



When the appeal of a dominant leader is greater than a prestige leader

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Across the globe we witness the rise of populist authoritarian leaders who are overbearing in their narrative, aggressive in behavior, and often exhibit questionable moral character. Drawing on evolutionary theory of leadership emergence, in which dominance and prestige are seen as dual routes to leadership, we provide a situational and psychological account for when and why dominant leaders are preferred over other respected and admired candidates. We test our hypothesis using three studies, encompassing more than 140,000 participants, across 69 countries and spanning the past two decades. We find robust support for our hypothesis that under a situational threat of economic uncertainty (as exemplified by the poverty rate, the housing vacancy rate, and the unemployment rate) people escalate their support for dominant leaders. Further, we find that this phenomenon is mediated by participants' psychological sense of a lack of personal control. Together, these results provide large-scale, globally representative evidence for the structural and psychological antecedents that increase the preference for dominant leaders over their prestigious counterparts.

dominance | prestige | uncertainty | personal control | leadership emergence

From the recent Brexit vote in the United Kingdom (1), to the resurgence of nationalism in communist China (2), to the ascend of the authoritarian Narendra Modi in India (3), to the overwhelming support for Donald Trump in the US elections (4), we are witnessing a return of populist, authoritarian leaders, with rhetoric focused on nationalism and protectionism of indigenous citizens. Despite the general notion and research findings indicating that such individuals are often narcissistic, aggressive, and guided by a vague moral compass (5), their popularity remains steadfast even in the presence of other respected and admired candidates. This paper investigates when and why dominant leaders, despite the multitude of negative attributes associated with them, are often revered by a nation's citizens.

We contend that the preference for a dominant leader increases with uncertainty and competitive threats in one's environment. When faced with a milieu of uncertainty and the resulting psychological lack of control, individuals favor a dominant/authoritarian leader who, they believe, has the capability to brave unfavorable winds and increase their future chances of success. We draw upon relevant literature in social psychology (6, 7), political psychology (8), and evolutionary psychology (9, 10) to develop our theoretical arguments.

A key tenet of Hogg's uncertainty theory (6) is that individuals are motivated to reduce uncertainty, an aversive state often perceived as a threat. Thus, when uncertainty implicates the self via group membership, those who identify more strongly with their group are motivated to take extreme actions to overcome challenges in the environment. For instance, when faced with uncertainty, individuals support groups that are perceived as more agentic (11), i.e., capable of taking radical actions against others (12), and endorse leaders who are perceived as nonprototypical and action oriented (13) in hopes that such actions would lead to the reduction of uncertainty. Similarly, Jost et al. (ref. 8, p. 341) argued that support for right-wing authoritarianism, social

dominance, and political conservatism is based on a "matching process" whereby people support ideologies "that are most likely to satisfy their psychological needs and motives (such as needs for order, structure, and closure and the avoidance of uncertainty or threat)."

Evolutionary psychology further illustrates that primates, including humans, organize around dominance hierarchies with an alpha leader perched at the top, an organizational preference that is especially acute when the environment is uncertain or threatening or when there is contest among species or groups for resources (9, 10, 14–16). For instance, a study found that after researchers transposed the central attributes of the faces of George Bush and John Kerry to a neutral face, participants preferred Bush's physiognomy, which they associated with greater masculinity, as their leader in times of war and Kerry's physiognomy, which they considered comparatively low on masculinity, as their leader in times of peace (15). However, the most convincing studies are among animals, and studies within the human population have relied on experimental manipulations and fictional scenarios to demonstrate this phenomenon. Furthermore, the phenomenon is demonstrated within a limited context relying on small samples (e.g., 57 participants for the above study). In contrast to these studies, we test our hypotheses using objective macroeconomic indicators of economic uncertainty for a large, representative global sample comprising 140,596 participants from 69 countries and draw on evolutionary origins of leadership to provide a theoretically grounded and empirically robust explanation for why dominant leaders are preferred over their prestigious counterparts.

Significance

We examine why dominant/authoritarian leaders attract support despite the presence of other admired/respected candidates. Although evolutionary psychology supports both dominance and prestige as viable routes for attaining influential leadership positions, extant research lacks theoretical clarity explaining when and why dominant leaders are preferred. Across three large-scale studies we provide robust evidence showing how economic uncertainty affects individuals' psychological feelings of lack of personal control, resulting in a greater preference for dominant leaders. This research offers important theoretical explanations for why, around the globe from the United States and Indian elections to the Brexit campaign, constituents continue to choose authoritarian leaders over other admired/respected leaders.

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Dominance and prestige have been demonstrated as two distinct routes to ascend the hierarchy to attain influential leadership positions within groups (17). A dominance strategy requires individuals to be more assertive, controlling, decisive, and self-assured in achieving their goals. Individuals pursuing this strategy often coerce or induce psychological fear among other group members to attain these goals and do not worry about the cost accrued to others while doing so. They are adept in forming political coalitions and are swift to make decisions that help them achieve their goals and maintain their positions in their groups (18). In contrast, individuals pursuing a prestige strategy attain better social ranking by serving as cultural informational role models to others. Such individuals not only are successful in their domains but actively display and share knowledge or skills that are valuable to other group members. In return they receive respect and admiration from other group members, helping them attain a higher social rank in the group (19). The prestige path to attaining an influential position in the group hierarchy is unique to humans; individuals help in disseminating important cultural knowledge that helps others overcome evolutionary selection pressures and increase their adaptation capabilities (20). An empirical investigation by Cheng et al. (17) demonstrated that both dominance and prestige are viable and are alternate strategies for attaining an influential position within a social hierarchy.

We contend that, when faced with uncertainty, individuals prefer a leader who is self-assured and decisive in achieving her objectives. These are the characteristics that people expect to find in a dominant and authoritarian leader rather than in a leader who, although respected and well admired, is less willing to be forceful in pursuing her goals and is commonly perceived as lacking conviction in making tough calls (18, 21). [A pilot study directly tested our key assumption that dominant leaders are perceived as more agentic than prestige-based leaders. We used eight items from the Personal Attributes Questionnaire, one of the most common operationalized measurements for the construct of agency (22, 23). Participants first read descriptions of dominant and prestige-type leaders and then rated these leaders on their perceived agency. As expected, we found a significant difference in participants' ratings; dominant leaders were perceived as more agentic than prestige-based leaders; $t(99) = 10.51$, $M_{\text{Dominance}} = 4.35$ (0.59), $M_{\text{Prestige}} = 3.43$ (0.68), $d = 1.45$.] Drawing on established work on environmental uncertainty and its implications on individual psychology (24–26), we contend that the uncertainty surrounding an economic downturn would result in citizens feeling a lack of personal control. Lack of personal control is a deeply undesirable state, and people are motivated to restore a feeling of control by various compensatory strategies (27, 28). These compensatory strategies can be based on individuals' own ability or agency to overcome lost control or on their reliance on external agencies, such as governments, gods, or leaders, to influence the outcome and restore a sense of agency or control on their behalf (27, 29).

For example, existing work has shown that lack of personal control increases belief in external entities that can specifically provide a sense of agency, e.g., a greater belief in an interventionist God as opposed to a God that is purely a creator or provides meaning (30, 31). Moreover, when such external agents are challenged, e.g., in the presence of a group-level threat or uncertainty, individuals engage in behaviors or cognitions that are meant to increase personal control or shift their beliefs in support of a different external entity that can help them bolster their perceived agency. Thus, when faced with political instability, participants expressed greater belief in God, a different external agent than a political entity (32). Collectively, these findings point out that threats at both the group and individual level, play an important role in affecting an individual's sense of personal control. The two types of threats are often substitutable and function in a hydraulic fashion: Threats to personal agency

(external agents) increase support for external agents (increase the perception of personal control), or, alternatively, result in the shifting of support among different external entities, all with the impetus of gaining greater agency through compensatory strategies (32, 33). Along similar lines, Fritsche et al. (34, 35) have proposed a group-based control-restoration model wherein those who feel a lack of personal control because of threats in the environment engage in ethnocentric behaviors, such as ingroup favoritism and outgroup derogation, to restore their sense of personal control. Moreover, echoing substitutability between group- and personal-level threats, the authors argue that group-level threats (e.g., lack of ingroup homogeneity) lead to group members feeling a lack of personal control and result in greater ethnocentric behaviors. Further, such behaviors are amplified for those who identify strongly with their ingroup.

Based on the above theoretical and empirical evidence, we contend that individuals motivated to reduce the aversive state of low personal control when plagued by collective uncertainty, will seek a dominant leader as a compensatory strategy to restore their sense of personal control. A dominant leader, by virtue of being perceived as decisive, assertive, self-assured, and determined to serve the interest of group members even at the cost to non-group members (16), is considered to be more reliable in motivating individual members to take swift collective action in the face of uncertainty (23). A prestigious leader, on the other hand, is generally perceived as a generous and helpful individual who therefore is reluctant to prioritize the interest of group members at all costs and especially at the expense of individuals outside the group (16); the prestigious leader thus appears to be less agentic or to be indecisive in making difficult decisions (18). Taken together, these perceptions result in a dominant leader providing far stronger assurance and affording a greater sense of agency than a prestigious counterpart in difficult times. In short, we argue that individuals faced with uncertainty will endorse a dominant leader rather than a prestige-type leader as a compensatory response to restore their sense of control or personal agency.

We test our hypothesis using three studies in which we operationalize uncertainty using macroeconomic indices (i.e., the poverty rate, the housing vacancy rate, and unemployment rate) and map that uncertainty to people's preference for leaders. Further, in study 3 we demonstrate that the preference for a dominant leader is explained by people's lack of personal control over their livelihood when faced with the threat of economic uncertainty. In doing so, we highlight how the social environment shapes people's cognitive processes and preferences, thus influencing their decisions to seek out and elect more dominant leaders as means to regain their sense of personal control.

Results

Study 1. In study 1, using Amazon Mechanical Turk (AMT), we sampled a cross-section of US citizens representing 46 different states ($n = 750$, 44.13% females, mean age = 34.61 y, SD = 10.52 y) and asked for their voting preference. On the day of, but before the start of, the third presidential debate of 2016, participants indicated their voting preference for Donald Trump, Hillary Clinton, or neither. In a separate pretest, using a different sample and candidates as the between-subject condition, we first asked participants to rate the two candidates—Donald Trump and Hillary Clinton—on a validated dominance–prestige scale (5) in comparison to each other. The scale consisted of five items measuring prestige (e.g., “Donald Trump/Hillary Clinton is a kind of leader who is respected and admired by other members”) ($\alpha = 0.96$) and six items measuring dominance (e.g., “Donald Trump/Hillary Clinton is a kind of leader who often tries to get his/her own way regardless of what others may want”) ($\alpha = 0.96$). (We use a shorter version of the original 17-item scale based on confirmatory factor analysis performed on an independent sample, using items that had a factor score greater than

or equal to 0.60.) We found that participants considered Donald Trump to be significantly higher on dominance than Hillary Clinton [$F(1,118) = 6.95, P = 0.01, d = 0.48, M_{\text{Trump}} = 5.51, M_{\text{Clinton}} = 4.71$]. For prestige, however, we found that participants rated Donald Trump significantly lower than Hillary Clinton [$F(1,118) = 12.26, P = 0.001, d = 0.64, M_{\text{Trump}} = 3.54, M_{\text{Clinton}} = 4.68$]. Therefore, if our hypothesis is to be supported, we should expect participants facing economic uncertainty to prefer Donald Trump over Hillary Clinton.

After indicating their voting preference, participants reported their demographics and the zip code of the area in which they live. To rule out participants' political ideology as an alternate explanation for their voting preference, we measured their political orientation using a single item with higher values implying democratic/liberal orientation. We also controlled for participants' reported income, gender, age, and the number of months or years they have lived within the area of their reported zip code. We collected macroeconomic data for each zip code using the database of the Economic Innovation Group (EIG), an independent group of economists and policymakers interested in examining the economic markers of America's economic health (36). The EIG dataset contains economic indicators for more than 25,000 zip codes covering 99% of America. We matched data from this database to the reported zip codes in our study to examine whether economic uncertainty predicts a preference for a dominant, authoritarian leader over a respected and well-admired leader. Economic uncertainty was operationalized by aggregating the three key economic indicators, unemployment, housing vacancy rate, and poverty rate ($\alpha = 0.72$), that are regularly monitored by the US Treasury Department to make economic forecasts and assess development in a particular region (37). Higher values of this indicator represent greater economic uncertainty.

We performed a multinomial logistic regression with preference to vote for Hillary Clinton as the base option and examining participants' choice to vote for Donald Trump or neither of the two candidates in comparison with the base outcome. Results showed that economic uncertainty predicted a preference for Donald Trump over and above the control variables, which included a voter's political partisanship ($b = 4.51, P = 0.021$). (Correlations and regressions are presented in Tables S1 and S2.) Additionally, preferring not to vote for either of the two candidates was also significantly predicted by economic uncertainty ($b = 4.27, P = 0.008$). (Results do not change if we drop participants who preferred to vote for neither candidate.) Overall, these results provide initial evidence that economic uncertainty increases the preference for a dominant leader as opposed to a prestigious leader.

Study 2. The objectives of study 2 were (i) to assess the reliability of our findings and, more importantly, (ii) to assess directly participants' preference for a dominant or a prestigious leader as opposed to the indirect evidence documented in study 1. The design of this study was similar to that of study 1. Using AMT, we sampled a large cross-section of US citizens representing 50 different states [$n = 1,403$, average of 28.1 participants per state (range 1–121), 52.49% females, mean age = 37.96 y, SD = 12.35 y] and asked them to report their preference for the leader they would like to see in power in their town or city. Participants rated their preference for a leader on the same dominance–prestige scale items used in the pretest of study 1 ($\alpha_{\text{Prestige}} = 0.89, \alpha_{\text{Dominance}} = 0.90$). Further, to ensure that effects were not influenced by participants' identification with their larger (more abstracted) physical surroundings (38), participants also rated their identification with the city or town in which their zip code is embedded ($\alpha = 0.91$) (39). As in study 1, participants also reported income, gender, age, and the number of months or years they have lived in the area of their reported zip code.

Participants' reported zip codes were matched to the EIG database, and the same three variables (poverty rate, unemployment rate, and housing vacancy rate) were used to operationalize economic uncertainty ($\alpha = 0.71$). Because participants were indicating their preference for a local leader, we also controlled for the geographical size of the county in which participants lived by employing total number of zip codes in the county as a covariate.

A multilevel regression analysis with zip codes nested in each of the 50 states was performed. Regression results are presented in Table 1. When economic uncertainty in a particular zip code was included as the independent variable, we observed a significant negative relationship with preference for a prestigious leader ($b = -0.87; P = 0.016$; model 2), and a significant positive relationship in preferring a dominant leader emerged over and above the various control variables ($b = 1.02; P = 0.035$; model 4). (Correlations are given in Table S3.) By measuring participants' preferences using validated measures of dominance and prestige, we demonstrate that increased economic uncertainty differentially affects leadership preference, whereby dominant leaders are preferred significantly more and prestigious leaders significantly less. These results among a cross-section of US participants present further evidence of how economic insecurity influences people's preference for a dominant authoritarian leader.

Study 3. In study 3, we wanted to examine the robustness of this phenomenon more broadly and to explore the underlying psychological mechanism driving this effect. (We also replicated the proposed psychological mechanism by experimentally manipulating personal control; see Study S1.) Specifically, we contend that the threat that accompanies economic uncertainty will engender among individuals a feeling of lack of personal control, an undesirable state that can be restored by looking to others, such as a dominant leader, to help rectify the threat.

To test this hypothesis, we collected data from two different databases, the World Values Survey (WVS) and the World Development Indicators (WDI), a global macroeconomic dataset maintained by the World Bank (40). The WVS is a popular database that social scientists rely on to understand changes in social and political beliefs of people across the world (41). The database compilers collect data on the same questions across ~100 countries representing roughly 90% of the world population. The WVS has been carried out in waves between 1981 and 2014, with collection cycles distributed almost evenly across the years. We examined the entire dataset that included all our variables of interest from 1994 with a final sample of 138,323 nonrepeat observations across 69 countries. We combined these data with the WDI database containing yearly data of macroeconomic indicators. The WDI contained poverty data for only 16 of 69 countries, and the housing vacancy rate was not available; therefore we used change in unemployment, a variable widely used by governments and scholars as a single lead indicator of economic health in a particular region (42–45), as the independent variable, with positive change in unemployment implying greater economic duress.

We operationalized preference for dominant leader using a single item, asking participants their preference for “having a strong leader who does not have to bother with parliament and elections” on a four-point scale. We reverse-coded the scale so that higher values imply greater preference for a dominant leader. This measure is a conservative test of our hypothesis, because the item as stated describes willingness to place at the helm a leader who at times is willing to disregard constitutional procedures rather than a leader who might be dominant but would still operate within statutory boundaries. Lack of personal control was operationalized using a question that asked participants to rate how much control they have over their lives on a scale of 1–10. A similar measure has been used by others to operationalize lack of control (33). The scale was reverse-coded

Table 1. Study 2 regression results using random coefficient modeling

Variable	Prestige		Dominance	
	Model 1	Model 2	Model 3	Model 4
Constant	5.486*** (0.146)	5.701*** (0.171)	3.174*** (0.195)	2.924*** (0.228)
Controls				
Gender ^{†,‡}	0.242*** (0.047)	0.241*** (0.047)	-0.499*** (0.063)	-0.497*** (0.063)
Age [†]	0.006*** (0.001)	0.006*** (0.002)	-0.014*** (0.003)	-0.014*** (0.003)
Income [†]	-0.01 (0.016)	-0.015 (0.016)	0.053* (0.021)	0.059** (0.021)
Duration living in the zip code [†]	0.013 (0.02)	0.012 (0.02)	-0.016 (0.027)	-0.016 (0.027)
Identity [†]	0.041** (0.015)	0.04** (0.015)	0.084*** (0.020)	0.086*** (0.020)
Total population [§]	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Population density [§]	-0.039 (0.027)	-0.034 (0.027)	0.036 (0.035)	0.03 (0.035)
No. of zips in the county [§]	0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)
Independent variable				
Economic uncertainty [§]		-0.874* (0.363)		1.02* (0.484)
N (level 1)	1,403	1,403	1,403	1,403
N (level 2)	50	50	50	50
Adjusted R ²	0.046	0.050	0.095	0.097

P values: *P < 0.05, **P < 0.01, ***P < 0.001. SEs are shown in parentheses.

[†]Measures self-reported by participants.

[‡]Categorical variable (1 = male, 2 = female).

[§]Measures obtained from the external economic database (36).

so that higher values imply lack of personal control. We also controlled for participants' subjective social class, the income category, political beliefs (liberal or conservative), gender, and age in our analysis. Correlations are presented in Table S4.

As in study 2, we ran a multilevel analysis because participants were nested within each country. We find that as change in unemployment increases, the preference for a dominant leader also increases ($b = 0.01$; $P < 0.001$) (Table 2, model 4). We also find that the rate of change in unemployment is positively associated with lack of control among participants ($b = 0.10$; $P < 0.001$) (Table 2, model 2). More importantly when change in unemployment rate and lack of control are entered together in the regression equation, both variables predict a preference for a dominant leader over and above the control variables (Table 2, model 5). We tested for lack of control as a mediator by running the bootstrap procedure with 5,000 iterations. The indirect effect of unemployment rate via lack of control on preferring a dominant

leader was positive and significant ($b = 0.0002$, $P < 0.001$) with a bias-corrected 95% CI not containing zero (0.0001, 0.0004).

To establish further that endorsing a dominant leader is a compensatory strategy to restore a sense of personal control when faced with collective uncertainty, we tested whether such effects were amplified for those who identified more strongly with their ingroup. In line with the group-based control-restoration model (34) and uncertainty-identity theory (6), our documented effects should be stronger for group members who identify more strongly with their ingroup. Accordingly, we operationalized social identity using a self-report item on the WVS that asks participants to report how proud they are of their nationality on a five-point scale. As predicted, a first-stage moderated mediation bootstrap analysis revealed that the effect of economic uncertainty via lack of personal control on the endorsement of a dominant leader was stronger for those who identified strongly with their country [$b = 0.0007$, $P < 0.001$,

Table 2. Study 3 regression results using random coefficient modeling

Variable	Lack of control		Dominant leader		
	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	4.069*** (0.096)	4.037*** (0.097)	2.066*** (0.052)	2.063*** (0.0523)	2.048*** (0.053)
Controls					
Gender ^{†,‡}	0.111*** (0.016)	0.112*** (0.012)	0.018*** (0.005)	0.018*** (0.005)	0.017*** (0.005)
Age [†]	0.002*** (0.000)	0.002*** (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)
Income group [†]	-0.105*** (0.003)	-0.010*** (0.003)	-0.008*** (0.001)	-0.008*** (0.001)	-0.007*** (0.001)
Social class [†]	0.189*** (0.007)	0.194*** (0.007)	0.013*** (0.003)	0.014*** (0.003)	0.013*** (0.003)
Conservative [†]	-0.054*** (0.003)	-0.053*** (0.003)	0.015*** (0.001)	0.015*** (0.001)	0.015*** (0.001)
Independent variable					
Change in unemployment [§]		0.096*** (0.005)		0.010*** (0.002)	0.009*** (0.002)
Mediator					
Lack of control [†]					0.004** (0.001)
N (level 1)	138,323	138,323	138,323	138,323	138,323
N (level 2)	69	69	69	69	69
Adjusted R ² (level 1)	0.031	0.033	0.002	0.002	0.002

P values: *P < 0.05, **P < 0.01, ***P < 0.001. SEs are shown in parentheses.

[†]From the WVS dataset (41).

[‡]Gender (1 = male; 2 = female).

[§]From the WDI dataset (40).

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Supporting Information

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Study S1

The objective of study S1 was to manipulate experimentally the proposed psychological mechanism—lack of personal control—mediating the relationship between economic uncertainty and the preference for a dominant leader. By experimentally moderating rather than merely measuring the psychological process, we provide an alternate and stronger demonstration of it (48). Accordingly, we randomly assigned participants to a high or low personal control condition. We hypothesized an interaction effect between levels of economic uncertainty and personal control in predicting leader preferences, so that participants in the low personal control condition and facing greater economic uncertainty would favor a dominant leader over a prestigious leader more than those in the high personal control condition.

Methods. As in previous studies, we aimed to run a high-powered study with a target of collecting responses from at least 800 participants (roughly 400 in each condition). Accordingly, we collected a sample size larger than 800 ($n = 910$), accounting for attention check items in our survey. We dropped five entries with a duplicate IP address and 92 participants who failed attention and comprehension checks. Results remain unchanged if no participants are dropped. However, because we decided to drop these participants in advance of running the analysis, we exclude them from the reported analysis. Thus, our final sample consisted of 813 participants from 50 US states and the District of Columbia; 411 participants were in the low control condition, and 402 participants were in the high control condition (mean age = 37.57 y, 46.74% females).

Design and procedure. Participants were first randomly assigned to either a low or high control condition. In line with the existing research, we manipulated personal control using a recall task (31). In the high control condition, participants were asked to describe a recent undesirable incident in which they had absolute control in influencing the outcome; participants in the low control condition wrote about an unfavorable incident in which they had absolutely no control in influencing the outcome. Then participants expressed their preference for a leader in their local town/city council using both a binary and a continuous measure. The binary choice was between a leader high on dominance versus one high on prestige. For the continuous measure, participants were asked how, if a leader could have both dominance and prestige characteristics, they would allocate 100 points in any proportion between these two characteristics so that the measure represents their ideal preference for a leader. Thus, allocating a greater number of points for a leader to be more assertive, forceful, and dominating rather than respected, admired, and prestigious would indicate a greater preference for a dominant leader. Next, participants responded to demographic measures and also indicated their current zip code. As in other studies, we operationalized the independent variable, economic uncertainty, by combining poverty rate, unemployment, and housing vacancy rate for each zip code reported by participants ($\alpha = 0.69$).

Results. Because zip codes were nested within different states, we performed a multilevel analysis with states as a higher-level factor. For the choice dependent variable, we performed a multilevel logistic regression using the `meologit` command in Stata that fits the mixed-effects logistics model. Choice response was recoded so that 1 represents choosing a dominant leader, and 0 represents choosing a prestige leader. As proposed, we found a significant interaction of economic uncertainty and our personal control manipulation ($b = -7.13$, $P = 0.018$) (Table S5) so that the relationship

between economic uncertainty and choosing a dominant leader was stronger in the low control condition than in the high control condition; i.e., the slope was significant and positive in the low control condition ($b = 0.81$, $P = 0.002$) and was insignificant in the high control condition ($b = -0.22$, $P = 0.45$). In other words, participants' likelihood of choosing a dominant leader was greatest when economic uncertainty was high and participants were in the low personal control condition (Fig. S1). Additionally, these effects were consistent after controlling for a number of factors, including participants' political orientation, age, gender, and other demographic factors.

Furthermore, a multilevel analysis with states as the higher-order factor revealed a similar interaction for the continuous measure ($b = -74.21$, $P = 0.002$), so that the slope was significant and positive in the low control condition ($b = 37.73$, $P = 0.023$) and was negative in the high control condition ($b = -36.48$, $P = 0.044$) (Fig. S2). In short, as economic uncertainty increases, participants in the low personal control condition preferred high-dominance characteristics in their leader as opposed to prestige characteristics; however, this effect was reversed in the high personal control condition, because these participants preferred their leader to have greater prestige- than dominance-based attributes. These results replicate our findings and, more importantly, further demonstrate lack of control as the underlying psychological mechanism driving our documented effects: People in the low control condition try to restore their sense of control or agency by seeking leaders with dominant tendencies, who are perceived to be more agentic, rather than their prestige counterparts. However, when participants do not feel the need to seek control, i.e., in the high control condition, they prefer a leader with prestige-based attributes who is generally held in high esteem.

Discussion. By experimentally manipulating participants' sense of control, we further demonstrated lack of personal control to be the underlying psychological mechanism influencing a greater preference for a dominant leader. We find this effect across both a binary and a continuous measure of leader preference. The continuous measure is notable because it shows participants' preference for the mix of dominance and prestige tendencies within the same leader, so that they prefer the leader who possesses more dominance tendencies when their personal control is in question. Overall, by experimentally manipulating the underlying psychological process we have theorized and demonstrated statistically in prior studies, we further our confidence in the mediator—lack of personal control—being the psychological mechanism driving people's preference for dominant leaders at times of economic uncertainty.

Study S2

The objective of study S2 was to show that the preference for a dominant leader is not only limited to economic uncertainty but also is generalizable to other sources of uncertainty in the environment. More broadly, we contend that our findings are reflective of the psychological state associated with uncertainty rather than of a specific instance of uncertainty stemming from the economic environment. Accordingly, we ran a scenario study in which participants read about a terrorist attack in a small US town. In the uncertainty condition, participants read that local authorities were uncertain whether similar attacks would occur in the future, and in the certainty condition participants read that local authorities were certain that a future attack would not take place.

Methods.

Participants. As before, we aimed to test our study on a large sample to ensure high statistical power. A total of 310 participants attempted the study on AMT; eight did not complete the study, and one was a duplicate entry with same IP address. These nine participants were not included in the final analysis. The final sample thus consisted of 301 participants with 150 in the certainty condition and 151 in the uncertainty condition (mean age = 37.08 y, 47.51% females).

Design and procedure. Participants were randomly assigned to either the uncertainty or certainty condition. They read about a terrorist attack in a small US town. In the collective uncertainty condition, participants were told that local authorities were uncertain whether similar attacks would occur in the future, whereas in the collective certainty condition participants were informed that the local authorities were certain that there would be no further attacks in the future. Specifically, participants read the following text (within each bracket, the first wording represents the low uncertainty manipulation, and second wording represents the high uncertainty manipulation):

A few weeks ago, a US town made the news for a terrorist incident. Specifically, a man armed with an automatic gun started firing rounds in a public place. He was eventually brought down by local police authorities but not before the gunman had killed four people and injured seven others. On further investigation, it was found that this person had links with the terrorist organization and belonged to a sleeper cell. A sleeper cell refers to a cell, or isolated grouping of sleeper agents that lies dormant until it receives orders or decides to act.

Police have not yet ruled out this as a one-off incident. They [do not expect/expect] the likelihood of other sleeper cells in the neighborhood

that may lead to similar incidents in the future [but/and thus] have urged people to remain vigilant and report any suspicious activity. The possibility of [no other/another] attack in this neighborhood is summarized as [certain/uncertain] by local authorities.

Participants were asked to imagine themselves as residents of the town that experienced the terrorist attack. They were informed that local elections were about to take place in that town and were asked to indicate the kind of leader they would like to see elected. Participants then made a choice between a dominant and a prestige leader using a binary measure.

Results. In accordance with our hypothesis, the χ^2 test with choice as the dependent variable and the uncertainty/certainty condition as the independent variable was significant [$\chi^2(1) = 6.14, P = 0.013$] so that significantly more participants chose a dominant leader in the uncertainty condition (58.28%) than in the certainty condition (44.00%). Additionally, after controlling for participants' gender, age, income, and political orientation, the logistic regression revealed a significant relationship between uncertainty and the preference for a dominant leader ($b = 0.59, P = 0.017$).

Discussion. Overall, by experimentally manipulating uncertainty, these results further demonstrate that the preference for a dominant leader rather than a prestige-based leader increases in environments of greater uncertainty. More importantly, this study also successfully demonstrates that the situational preference for dominant leaders witnessed in studies 1–3 and study S1 extend beyond troubled economic conditions and is more reflective of the general psychological state associated with uncertainty.

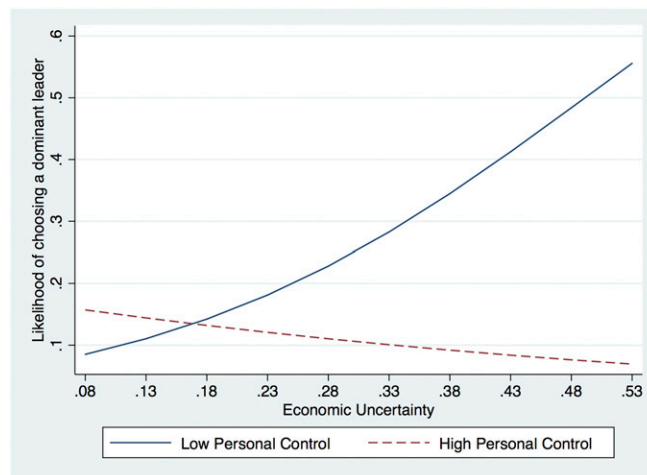


Fig. S1. Interaction effect of uncertainty and control manipulation on the binary choice measure.

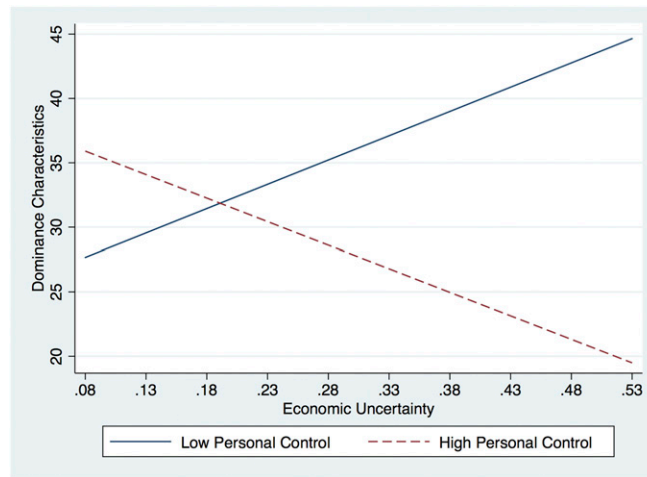


Fig. S2. Interaction effect of uncertainty and control manipulation on the continuous points measure.

Table S1. Means, SDs, and intercorrelations for study 1

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1 Gender	1.44	0.5	1									
2 Age	34.61	10.52	0.15***	1								
3 Income	2.74	1.52	-0.17***	0.1**	1							
4 Duration in zip code	4.26	1.22	0.02	0.21***	-0.09*	1						
5 Liberal	4.76	1.73	0.13***	-0.12***	-0.06	-0.06	1					
6 Total population [†]	31.55	18.97	-0.05	-0.06	0.04	-0.03	-0.02	1				
7 Population density	2.30	1.04	-0.07	-0.07	0.07*	-0.01	0.11**	0.36***	1			
8 No. of zip codes in the county	40.99	50.78	-0.09**	-0.07*	0.01	0.04	0.04	0.23***	0.48***	1		
9 Economic uncertainty	0.21	0.06	-0.02	0.01	-0.16***	0.02	-0.04	-0.01	0.04	-0.05	1	
10 Voting preference	0.75	0.85	-0.09**	-0.01	-0.06	-0.02	-0.38***	0.00	-0.04	-0.04	0.13***	1

^{*}*P* values: **P* ≤ 0.05, ***P* ≤ 0.01, ****P* ≤ 0.001; *n* = 750.

[†]In thousands.

Table S2. Study 1 multinomial regression results with Hillary Clinton as the base outcome

Variable	Vote for Donald Trump		Vote for neither	
	Model 1	Model 2	Model 3	Model 4
Constant	5.315*** (0.867)	4.281*** (0.97)	4.136*** (0.708)	3.153*** (0.792)
Controls				
Gender ^{†,‡}	-0.524* (0.256)	-0.501* (0.26)	-0.302 (0.199)	-0.284 (0.201)
Age [†]	0.019 (0.012)	0.018 (0.012)	-0.006 (0.01)	-0.006 (0.01)
Income [†]	-0.09 (0.081)	-0.057 (0.083)	-0.180** (0.068)	-0.151* (0.069)
Duration living in the zip code [†]	-0.038 (0.106)	-0.037 (0.107)	-0.117 (0.079)	-0.117 (0.08)
Liberal [†]	-1.214*** (0.093)	-1.215*** (0.093)	-0.629*** (0.07)	-0.629*** (0.07)
Total population [§]	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Population density [§]	0.006 (0.139)	-0.02 (0.141)	0.082 (0.109)	0.058 (0.11)
No. of zips in the county [§]	-0.000 (0.003)	0.000 (0.003)	-0.002 (0.002)	-0.001 (0.002)
Independent variable				
Economic uncertainty [§]		4.51* (1.96)		4.27** (1.60)
<i>N</i>	750	750	750	750
Adjusted <i>R</i> ²	0.222	0.227	0.222	0.227

P values: **P* < 0.05, ***P* < 0.01, ****P* < 0.001. SEs are shown in parentheses.

[†]Measures self-reported by participants.

[‡]Categorical variable (1 = male, 2 = female).

[§]Measures obtained from the external economic database.

Table S3. Means, SDs, and intercorrelations for study 2

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1 Gender	1.52	0.5	1										
2 Age	37.96	12.35	0.15***	1									
3 Income	2.63	1.48	-0.22***	0.04	1								
4 Duration zip code	4.4	1.14	0.04	0.23***	0.04	1							
5 Identity	3.76	1.55	0.07**	0.08**	0.11***	0.11***	1						
6 Total population [†]	30.76	18.57	-0.06**	-0.08**	0.15***	-0.02	0.06*	1					
7 Population density	2.21	1.03	-0.07**	-0.11***	0.09***	-0.04	0.00	0.42***	1				
8 No. of zips in the county	39.54	51.02	-0.02	-0.03	0.04	-0.05	-0.01	0.28***	0.47***	1			
9 Economic uncertainty	0.22	0.06	0.02	-0.01	-0.15***	-0.01	-0.05	-0.14***	-0.01	-0.07**	1		
10 Prestige	6.17	0.86	0.17***	0.13***	-0.04	0.05	0.09***	-0.05*	-0.06*	-0.02	-0.05*	1	
11 Dominance	2.29	1.19	-0.24***	-0.17***	0.12***	-0.05	0.08***	0.01	0.07**	0.04	0.04	-0.35***	1

P values: **P* ≤ 0.05, ***P* ≤ 0.01, ****P* ≤ 0.001; *n* = 1,403.

[†]In thousands.

Table S4. Means, SDs, and intercorrelations for study 3

Variable	Mean	SD	1	2	3	4	5	6	7	8
1 Gender	1.51	0.5	1							
2 Age	40.78	16.17	-0.01**	1						
3 Income group	4.69	2.34	-0.04***	-0.07***	1					
4 Social class	3.3	0.98	0.00	0.03***	-0.43***	1				
5 Conservative	5.71	2.34	-0.02***	0.00	0.04***	-0.05***	1			
6 Change in unemployment	-0.17	1.31	0.00	-0.02***	-0.03***	0.00	0.00	1		
7 Lack of control	4.08	2.38	0.03***	0.01***	-0.15***	0.14***	-0.07***	0.03***	1	
8 Dominant leader	2.2	1.02	0.01*	-0.01***	-0.05***	0.03***	0.05***	0.01***	0.02***	1

P values: **P* ≤ 0.05, ***P* ≤ 0.01, ****P* ≤ 0.001; *n* = 138,323.

Table S5. Study S1 regression results using random coefficient modeling

Variable	Choosing a dominant leader			Dominance characteristics		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant				34.93*** (4.888)	33.99*** (5.795)	26.96*** (6.200)
Controls						
Gender ^{†,‡}	-0.414* (0.172)	-0.384* (0.170)	-0.403* (0.175)	-1.250 (1.559)	-1.212 (1.565)	-1.344 (1.558)
Age [†]	0.005 (0.008)	0.005 (0.008)	0.005 (0.008)	0.067 (0.065)	0.066 (0.065)	0.0672 (0.065)
Income [†]	-0.037 (0.063)	-0.023 (0.061)	-0.030 (0.062)	0.310 (0.498)	0.330 (0.503)	0.274 (0.500)
Duration living in the zip code [†]	0.205 (0.115)	0.212 (0.112)	0.202 (0.114)	0.597 (0.648)	0.607 (0.650)	0.501 (0.647)
Liberal [†]	-0.174** (0.054)	-0.173** (0.055)	-0.165** (0.054)	-1.922*** (0.412)	-1.922*** (0.413)	-1.831*** (0.411)
Total population [§]	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Population density [§]	0.200 (0.136)	0.181 (0.136)	0.193 (0.139)	2.041* (0.909)	2.019* (0.912)	2.159* (0.907)
No. of zips in the country [§]	-0.006* (0.003)	-0.006* (0.002)	-0.006* (0.002)	-0.008 (0.018)	-0.007 (0.018)	-0.007 (0.018)
Independent variables						
Personal control [¶]	-0.437* (0.182)	-0.438* (0.182)	1.124 (0.681)	-1.761 (1.502)	-1.776 (1.504)	14.17** (5.454)
Economic uncertainty [§]		2.485 (1.322)	4.989** (1.822)		3.797 (12.41)	37.73* (16.62)
Interaction						
Personal control × economic uncertainty			-7.128* (3.020)			-74.21** (24.41)
N (level 1)	813	813	813	813	813	813
N (level 2)	51	51	51	51	51	51
Adjusted R ²				0.03	0.03	0.04

P values: * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$; SEs are shown in parentheses.

[†]Measures self-reported by participants.

[‡]Categorical variable (1 = male, 2 = female).

[§]Measures obtained from the external economic database (36).

[¶]Categorical variable (1 = high personal control, 0 = low personal control).