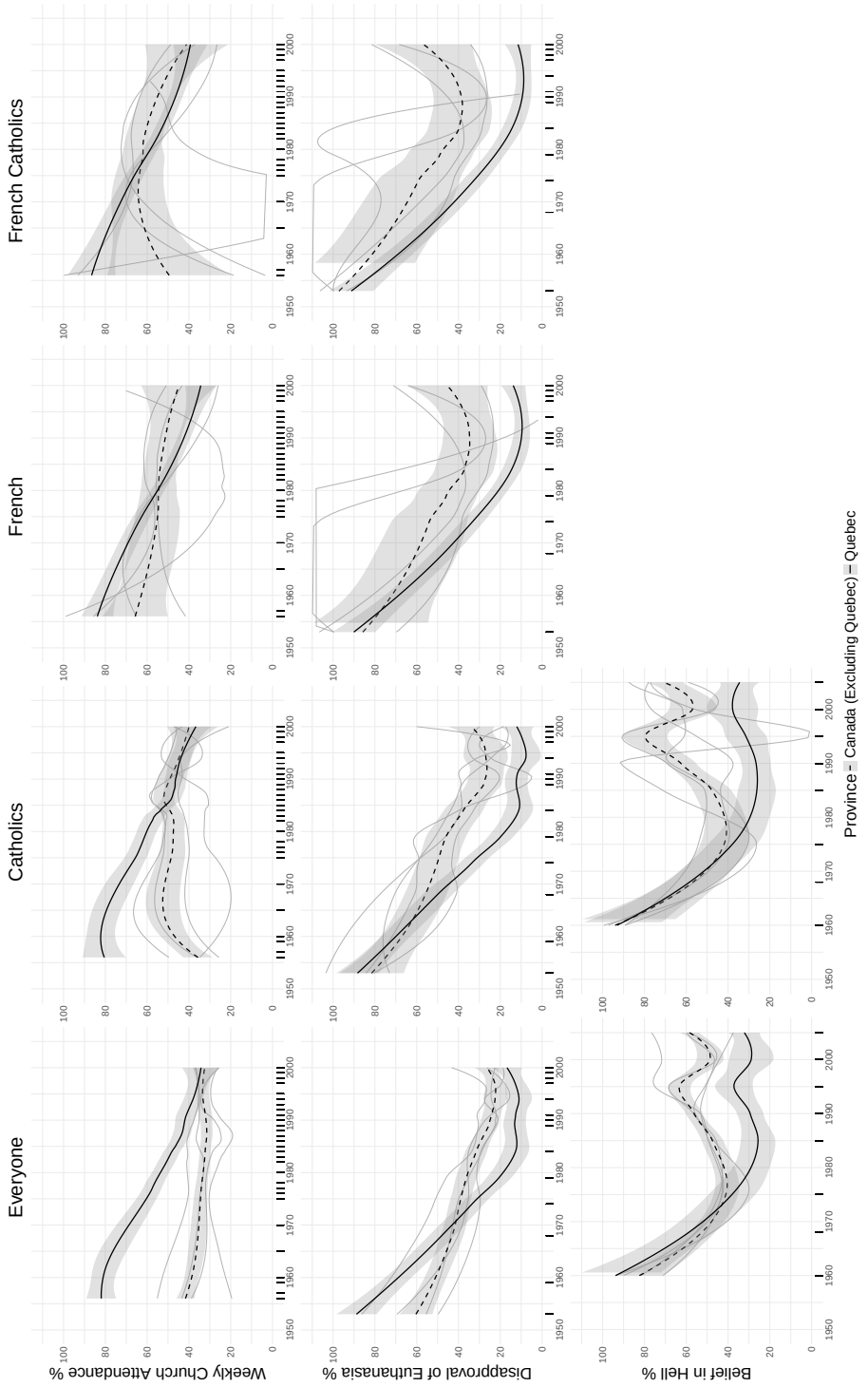


Figure 16: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Low Income (Bottom Quarter).

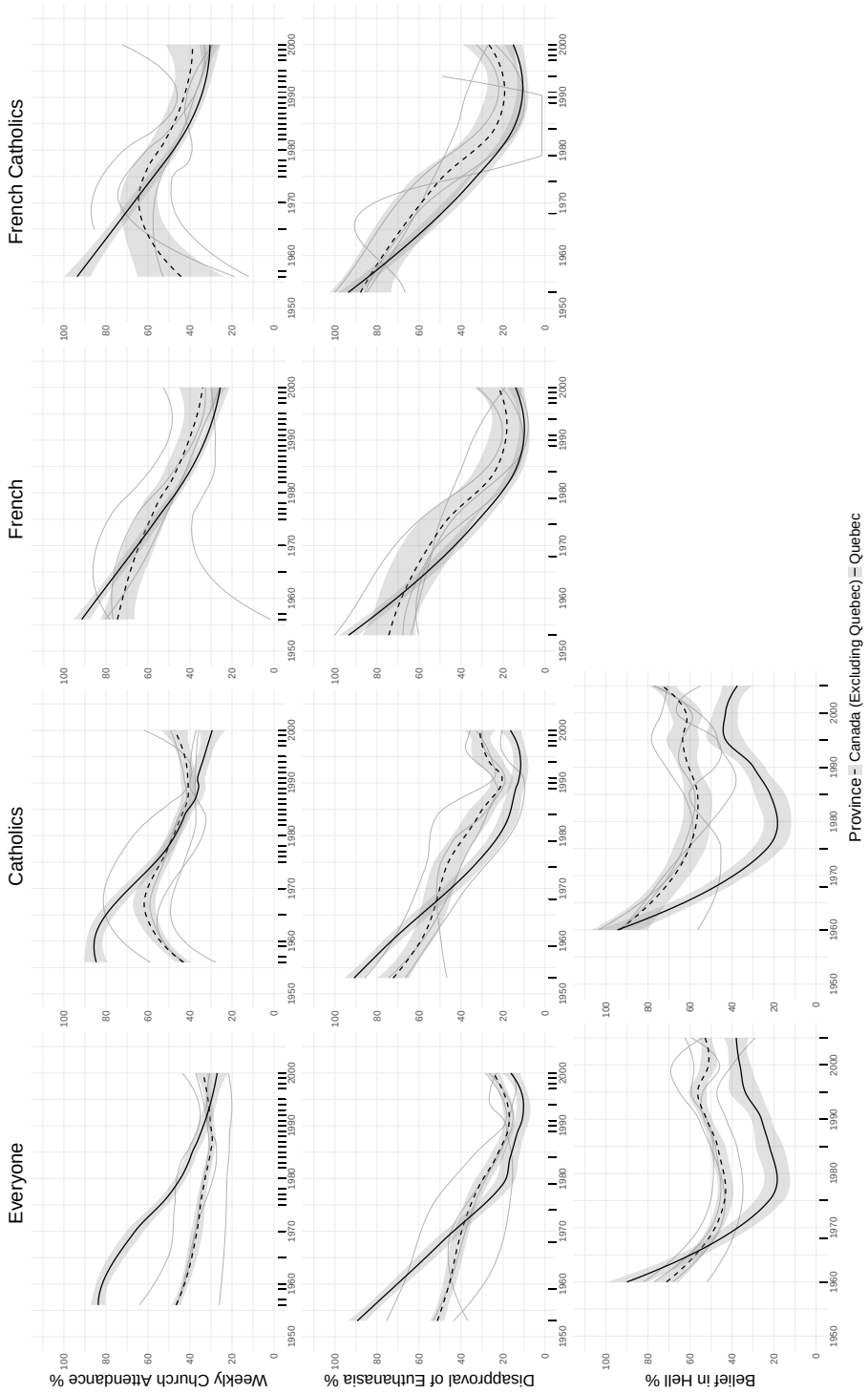


Figure 17: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Middle Income (Second and Third Quarters).

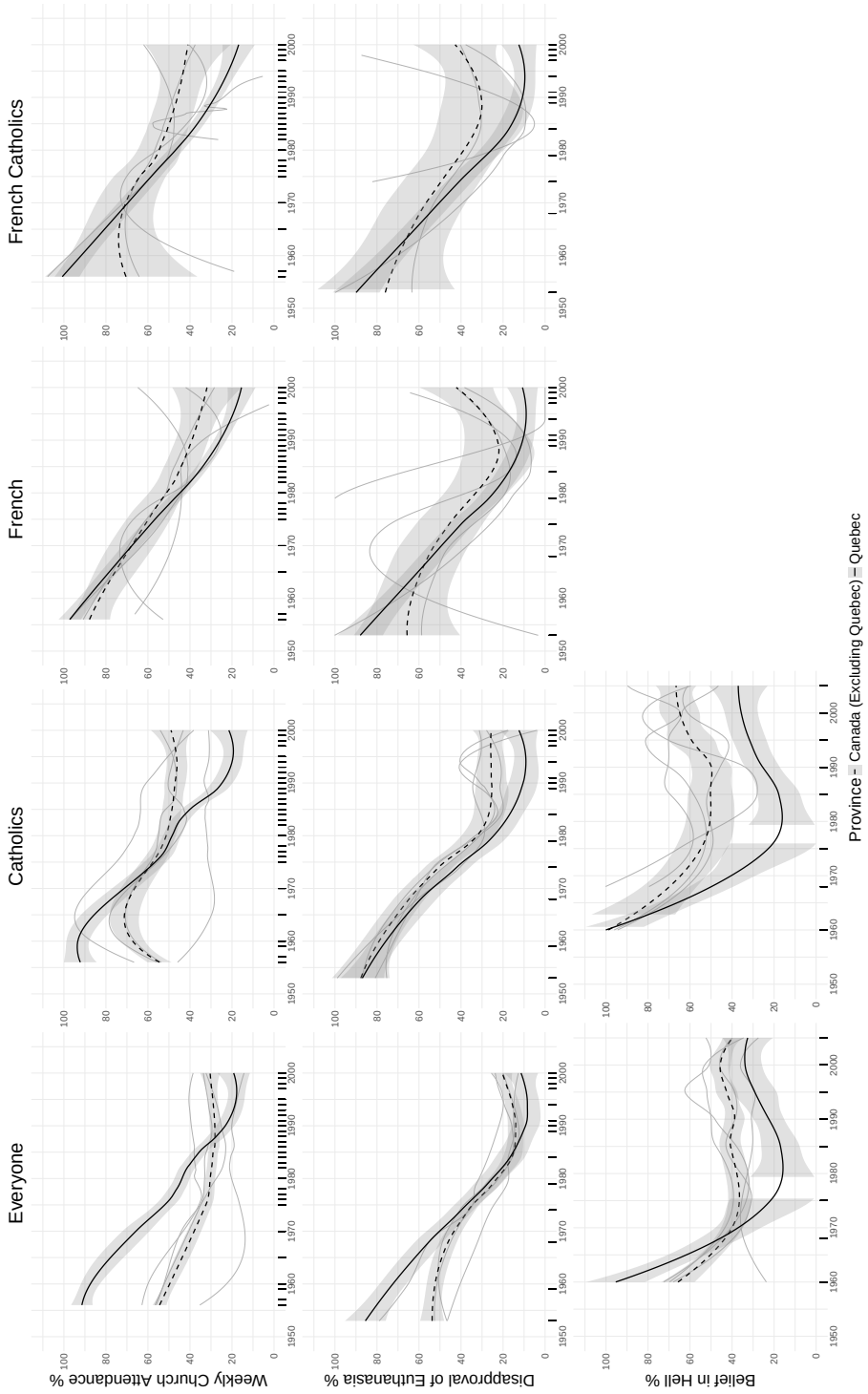


Figure 18: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Middle Income (Top Quarter).

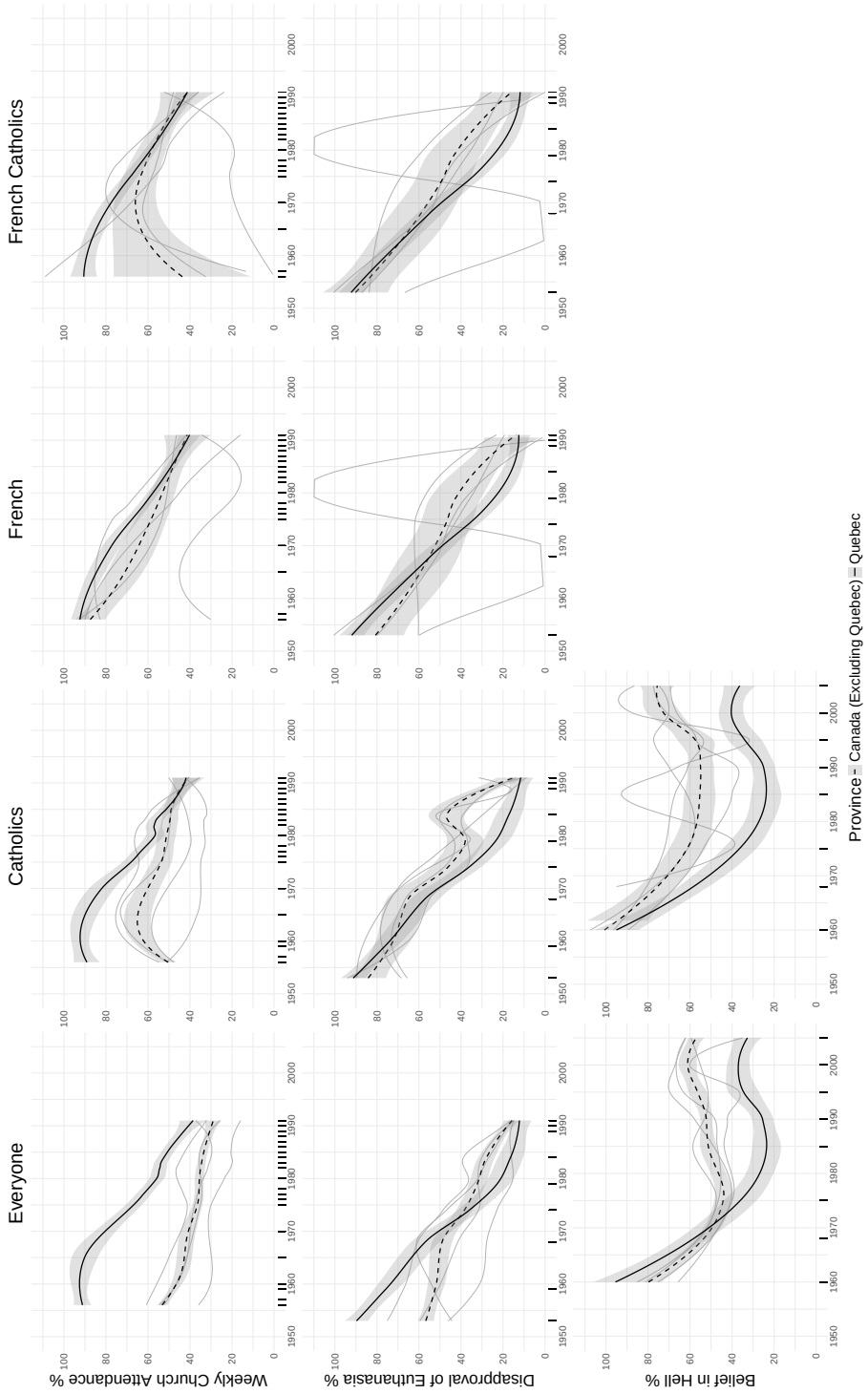


Figure 19: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Rural or Small Town (Less than 30,000 Inhabitants).

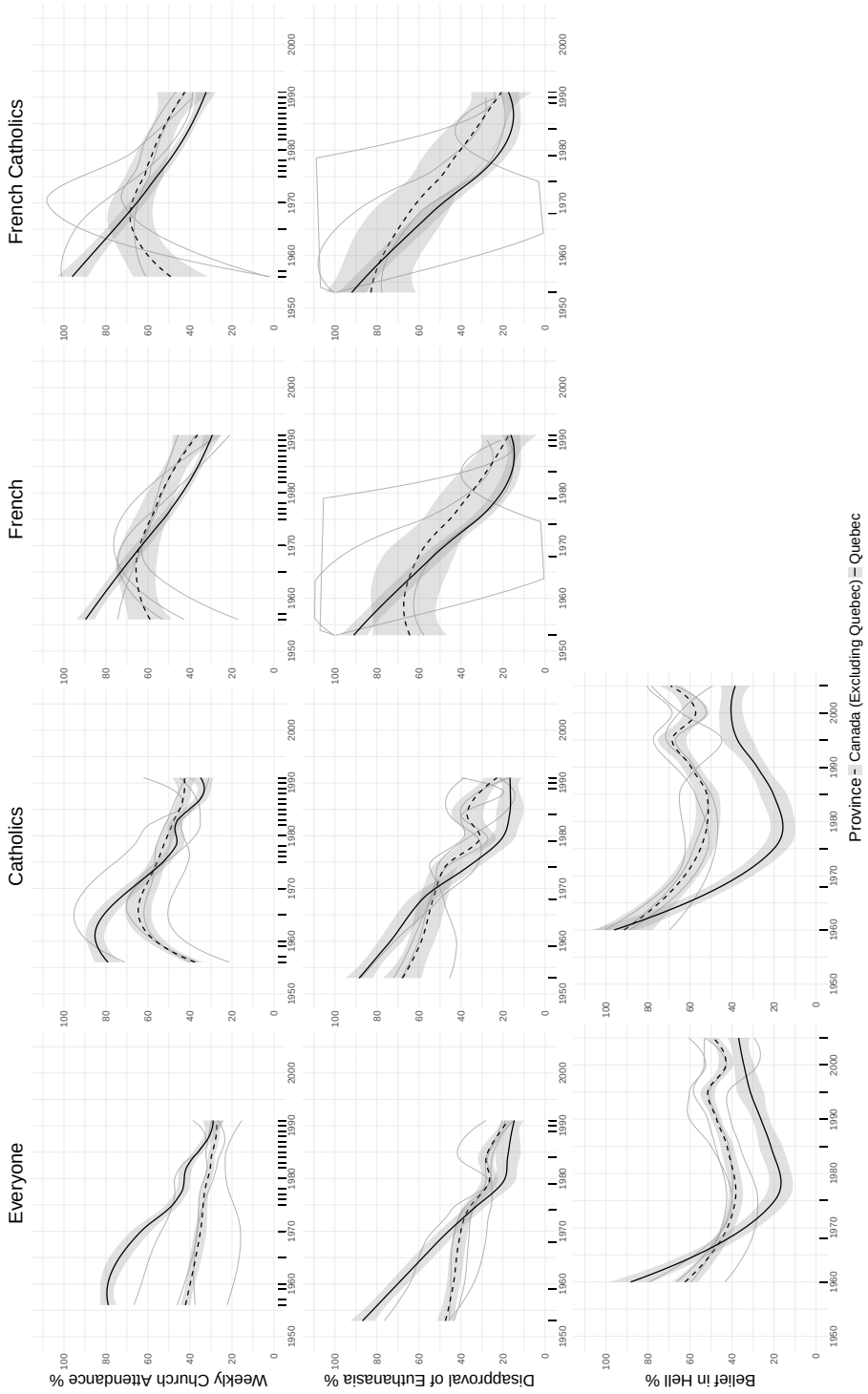


Figure 20: Composite Plot for Weekly Church Attendance, Disapproval of Euthanasia and Belief in Hell, Urban (More than 30,000 Inhabitants).

Forest plots. Each forest figure displays every individual estimate available for one set of questions capturing a dimension of Quebec nationalism. The unit is a *pair*: one nationalism question crossed with one religiosity measure available in the same poll—for instance, the 1995 Bloc vote question crossed with weekly church attendance. For each pair I compute the weighted difference in the proportion religious between the more-nationalist group and the rest of the Quebec sample. Because the three religiosity measures—weekly attendance, belief in Hell, and disapproval of euthanasia—are all binary and all oriented so that higher values mean more religious, this difference is a percentage point difference (PPD) in religiosity, with positive values indicating that the more-nationalist group is more religious. I pair each estimate with a heteroskedasticity-robust standard error and a 95% confidence interval on the normal approximation. The four columns of each figure are four nested subsamples of Quebec respondents—everyone, Catholics, French speakers, and French-speaking Catholics—so that a single row can be read across to see whether an association survives conditioning on religion and language.

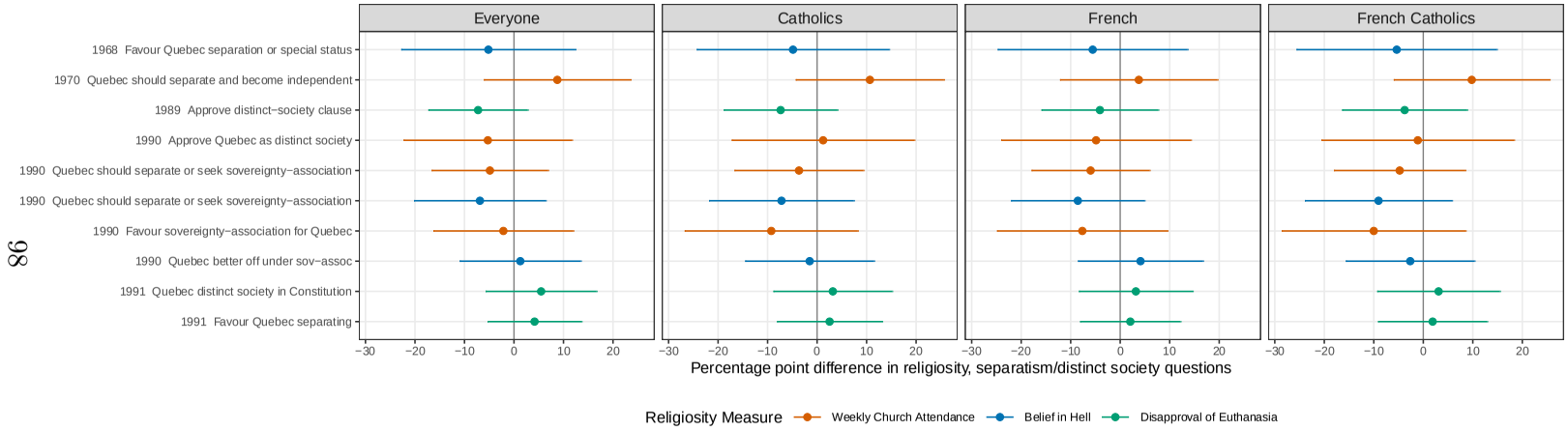


Figure 21: Religiosity and support for Quebec separatism or distinct-society status, by survey question and subsample.

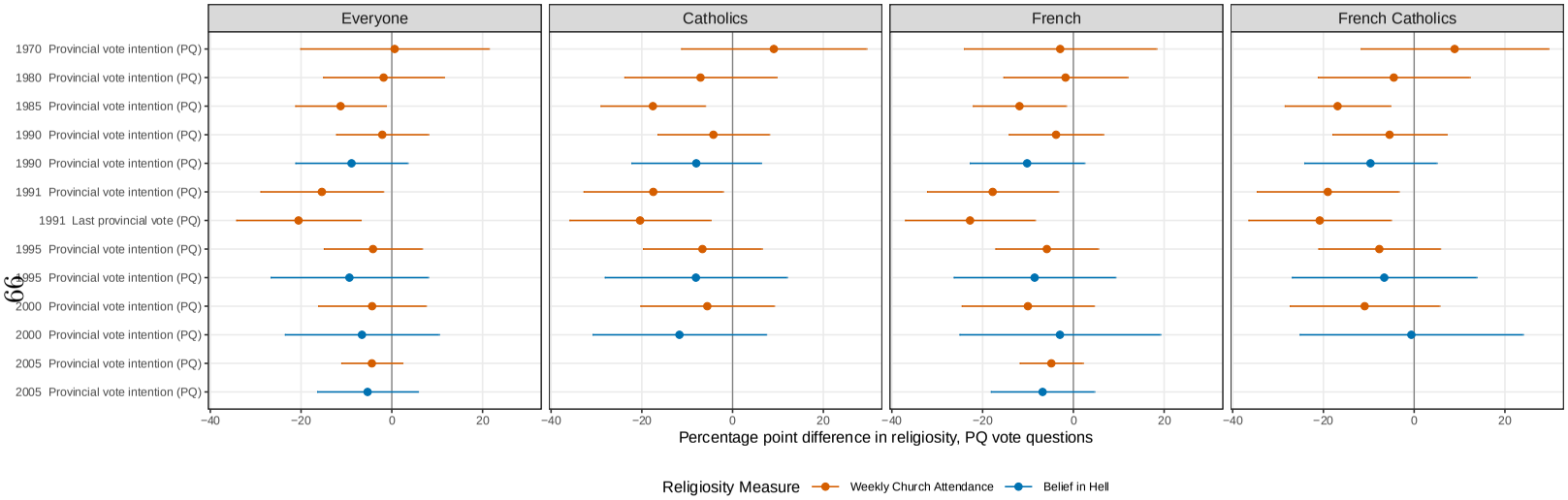


Figure 22: Religiosity and Parti Québécois vote, by survey question and subsample.

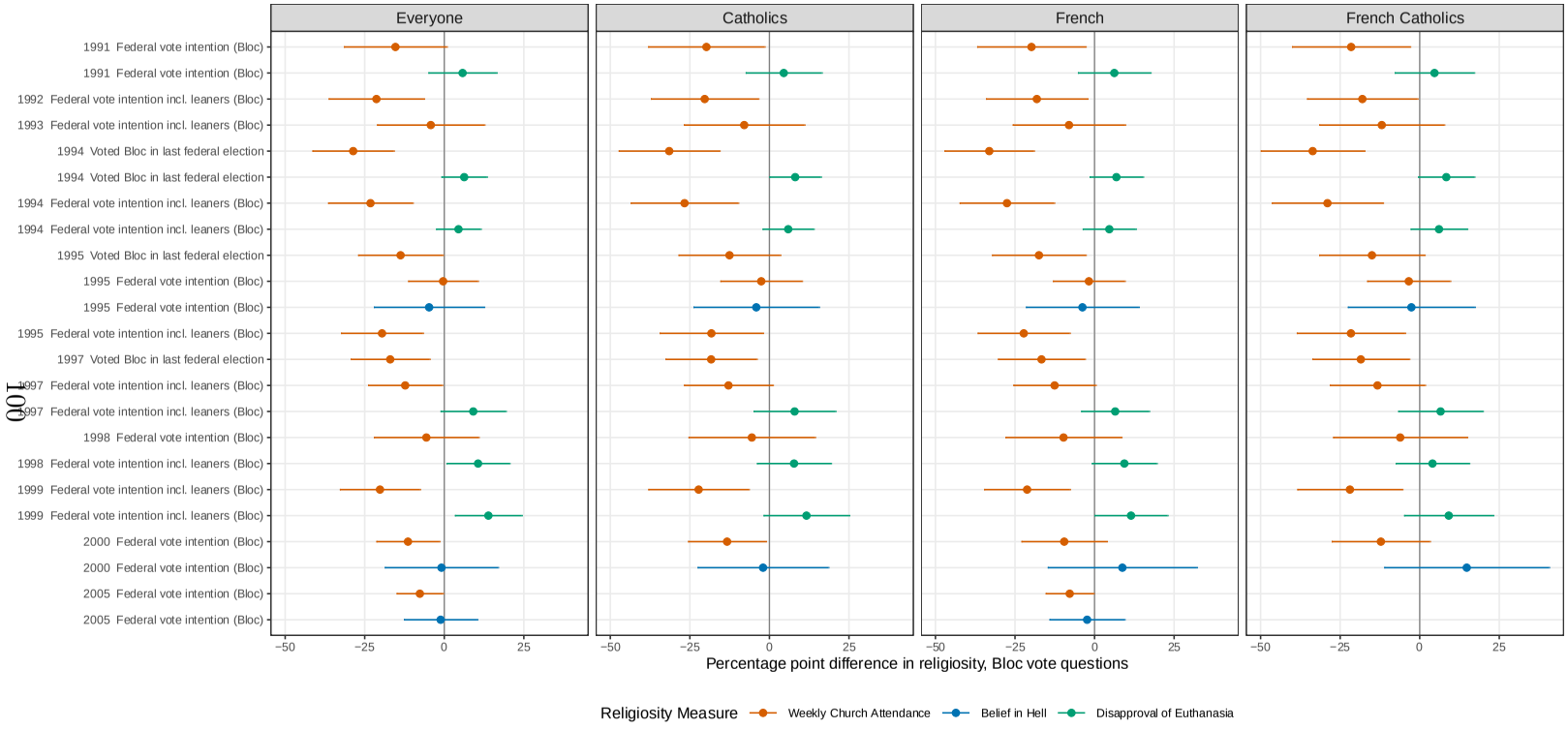


Figure 23: Religiosity and Bloc Québécois vote, by survey question and subsample.

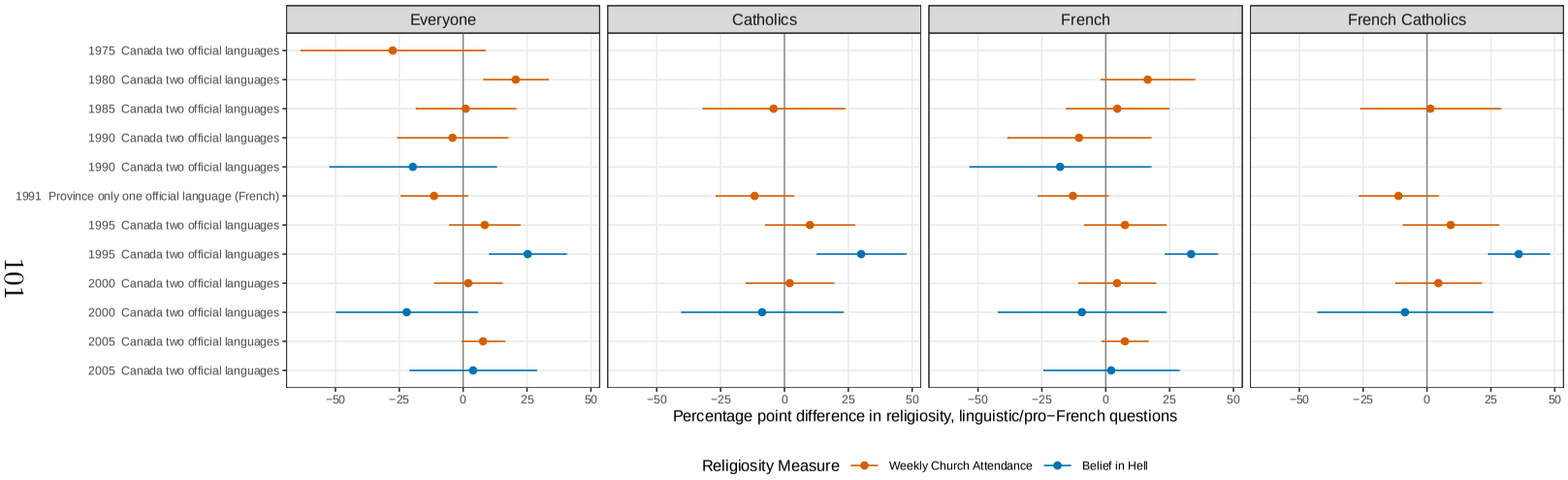


Figure 24: Religiosity and pro-French language attitudes, by survey question and subsample.

Joint tests for nationalism and religiosity. The tables that follow report joint tests of whether religiosity differs between more- and less-nationalist Quebecers. The unit underlying every entry is a *pair*: one nationalism question crossed with one religiosity measure available in the same poll—for instance, the 1995 Bloc vote question crossed with weekly church attendance. Each row of a table corresponds to a *cell*, a set of pairs grouped by some combination of nationalism dimension, decade, and religiosity measure, and each cell is estimated separately in four nested subsamples of Quebec respondents: everyone, Catholics, French speakers, and French-speaking Catholics. Table 1 forms one cell per nationalism dimension; Table 2 crosses dimension with religiosity measure; and Table 3 crosses decade with dimension.

Within a cell I stack the underlying respondent-level observations and fit a weighted linear probability model of the binary religiosity outcome on the nationalism indicator, including a fixed effect for each pair. The three religiosity measures—weekly attendance, belief in Hell, and disapproval of euthanasia—are all binary and all oriented so that higher values mean more religious, so the single coefficient on the nationalism indicator is the average within-pair difference in the proportion religious. I report it in percentage points as the **PPD**, with positive values indicating that the more-nationalist group is *more* likely to be religious; for cells spanning several measures it is the average difference across them. The pair fixed effects absorb differences in baseline religiosity across questions, measures, and surveys, so the estimate is identified only from variation within a pair, and never from the fact that one survey or one measure runs more religious than another.

Inference is clustered by survey. I report two p-values for each pooled estimate. My preferred test, p_{wcb}, is a survey-level wild cluster bootstrap that imposes the null when generating the bootstrap samples, using 999 replications with Rademacher weights, or the six-point Webb distribution when a cell spans fewer than twelve surveys. The second p-value, p_{hc}, is heteroskedasticity-robust but treats observations as independent. The accompanying 95% confidence interval is cluster-robust and uses a t distribution with degrees of freedom equal to the number of surveys minus one, so that cells resting on few surveys receive appropriately wider intervals. Stars on the PPD follow p_{wcb}.

The omnibus Wald statistic tests the joint null that *no* pair in the cell differs from zero. I compute it as the sum of the squared per-pair robust t-statistics and refer it to a χ^2 distribution with degrees of freedom equal to the number of pairs. This construction treats the pairs as independent (no clustering).

Finally, each row reports a minimum detectable effect, MDE_{80}: the smallest true difference the cell could detect with 80% power in a two-sided test at the 5% level, computed

from the same cluster-robust standard error. Throughout, N is the number of unique respondents contributing to the cell, and "Surveys" is the number of clusters. Rows based on a single survey do not report a clustered confidence interval, wild-cluster bootstrap p-value, or MDE_{80}, since all three require at least two surveys to compute.

Table 1: Religiosity and Quebec nationalism: by nationalism category

		Sample		Percentage point difference				Omnibus Wald		Power
Test	Subsample	Surveys	N	PPD	95% CI	p_{wcb}	p_{hc}	χ^2(df)	p	MDE_{80}
Quebec Separatism/Distinct society	Everyone	7	1,387	−1.5	[−7.0, 4.0]	.583	.482	7.5 (10)	.676	7.5
	Catholics	7	1,162	−2.0	[−6.9, 2.9]	.385	.385	6.6 (10)	.760	6.7
	French	7	1,195	−2.7	[−8.2, 2.8]	.411	.231	5.4 (10)	.865	7.5
	Fr. Cath.	7	1,073	−2.7	[−8.0, 2.6]	.366	.261	5.7 (10)	.844	7.3
PQ vote	Everyone	8	1,802	−6.7*	[−10.1, −3.4]	.016	<.001	26.0 (13)	.017	4.6
	Catholics	7	1,167	−9.4*	[−14.2, −4.5]	.013	<.001	27.2 (11)	.004	6.6
	French	8	1,594	−7.9*	[−11.7, −4.0]	.010	<.001	30.8 (13)	.004	5.3
	Fr. Cath.	7	1,059	−9.2*	[−14.8, −3.6]	.017	<.001	27.2 (11)	.004	7.7
Bloc vote	Everyone	16	3,041	−6.4*	[−11.6, −1.3]	.022	<.001	106.3 (23)	<.001	7.3
	Catholics	15	2,055	−7.8*	[−14.2, −1.4]	.032	<.001	77.3 (21)	<.001	9.0
	French	16	2,532	−7.1*	[−13.0, −1.2]	.019	<.001	100.0 (23)	<.001	8.2
	Fr. Cath.	15	1,817	−7.9*	[−15.3, −0.6]	.034	<.001	75.4 (21)	<.001	10.3
Linguistic	Everyone	8	2,129	−2.2	[−16.6, 12.2]	.729	.572	35.2 (12)	<.001	19.8
	Catholics	4	884	2.6	[−24.9, 30.2]	.885	.559	15.5 (6)	.017	36.0
	French	7	1,742	2.9	[−11.7, 17.4]	.707	.370	53.0 (11)	<.001	20.0
	Fr. Cath.	4	786	4.4	[−24.9, 33.6]	.796	.337	37.9 (6)	<.001	38.2

Notes. Sample: Gallup (CIPO) and Project Canada surveys, 1968–2005. Stars on PPD use p_{wcb}: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 2: Religiosity and Quebec nationalism: category × religiosity measure

		Sample		Percentage point difference				Omnibus Wald		Power
Test	Subsample	Surveys	N	PPD	95% CI	p_{wcb}	p_{hc}	χ^2(df)	p	MDE_{80}
Attendance × Quebec Separatism/Distinct society	Everyone	3	597	−1.4	[−15.3, 12.5]	.691	.687	2.5 (4)	.653	17.3
	Catholics	3	508	−0.9	[−16.8, 15.1]	.868	.825	3.3 (4)	.502	19.9
	French	3	528	−4.1	[−14.7, 6.5]	.378	.289	2.2 (4)	.702	13.2
	Fr. Cath.	3	475	−2.1	[−18.3, 14.1]	.547	.610	3.1 (4)	.540	20.2

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Table 2: Religiosity and Quebec nationalism: category × religiosity measure (continued)

		Sample		Percentage point difference				Omnibus Wald		Power
Test	Subsample	Surveys	N	PPD	95% CI	p_{wcb}	p_{hc}	χ^2(df)	p	MDE_{80}
Attendance × PQ vote	Everyone	8	1,792	−6.4*	[−11.7, −1.2]	.016	<.001	21.5 (9)	.011	7.2
	Catholics	7	1,161	−9.4*	[−16.3, −2.5]	.019	<.001	23.9 (8)	.002	9.4
	French	8	1,589	−8.0**	[−13.9, −2.2]	.009	<.001	26.0 (9)	.002	8.1
	Fr. Cath.	7	1,056	−10.3*	[−17.6, −3.0]	.019	<.001	25.1 (8)	.001	10.0
Attendance × Bloc vote	Everyone	11	2,175	−12.9**	[−18.9, −6.8]	.001	<.001	86.3 (14)	<.001	8.4
	Catholics	10	1,404	−15.1**	[−22.0, −8.1]	.003	<.001	64.6 (13)	<.001	9.7
	French	11	1,810	−14.2**	[−21.3, −7.1]	.001	<.001	85.8 (14)	<.001	9.9
	Fr. Cath.	10	1,231	−16.2**	[−23.9, −8.5]	.001	<.001	65.3 (13)	<.001	10.7
Attendance × Linguistic	Everyone	8	2,117	−3.0	[−17.2, 11.1]	.675	.509	20.4 (8)	.009	19.5
	Catholics	4	876	−2.1	[−20.8, 16.7]	.701	.664	3.7 (4)	.452	24.5
	French	7	1,735	0.6	[−11.2, 12.5]	.922	.850	11.1 (7)	.136	16.2
	Fr. Cath.	4	781	−1.0	[−19.8, 17.7]	.880	.830	3.2 (4)	.520	24.5
Hell × Quebec Separatism/Distinct society	Everyone	3	557	−3.7	[−15.5, 8.2]	.339	.375	1.4 (3)	.705	14.8
	Catholics	3	460	−4.8	[−13.0, 3.3]	.119	.288	1.2 (3)	.748	10.2
	French	3	483	−3.8	[−22.0, 14.5]	.583	.383	2.3 (3)	.517	22.7
	Fr. Cath.	3	423	−6.2	[−15.6, 3.1]	.116	.180	1.9 (3)	.604	11.6
Hell × PQ vote	Everyone	4	977	−7.3*	[−10.6, −4.0]	.034	.045	4.6 (4)	.336	4.3
	Catholics	3	509	−9.2	[−14.3, −4.1]	.110	.086	3.3 (3)	.351	6.3
	French	4	841	−7.5*	[−10.9, −4.2]	.035	.052	4.8 (4)	.307	4.4
	Fr. Cath.	3	426	−6.4	[−15.1, 2.2]	.120	.269	2.1 (3)	.557	10.8
Hell × Bloc vote	Everyone	3	765	−2.2	[−7.4, 3.0]	.133	.617	0.3 (3)	.953	6.5
	Catholics	2	352	−3.2	[−16.5, 10.0]	.326	.657	0.2 (2)	.903	14.7
	French	3	637	−1.0	[−11.7, 9.6]	.707	.831	0.9 (3)	.835	13.3
	Fr. Cath.	2	275	2.6	[−89.7, 94.8]	.781	.756	1.3 (2)	.518	102.3
Hell × Linguistic	Everyone	4	1,136	−0.2	[−41.2, 40.8]	.984	.981	14.8 (4)	.005	53.6
	Catholics	2	419	13.1	[−229.4, 255.6]	.689	.188	11.8 (2)	.003	268.7
	French	4	975	7.4	[−32.3, 47.0]	.844	.290	41.9 (4)	<.001	51.9
	Fr. Cath.	2	335	16.9	[−259.9, 293.7]	.776	.089	34.7 (2)	<.001	306.8

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Table 2: Religiosity and Quebec nationalism: category × religiosity measure (continued)

		Sample		Percentage point difference				Omnibus Wald		Power
Test	Subsample	Surveys	N	PPD	95% CI	p_{wcb}	p_{hc}	χ^2(df)	p	MDE_{80}
Disappr. euth. × Quebec Separatism/Distinct society	Everyone	2	436	0.9	[−64.5, 66.4]	.843	.753	3.7 (3)	.301	72.5
	Catholics	2	371	−0.4	[−56.2, 55.4]	.789	.900	2.1 (3)	.559	61.8
	French	2	379	0.5	[−35.0, 36.0]	.715	.877	0.9 (3)	.823	39.3
	Fr. Cath.	2	344	0.5	[−32.4, 33.5]	.765	.878	0.7 (3)	.875	36.5
Disappr. euth. × Bloc vote	Everyone	5	855	8.2*	[3.8, 12.7]	.022	<.001	19.7 (6)	.003	5.9
	Catholics	5	644	7.5*	[5.0, 9.9]	.015	<.001	12.5 (6)	.052	3.3
	French	5	716	7.5*	[4.6, 10.3]	.018	<.001	13.3 (6)	.038	3.8
	Fr. Cath.	5	582	6.4*	[4.1, 8.6]	.020	.007	8.8 (6)	.188	3.0

Notes. Sample: Gallup (CIPO) and Project Canada surveys, 1968–2005. Stars on PPD use p_{wcb}: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. Rows based on a single survey do not report a clustered 95% confidence interval, wild-cluster bootstrap p-value, or MDE_{80}, since all three require at least two surveys to compute.

Table 3: Religiosity and Quebec nationalism: decade × category (1960s–70s pooled)

		Sample		Percentage point difference				Omnibus Wald		Power
Test	Subsample	Surveys	N	PPD	95% CI	p_{wcb}	p_{hc}	χ^2(df)	p	MDE_{80}
1960s-70s × Quebec Separatism/Distinct society	Everyone	2	302	2.3	[−85.6, 90.2]	.763	.686	1.7 (2)	.434	97.4
	Catholics	2	248	3.7	[−93.9, 101.3]	.831	.543	2.2 (2)	.334	108.2
	French	2	241	−0.5	[−59.2, 58.3]	.803	.937	0.5 (2)	.764	65.1
	Fr. Cath.	2	221	3.0	[−92.4, 98.3]	.819	.642	1.8 (2)	.416	105.7
1960s-70s × PQ vote	Everyone	1	131	0.6		—	.952	0.0 (1)	.953	—
	Catholics	1	110	9.1		—	.374	0.8 (1)	.383	—
	French	1	108	−2.9		—	.785	0.1 (1)	.788	—
	Fr. Cath.	1	101	8.9		—	.389	0.7 (1)	.398	—
1960s-70s × Linguistic	Everyone	1	164	−27.5		—	.121	2.2 (1)	.135	—

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Table 3: Religiosity and Quebec nationalism: decade × category (1960s–70s pooled) (continued)

		Sample		Percentage point difference				Omnibus Wald		Power
Test	Subsample	Surveys	N	PPD	95% CI	p_{wcb}	p_{hc}	χ^2(df)	p	MDE_{80}
1980s × Quebec Separatism/Distinct society	Everyone	1	212	−7.3		—	.154	2.0 (1)	.157	—
	Catholics	1	185	−7.4		—	.205	1.6 (1)	.209	—
	French	1	185	−4.1		—	.493	0.5 (1)	.497	—
	Fr. Cath.	1	171	−3.8		—	.555	0.3 (1)	.559	—
1980s × PQ vote	Everyone	2	437	−6.4	[−66.5, 53.7]	.261	.135	5.0 (2)	.083	66.6
	Catholics	2	342	−12.3	[−78.9, 54.4]	.282	.018	9.6 (2)	.008	73.9
	French	2	415	−6.8	[−71.2, 57.7]	.289	.121	5.2 (2)	.074	71.4
	Fr. Cath.	2	336	−10.7	[−89.4, 68.0]	.321	.039	8.3 (2)	.015	87.2
1980s × Linguistic	Everyone	2	532	11.6	[−112.0, 135.1]	.328	.049	10.3 (2)	.006	136.9
	Catholics	1	240	−4.2		—	.754	0.1 (1)	.765	—
	French	2	504	10.0	[−65.0, 85.0]	.298	.146	3.3 (2)	.192	83.1
	Fr. Cath.	1	238	1.3		—	.920	0.0 (1)	.924	—
1990s × Quebec Separatism/Distinct society	Everyone	4	873	−1.6	[−10.3, 7.1]	.679	.523	3.8 (7)	.798	11.4
	Catholics	4	729	−2.6	[−9.2, 4.1]	.329	.350	2.9 (7)	.898	8.7
	French	4	769	−3.0	[−12.4, 6.4]	.505	.253	4.4 (7)	.736	12.3
	Fr. Cath.	4	681	−3.8	[−11.3, 3.8]	.320	.186	3.6 (7)	.829	9.9
1990s × PQ vote	Everyone	3	668	−8.8	[−22.3, 4.7]	.129	.002	17.4 (6)	.008	16.8
	Catholics	3	541	−9.6	[−23.7, 4.5]	.125	.003	14.8 (6)	.021	17.6
	French	3	618	−10.0	[−24.8, 4.7]	.116	<.001	20.4 (6)	.002	18.4
	Fr. Cath.	3	521	−10.3	[−25.1, 4.5]	.127	.002	16.5 (6)	.011	18.5
1990s × Bloc vote	Everyone	14	2,484	−7.0	[−14.5, 0.5]	.074	<.001	97.0 (19)	<.001	10.5
	Catholics	14	1,881	−7.8*	[−15.4, −0.3]	.042	<.001	72.7 (19)	<.001	10.6
	French	14	2,095	−8.4*	[−16.5, −0.3]	.046	<.001	93.3 (19)	<.001	11.4
	Fr. Cath.	14	1,719	−8.8*	[−16.8, −0.9]	.033	<.001	71.7 (19)	<.001	11.2
1990s × Linguistic	Everyone	3	779	1.6	[−43.9, 47.0]	.898	.700	16.8 (5)	.005	56.7
	Catholics	2	430	6.2	[−188.7, 201.0]	.735	.248	15.0 (3)	.002	216.0
	French	3	719	2.0	[−52.0, 56.0]	.871	.652	46.4 (5)	<.001	67.3
	Fr. Cath.	2	416	7.4	[−200.4, 215.3]	.771	.167	37.4 (3)	<.001	230.4

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Table 3: Religiosity and Quebec nationalism: decade × category (1960s–70s pooled) (continued)

		Sample		Percentage point difference				Omnibus Wald		Power
Test	Subsample	Surveys	N	PPD	95% CI	p_{wcb}	p_{hc}	χ^2(df)	p	MDE_{80}
2000s × PQ vote	Everyone	2	566	−5.1	[−8.7, −1.5]	.227	.075	3.6 (4)	.461	4.0
	Catholics	1	174	−8.6		—	.161	2.0 (2)	.369	—
	French	2	453	−6.0	[−9.5, −2.5]	.094	.048	5.1 (4)	.276	3.9
	Fr. Cath.	1	101	−5.8		—	.430	1.7 (2)	.432	—
2000s × Bloc vote	Everyone	2	557	−5.1	[−15.4, 5.2]	.223	.080	9.4 (4)	.053	11.4
	Catholics	1	174	−7.7		—	.207	4.6 (2)	.102	—
	French	2	437	−3.9	[−26.5, 18.7]	.216	.218	6.7 (4)	.150	25.0
	Fr. Cath.	1	98	1.1		—	.893	3.6 (2)	.162	—
2000s × Linguistic	Everyone	2	654	−3.3	[−101.9, 95.2]	.721	.572	5.9 (4)	.203	109.2
	Catholics	1	214	−3.3		—	.719	0.3 (2)	.840	—
	French	2	519	1.3	[−44.9, 47.4]	.838	.828	3.3 (4)	.501	51.2
	Fr. Cath.	1	132	−2.1		—	.832	0.5 (2)	.774	—

Notes. Sample: Gallup (CIPO) and Project Canada surveys, 1968–2005. Stars on PPD use p_{wcb}: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. Rows based on a single survey do not report a clustered 95% confidence interval, wild-cluster bootstrap p-value, or MDE_{80}, since all three require at least two surveys to compute.

Table 4: Key Policy Changes That Secularized Quebec's Institutions (1959-1975)

Party in Power (Prime Minister)	**Year**	**Policy Name**	**Description**
National Union (Paul Sauvé, Antonio Barrette)	1959	Public Health Reforms	Established the principles of state-run hospital insurance, which would help remove the Catholic Church from the hospitals.
		Educational Reforms	Lay the groundwork for the centralization and secularization of the education system, which would reduce the Church's influence over public schooling.
Liberal Party (Jean Lesage)	1961	Creation of the Parent Commission	Launched an inquiry into the education system, leading to recommendations for its secularization and modernization.
		Hospital Insurance Plan	Established a publicly funded hospital system, reducing the influence of the Church in healthcare.
		Creation of the Ministry of Cultural Affairs	Created to promote and manage cultural policies, reducing the influence of religious organizations in cultural affairs.
	1964	Creation of the Ministry of Education	Centralized the education system, secularizing school administration and curriculum.
		Bill 16 (Civil Code)	Abolished legal restrictions on married women, granting them equal legal rights in civil matters.
National Union (Daniel Johnson Sr.)	1966	Creation of the Castonguay-Nepveu Commission	Recommended comprehensive reforms in health and welfare services, later leading to the creation of the Quebec health insurance plan (RAMQ) and the integration of healthcare and social services under secular state control.
	1967	Creation of CEGEPs	Established public colleges offering pre-university and technical programs, replacing the more religious *classical colleges*.

Table 4: (continued)

Party in Power (Prime Minister)	**Year**	**Policy Name**	**Description**
National Union (Jean-Jacques Bertrand)	1968	Creation of Université du Québec	Established a network of fully secular public universities.
	1969	Social Aid Act	Modernized social security and facilitated the secular distribution of welfare benefits.
Liberal Party (Robert Bourassa)	1970	Creation of the RAMQ	Established universal health insurance, further diminishing the role of religious institutions in healthcare.
		Creation of the Ministry of Social Affairs	Established to oversee health and social services, integrating them under secular state control.
	1971	Establishment of Public Health Clinics (CLSC)	Provided local health and social services in a secular, state-run context.
	1975	Charter of Human Rights and Freedoms	Adopted a new charter that supported the separation of church and state, hence reinforcing the secular nature of public institutions.