Rural Identity as a Contributing Factor to Anti-Intellectualism in the U.S.

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Accepted: 1 January 2022 / Published online: 2 February 2022

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Abstract

Anti-intellectualism—a distrust of intellectuals and experts—has had a significant political presence in the U.S. and globally, especially in recent years. Anti-intellectualism drives support for phenomena such as populism, a rejection of scientific consensus, and health and science misinformation endorsement. Therefore, discovering what drives someone to be more anti-intellectual is highly important in understanding contemporary public opinion and political behavior. Here, I argue that a significant and overlooked factor contributing to anti-intellectualism is rural social identification—a psychological attachment to being from a rural area or small town—because rural identity in particular views experts and intellectuals as an out-group. Using 2019 ANES pilot data (N=3000), original survey data (N=811) and a separate original survey experiment, I find that rural social identification significantly predicts greater anti-intellectualism. Conversely, anti-intellectualism is not significantly associated with rural residency alone, as theoretically speaking, simply living in a rural area does not capture the affective dimension of rural psychological attachment. These findings have implications for health and science attitudes, populist support, and other relevant political matters. They also have implications for what it means to hold a rural identity beyond anti-urban sentiment, and for understanding the urban–rural divide.

Keywords Anti-intellectualism · Social identity · Urban–rural · Rural identity

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Introduction

Anti-intellectualism—a negative affect toward or distrust of experts and intellectuals (Barker et al., 2021; Motta, 2018)—is a fixture of our contemporary society. Though it is not new (Hofstadter, 1963), anti-intellectualism drives people to reject scientific consensus around topics such as climate change, COVID-19, vaccines, and more (Merkley, 2020; Merkley & Loewen, 2021). This rejection of scientific fact and consensus has likely caused widespread negative consequences such as loss of life, environmental destruction, poor economic outcomes, and more. Further, those who are anti-intellectual tend to be supportive of populism, including Trump in the U.S. (Merkley, 2020; Motta, 2018; Oliver & Rahn, 2016). Therefore, understanding anti-intellectualism and what drives it is crucial to understanding our current political climate and attitudes surrounding health and science.

However, there has been relatively little research on why some people are anti-intellectual. Anti-intellectualism, by definition, relates to intergroup attitudes and affect (Barker et al., 2021). Here, I use theoretical expectations from intergroup social psychology to argue that an overlooked but significant factor driving anti-intellectualism is rural identity, or a psychological attachment to being from a rural area. Established political science literature on rural identity conceptualizes it as being affectively opposed to urban areas, as rural residents perceive urban areas to look down on rural areas and forget about them in decision-making (Cramer, 2016). However, recent work has expanded on this and suggested that the term “urban” may be a blanket term that covers certain groups, such as non-whites for white rural Wisconsinites (Nelsen & Petsko, 2021). I continue down this vein of thought and argue that another prominent “urban-affiliated” group are intellectuals and experts, who are seen by rural identifiers as unduly telling others what to do while lacking in common sense—a norm affiliated with rurality.

Using original experimental evidence alongside two cross-sectional survey data sets, one original ($N = 811$) and one ANES pilot ($N = 3165$), I show that rural social identification positively and significantly predicts anti-intellectual sentiment. Since the link between rurality and anti-intellectualism is group-based and affective—i.e., identity based—then theoretically rural residency alone should not significantly predict anti-intellectualism. I find that this is also the case.

This study highlights how adopting a particular social identity leads to group-based orientations that foment anti-intellectualism, and how this link depends more on subjective psychological identification than objective group membership. Addressing anti-intellectualism among rural identifiers may therefore be a key step in reducing rejection of scientific consensus among the public. In addition, this study contributes to literature on the urban–rural divide and rural politics. Though previous work has found different ways of measuring the urban–rural divide vary, and that subjective identification may matter especially for political outcomes (Nemerever & Rogers, 2021), this study helps clarify what drives these distinctions. I also empirically verify qualitative work suggesting that anti-intellectualism is an associated value with rural identity using national data; though

rural consciousness has been found to correlate with anti-intellectualism using quantitative data (Nelsen & Petsko, 2021), this area has not fully been explored, nor has its causal direction.

What is Anti-Intellectualism, Who is an Anti-Intellectual, and Why Does It Matter?

Hofstadter (1963) defines three forms of anti-intellectualism—a distrust of or negative affect toward experts and intellectuals—but emphasizes one in particular: anti-elitism that represents distrust and dislike of experts purporting to have more knowledge on a subject. This definition also distinguishes anti-intellectualism from other forms of anti-elitism or populism due to its knowledge or expert-oriented specificity. Anti-intellectualism has been on the rise for decades in the U.S. (Lewandowsky & Oberauer, 2016; Oliver & Rahn, 2016), particularly, but not exclusively, on the political right (Gauchat, 2012; Motta, 2018).

Anti-intellectualism generally predicts populist support and attitudes related to science and health. This is because people will adopt information—including misinformation—that comports with their prior political, group-based, or attitudinal predilections (Kunda, 1990; Miller et al., 2016). Conversely, people will reject information that goes against their priors. For this reason, those high in anti-intellectual attitudes are more likely to accept information that goes against scientific and expert consensus because that information comes from people distrusted or disliked. Consequently, this makes anti-intellectualism a significant predictor of misinformation endorsement on a variety of issues, including climate change, vaccines, COVID-19, and GMOS, among others (Farhart et al., 2022; Merkley, 2020; Motta, 2018, 2020; Stecula et al., 2020). Such motivated reasoning is more likely to occur among those who have increased knowledge or awareness of related topics, as increased salience and knowledge allows them to link misinformation to underlying tendencies (Kahan, 2012; Schaffner & Luks, 2018).

For instance, the overwhelming majority of scientific experts agree that the global temperature has increased in the past century due to human actions, including the burning of fossil fuels and CO₂ (Cook et al., 2016). However, people higher in anti-intellectualism are less likely to believe this information and are more likely to believe misinformation about climate change (Merkley, 2020; Motta, 2018). Similarly, recent research finds that anti-intellectualism correlates with belief in COVID-19 vaccine misinformation and in misinformation related to GMOs (Farhart et al., 2022; Merkley, 2020; Merkley & Loewen, 2021). Additional demographic and psychological factors may increase the tendency for motivated reasoning and misinformation adoption alongside anti-intellectualism, including rurality, gender, religiosity, education level, race/ethnicity, and disgust sensitivity (Callaghan et al., 2019, 2021; McFadden, 2016). Climate change skepticism is higher on the right (Cook et al., 2016), while vaccine misinformation endorsement has been slightly higher among those on the right (Motta, 2021). GMO misinformation endorsement has been roughly equal among Republicans and Democrats according to survey data by Pew (Pew Research Center, 2016).

Despite anti-intellectualism's known link to misinformation endorsement, who is anti-intellectual in contemporary society, or why, has not been fully explored. Barker et al. (2021) finds that those who are anti-intellectual tend to be more Republican, though not exclusively (see also Motta, 2018), and that they are higher in epistemic hubris. Being a Trump supporter (i.e., a supporter of a right-wing populist candidate) also significantly correlates with anti-intellectualism (Oliver & Rahn, 2016). Further, pro-intellectualism, very predictably, is negatively associated with anti-intellectualism (Barker et al., 2021). Motta (2018) also finds that higher religiosity, lower education level, lower income level, being female, older age, greater conservatism, and not being white also significantly and positively predict anti-intellectualism. That said, few of these delve into the underlying motivations or reasons for why certain groups tend toward anti-intellectualism.

This section has highlighted how anti-intellectualism—a distrust in experts—has been found to correspond with the rejection of scientific consensus, misinformation endorsement, and populism. It also briefly reviewed the correlates of anti-intellectualism, concluding that less is understood on what might drive people to anti-intellectualism. In the following section, I propose why some individuals may be more anti-intellectual by first outlining what rural identity means, and then exploring how it may drive anti-intellectualism.

Rural Identity and Anti-Intellectualism

According to social identity theory (SIT), social identification occurs when a group member derives self-esteem from group membership, adopts the values, norms, and interests perceived to be characteristic to the group, and feels a positive psychological attachment to that group and its members (Tajfel, 1981; Wong, 2019). Social identification occurs not simply if one is part of the group, as this is group categorization or membership. Rather, social identification necessarily includes a psychological affiliation internally felt by the individual group member.

Since increased self-esteem or other psychological benefits are driving motivations behind social identification, group identifiers try to promote positive in-group connotations and distinctions (Branscombe et al., 1999; Tajfel, 1981). There are different ways to distinguish the in-group positively. One way is to establish morals and values associated with the group; this can be seen, for example, with distinct moral systems along partisan or ideological lines (Goren, 2005; Hatemi et al., 2019). The aim of attaching positive values to a group and its members is to promote the group's status in society. Often another way to create a positive distinction is to give negative attributes to out-groups, especially those perceived as posing a threat or those who are of a higher status (Branscombe et al., 1999; Huddy, 2003). Doing so provides a contrast (a positive distinction) and makes the in-group seem relatively better (Scheepers & Ellemers, 2019). In other cases, lower-status out-groups are scapegoated for similar reasons.

How does this relate to a rural social identity? Previous work in sociology, and political science to a lesser extent, finds evidence to that rural identity exists in a meaningful way. This work further suggests that not only are there rural social

identifiers, but also that this rural in-group feels threatened by and demeaned by others relating to urban areas or to people with more power and status. Lyons and Utych (2021) find that rural and urban areas are affectively polarized against one another; this affective dimension is crucial to the existence of a social identity. Effective political appeals to certain groups also point to the existence of a social identity group; Jacobs and Munis (2019) find that rural imagery and rural-based appeals change average candidate evaluations for rural respondents. Another study finds that federalism encourages place-based attachments and social identification (Jacobs & Munis, 2020). Work by Cramer (2012, 2016) argues that rural residents in Wisconsin feel looked down on and forgotten by people from other parts of society, particularly those in the urban centers of the state. Ching and Creed (1997) argue that society, including rural residents themselves, sees rural residents as below urban residents in terms of cultural hierarchy, where city-dwellers are the assumed norm. Urban areas are often perceived as sophisticated, creative, and bastions of progress, while rural areas are characterized by larger society as backwards, ignorant, and generally inferior (Lay, 2012).

Since rural identifiers belong to a group that feels devalued by society, group members need to create a positive in-group distinction. As previously mentioned, one way is to differentiate along group-based values. The majority of respondents in rural areas perceive their values to be different from those in urban areas, for instance (Parker et al., 2018). Another way is to distrust or create a sense of otherness from those seen as threatening to the in-group. Although urban areas are typically the out-group of rural areas in academic literature (Cramer, 2016; Lyons & Utych, 2021; Munis, 2020), which groups are considered “urban” may also have implications for what rural areas view as out-groups. For instance, Nelsen and Petsko (2021) find that white rural Wisconsinites see the typical urban resident in the state as relatively non-white.

I argue that another urban-related out-group is experts or intellectuals. Ching and Creed (1997) postulate that anti-intellectualism relates to rural identity specifically due to both objective differences in education levels between rural and non-rural areas, as well as stereotypes of urban and rural areas. Intellectuals tend to be associated with cities while rural areas are stereotyped as undereducated, ignorant, and thus inferior. Some of these stereotypes may stem from longstanding disparities in educational access across the urban–rural spectrum; rural areas are at a disadvantage in access to higher education (Sowl & Crain, 2021).

In addition, rural identifiers may feel directly threatened by intellectuals and experts. Hofstadter (1963) finds anti-intellectualism to be particularly prominent in parts of rural America because university-based extension agents and other agricultural researchers from universities would often impose updated farming practices on local farmers; in effect, expert outsiders were perceived as telling people how to do their jobs. Similarly, and more recently, Cramer () notes that rural residents not only felt disrespected or looked down upon by urban areas and public officials—many of whom are affiliated with urban academic institutions—but also resented these individuals for telling rural residents how to run their lives. The rural interviewees in Cramer’s work were proud of their rural way of life and values, which include hard work and common sense—all of which are

perceived to stand in opposition to intellectualism. Other sociological studies of rural areas find similar out-group resentment and anger against urban-affiliated professionals, experts, and the federal government (Hochschild, 2018; Wuthnow, 2019). In line with these expectations from ethnographic work, Nelsen and Petsko (2021) find racial resentment to significantly correlate with rural consciousness, and that rural consciousness also correlates with anti-intellectualism.

For all these reasons, rural identifiers prize and take pride in common sense and real-world experience, a type of knowledge that are perceived to be devalued or dismissed by intellectuals and experts. Not only this, but rural identifiers perceive intellectuals and experts as being higher status and as looking down on rural areas, which breeds out-group dislike and resentment. Thus, information communicated by experts may be less likely to be followed or taken seriously by strong rural identifiers, and political actors espousing anti-intellectual sentiment should similarly be more popular. This should be particularly true of rural *identifiers* and not necessarily those who just reside in rural areas, as the mechanism outlined by SIT above depends on psychological attachment to the group.

Hypotheses

Given the above discussion, I propose the following set of hypotheses. As noted above, intellectuals and experts theoretically constitute an out-group for rural areas; one psychologically identifies with the in-group and notices the group's position compared to other groups in society. Negative out-group affect is formed particularly when the out-group is perceived to be a threat to in-group status (Branscombe et al., 1999; Huddy, 2003). Given the literature on rural identifiers outlined above, it follows that rural identifying respondents—particularly strongly rural identifying respondents—should be more likely endorse anti-intellectualism.

Hypothesis 1 (H1) Measures of rural social identification will positively and significantly predict anti-intellectualism.

Hypothesis 2 (H2) Experimentally increasing the salience of rural social identification for rural respondents will correspond with increased levels of anti-intellectualism.

Conversely, just living in a rural area alone should not theoretically promote this in-group/out-group dynamic. Some rural residents who do not psychologically identify with the group will be less likely to hold animosity toward an out-group, because they are not necessarily an out-group in the first place.

Hypothesis 3 (H3) Measures of rural residency will not significantly predict anti-intellectualism.

Since I argue that anti-intellectualism is specific to rurality and not necessarily to place affiliation in general, people who identify with non-rural areas of the urban–rural continuum should *not* be higher in anti-intellectualism. In other words, a different place identification—such as an urban or metro identification—should not be significantly and positively related to anti-intellectualism:

Hypothesis 4 (H4) Metro identity will *not* be significantly associated with anti-intellectualism.

Data, Measures, and Methods

To test these expectations, I rely on two survey data sets—one from Lucid and one from the ANES—as well as evidence from a separate survey experiment and its replication.¹ This section provides a description of these different data sources, the measures used, and the methodological approaches. An overview can be found in Table 1.

Regarding the first data set, I fielded a demographically diverse survey of U.S. adults (N=811) in mid-August 2019 using Lucid’s Fulcrum Academic service (referred to as “Lucid”). Though not nationally representative, Lucid targets representativeness on several known demographic benchmarks—including race, age, sex, household income, and Census region. Coppock and McClellan (2019) find that demographic and experimental findings on Lucid are similar to those of U.S. national benchmarks. Lucid has been used for survey data collection in previous studies on similar topics (Callaghan et al., 2019; Lunz Trujillo et al., 2021). I also account for potential deviations from representativeness by using post-stratification weights matched to population benchmarks on race, age, sex, income, and educational attainment. More information can be found in section A of the supplement.

I also use data from the 2019 ANES Pilot study (“”) to test the above hypotheses. The pilot was conducted using non-probability sampling and was fielded on American adults online through YouGov—an online opt-in panel—in December 2019 by taking a random sample of individuals from a nationally representative pool (according to 2016 Census data) (N=3165). Since this was an online opt-in panel, to further approximate national representativeness, YouGov used propensity score matching to get a sample as close to Census targets as possible and ended up with a sample size of 3165 respondents. YouGov also developed weights according to respondent race, age, gender, education level, and 2016 presidential vote choice (ANES, 2019); more information can be found in Table A4 in the supplemental materials. This method produces a sample that looks similar to a probability sample on the matched characteristics but may still differ in unknown ways on unmatched characteristics.

¹ Note: data files and replication code for this study can be found on the *Political Behavior* Dataverse here: <https://doi.org/10.7910/DVN/ZXYKLX>.

Table 1 Overview of study data sources

Data set name	Date fielded	Survey source	Sample size	Analyses	Experimental conditions	Hypotheses primarily tested
Lucid	August 2019	Lucid	N = 811	Correlational—regressions	–	H1, H3, H4
ANES	December 2019	ANES pilot (2019)—YouGov	N = 3165	Correlational—regressions	–	H1, H3
Experiment (initial)	August 2020	Lucid	N = 334	Experimental— <i>t</i> tests and regressions	<i>Control</i> (no article) and <i>One Treatment Condition</i> (article increasing rural identity salience)	H2
Experiment (replication/validation)	December 2020	Lucid	N = 495	Experimental— <i>t</i> tests and regressions	<i>Control</i> (no article) and <i>One Treatment Condition</i> (article increasing rural identity salience)—identical to initial experiment	H2

The first variable I operationalize is rural residency. There are various ways to define and measure this term, and decades of academic research by sociologists, demographers, geographers, and other scholars have debated the best way to do so (such as Hart et al., 2005; Miller & Luloff, 1981; Nemerever & Rogers, 2021). Researchers often use definitions and quantitative scales created by government agencies based on objective criteria, such as population density, population size, and distance from metropolitan centers. These include measurements such as the Rural–Urban Commuting Area Codes (“RUCA”), which were developed by the USDA and the University of Washington. The 10 basic RUCA codes, which can be divided into 33 more granular codes, are based on Census tracts. These codes are defined according to whether an area is a metropolitan center or small-town core (according to population density), along with the percent of the population that commutes to such cores. I use RUCA codes as one measure of living in a rural area in the Lucid data. To translate the RUCA codes into an urban/rural dichotomous measure, I collapse the 10-code measure into metro (designations 1–3) and non-metro (designations 4–10), as this is one way to capture rural versus non-rural using these codes (see Nemerever & Rogers, 2021, p. 274).

However, the source of the RUCA codes at the University of Washington and the USDA recommends using another categorization of urban versus rural using the more granular 33 RUCA codes (RUCA Rural Health Research Center, *n.d.*). This alternative classification strategy (“Categorization A”) is detailed in the supplemental materials. For this reason, I analyze the data using both transformations of the RUCA codes. The alternative coding schema does not yield notably different results in the present study. I also measure rural residency based on whether the respondent said that they currently live in a rural area, or if they grew up in a rural area.

The above hypotheses suggest that this RUCA measure of rural residency should not significantly correspond to anti-intellectualism. However, rural social identification should. To measure rural identity, and its counterpart, metro identity, I adapt the partisan identity strength scale by Huddy and colleagues (Huddy, 2001, 2013; Huddy et al., 2015) for the Lucid survey. These studies argue that the political effects of social identities are most pronounced among stronger identifiers, so measuring the strength of the identity is key in understanding the nature and degree of the identity’s impact on outcomes of interest. The supplemental materials list the question wordings for the five-item battery used to measure rural (and metro) identity strength. Respondents were only given the rural identity strength questions if they said that they either grew up in a rural area, or if they currently live in a rural area ($N=486$). All other respondents were given the metro identity strength questions ($N=324$). The scale reliability coefficient of the five items is 0.90 (0.89 for the metro identity strength items). Figure A2 in the supplement shows the distribution of this measure in the Lucid data. Table 3 below shows the cross-tabulation of rural identity and rural residency for the ANES data.

Rural residency in the ANES data is measured according to whether the respondent said that they currently live in a rural area or small town, based on Munis (2020). Rural identity is measured according to one of two versions. The first version of the question asks respondents, “Regardless of where you currently live, do you usually think of yourself as a city person, a suburb person, a

small-town person, a country (or rural) person, or something else?”, while the second version of the question asks, “Regardless of where you currently live, where do you feel you belong or fit in the best: cities, suburbs, small towns, or the countryside (rural areas)?” If the respondent selected either version’s small town or rural/country response, they are coded as a rural identifier. This differs from the Lucid study question, as it measures rural identity using only one question. However, it still captures the difference between how someone feels or identifies—getting at the psychological dimension—versus the categorization or objective measurement of the rural residency question.

The anti-intellectualism measure comes from Oliver and Rahn’s (2016) scale, which is used for the Lucid and ANES studies, and in the experiment. The scale is divided into two parts: anti-intellectualism and anti-elitism. This anti-intellectualism subdimension of the populism scale has been used to measure anti-intellectualism in previous work (such as Motta, 2018) and employs three items. The first asks how much respondents put trust in the wisdom of ordinary people rather than in experts. The second asks how much respondents agreed that, when it comes to really important questions, scientific facts do not help very much. Finally, respondents indicate how much they agree that ordinary people can really use the help of experts to understand complicated things like science (reverse-coded). Response options for all three are a seven-point Likert scale ranging from “Strongly Agree” to “Strongly Disagree”. The scale reliability coefficient of these three measures is 0.44 for the Lucid data and 0.71 for the ANES data. Page 10 of the supplemental materials shows the distribution of this measure.

The regression analyses also include demographic control measures that could account for factors driving the link between rural identification and anti-intellectualism, based on previous research. These include political and religious variables that have been found to correlate with both rurality and anti-intellectualism, specifically party identity strength (7-point scale), symbolic ideology (7-point) (Gimpel et al., 2020; Motta, 2018), and evangelical or born-again Christian (binary with evangelical or born-again Christian = 1) (Childs & Melton, 1983; Claussen, 2004). I also include standard demographic control variables like age (continuous variable), gender (binary with female = 1), race/ethnicity (a binary variable for Black and another for Hispanic), education level (seven-point scale), and household income (24-point scale). The ANES models also include respondent region (Northeast, South, Midwest, and West) with the base region being the Northeast. The distribution for the anti-intellectualism variable (which follows a normal distribution) can be found in the supplemental materials on pages 10 and 19. The correlations of all variables used can be found on pages 9 and 17 of the appendix.

The Lucid and ANES data sets provide correlational tests in support of the hypotheses, but they do not provide evidence for the implied causality of rural identification leading to anti-intellectual sentiment. Existing studies have found causal evidence that manipulating the level of anti-intellectualism in information provided to respondents affects opposition to areas of expert consensus (Merkley, 2020). The theory discussed above by SIT suggests the in-group psychological attachment forms first and then out-group affect forms (Branscombe et al., 1999; Huddy, 2003). To back up this theoretically assumed causal relationship, I experimentally

manipulate rural salience for those who self-identify as rural and use the anti-intellectualism scale as the dependent variable.

In early August 2020 and again in December 2020 as validation, I conducted a survey experiment using Lucid. This experiment, while also using Lucid, was run separately from the Lucid survey data described above from August 2019. The initial experiment was conducted in August 2020. Here, 360 individuals consented to take the survey; 334 remained after adding in RUCA codes and excluding respondents who did not answer the key variables in the analyses. Information on the demographics of the respondents can be found in Table A7 of the supplement. Respondents were asked what best describes the community that they grew up in. Those who said “rural” were coded as rural residents. Then, respondents were asked what best describes the community they currently live in. Those who said “rural” here were also coded as rural residents. For the second validation experiment, respondents were also given the options of “rural” or “small town” for current or grew up location; these rural and small town respondents are both considered rural here.

All respondents were assigned to one of two experimental conditions: the control condition (“Control”) or the treatment condition (“Treatment”). Respondents in the treatment condition ($N=164$) first received a message saying that they would read an excerpt from a local newspaper on the following screen. Then, respondents viewed a picture of a rural landscape, and were presented with a short 121-word paragraph highlighting the benefits of living in a rural area. This paragraph also talks about how many younger people who grew up in rural areas are moving back. This treatment is meant to increase in-group salience through making participants generally more aware of rurality and by highlighting positive in-group characteristics to increase in-group pride. At any point in time, people hold various social identities. Whichever social identities are relevant at any given moment depends on the salience and strength of that identity (Huddy, 2003). If a particular identity is more salient, then any values or associations with out-groups should also be heightened. Though this treatment should not affect those who are not rural social identifiers, the overall mean of the treatment group should increase for those exposed to the treatment, as the increase will be driven by the individuals who are the rural identifiers.

Respondents in the treatment group then answered the dependent variable. Those respondents who were assigned to the control condition ($N=170$) did not receive any treatment and only answered the dependent variable. The outcome variable is the anti-intellectualism scale by Oliver and Rahn (2016) measured in the same way the above analyses. The scale reliability coefficient of these three measures is 0.42, with an average interitem covariance of 0.02. See page 21 of the supplemental materials for details and specific treatment wording.

To verify these experimental results, I also fielded a replication study. This replication study was conducted via Lucid in December 2020 ($N=495$). The experiment is essentially identical to the initial experiment. After randomly assigning respondents to one of the two conditions, 237 were assigned to the above-described treatment meant to increase rural salience. The remaining 258 were assigned to the control condition and did not receive any text. All respondents were given two sets of three questions each to measure anti-intellectualism—the outcome variable—as well as the five-item rural identity strength battery. The rural identity strength here

serves as a manipulation check to verify whether the treatment increased rural identity strength. The rural identity versus anti-intellectualism scale order was randomly presented. The rural social identity strength scale has a Cronbach's alpha of 0.90. The anti-intellectualism scale has a Cronbach's alpha of 0.54. Since this is fairly low, I repeat all analyses using the two-question anti-intellectualism scale, which has a Cronbach's alpha of 0.71.

Results

Lucid Correlational Survey Analysis

To test the above hypotheses, I employ OLS regressions to first show that rural identity strength predicts anti-intellectualism, controlling for other factors (*H1*). Then, I show that anti-intellectualism is not simply correlated with any place-based identity; to do so, I run regressions with anti-intellectualism predicting a metropolitan, or “metro” identity to test *H3*. I also show that rural residency using an objective categorization measure (RUCA codes) does not predict anti-intellectualism (*H4*).

Table 2 below shows the relationship between anti-intellectualism and rural social identity strength for rural identifiers; this relationship is positive and statistically significant in both the bivariate model and in the model with control variables (Models 1 and 2), in line with expectations from *H1*. In addition, for rural respondents only I find that symbolic ideology significantly predicts anti-intellectualism (Models 1 and 2), but not for non-rural respondents (Models 5 and 6). The opposite is true of education level. Being Evangelical significantly and positively predicts anti-intellectualism across the board. Table 2 (Models 3 and 4) also shows that objective rural residency does not predict anti-intellectualism (in line with *H3*), while Models 5 and 6 show that metro social identity strength does not significantly or positively predict anti-intellectualism (*H4*). Note that the findings from Models 3 and 4 hold—i.e., they are not statistically significant—when using the alternative RUCA classification scheme (see Table A3a in the supplement).

Figure 1 below provides greater clarity on rural social identity strength's correlation with anti-intellectualism, based on Model 2 in Table 2 above. Moving from the weakest rural identity strength rating to the strongest rural identity strength rating, anti-intellectualism moves from a predicted score of 0.31 to 0.51—a 0.20-point difference on a zero to one scale. Therefore, the relationship between rural social identity strength and anti-intellectualism, according to these results, is statistically and substantively significant.

Recent work on place identity and partisanship suggests that there may be a different effect of place identity for Republicans versus Democrats (Munis, 2020). To investigate this, I also ran a version of Model 2 in Table 2 with an interaction term between rural social identity strength and partisanship. The table of results can be found in Table A3 of the supplemental materials. The interaction is statistically significant, and further analysis suggests that the effect of rural social identity strength on anti-intellectualism is actually greater for Democrats than Republicans (Fig. 2 below). This could be due to Republicans already tending towards greater

Table 2 Predicting rural social identity strength for rural respondents only, Lucid 2019 non-experimental data

	(1) Anti-intell.	(2) Anti-intell.	(3) Anti-intell.	(4) Anti-intell.	(5) Anti-intell.	(6) Anti-intell.
Rural social ID	0.202*** (0.034)	0.162*** (0.038)				
Metro social ID					– 0.066 (0.047)	– 0.052 (0.053)
Non-metro (RUCA)			0.021 (0.020)	0.009 (0.022)		
Party ID		0.019 (0.032)		0.027 (0.027)		0.056 (0.042)
Symbolic ideology		0.140*** (0.041)		0.136*** (0.035)		0.059 (0.060)
Age		– 0.035 (0.043)		– 0.064 + (0.034)		– 0.057 (0.055)
Gender		– 0.006 (0.018)		– 0.007 (0.015)		0.006 (0.025)
Black		0.042 (0.032)		– 0.008 (0.026)		– 0.061 (0.041)
Hispanic		0.025 (0.029)		0.033 (0.026)		0.045 (0.042)
Evangelical		0.049* (0.020)		0.084*** (0.016)		0.112*** (0.028)
Income level		– 0.012 (0.038)		– 0.022 (0.034)		– 0.049 (0.053)
Education level		– 0.005 (0.049)		– 0.059 (0.042)		– 0.148* (0.071)
Constant	0.310*** (0.022)	0.247*** (0.048)	0.410*** (0.008)	0.368*** (0.036)	0.430*** (0.029)	0.469*** (0.073)
Observations	486	426	811	719	324	293
Adjusted R^2	0.089	0.168	0.001	0.118	0.005	0.128

OLS regression model results. All variables have been recoded to range from 0 to 1. Data weighted to population benchmarks. Models 1 and 2 include self-identified current or grew up rural residents. Models 3 and 4 include all respondents. Models 5 and 6 include only those individuals who say they do not live or did not grow up in a rural area

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

anti-intellectualism (Motta, 2018), thereby attenuating the relationship between rural identity and anti-intellectualism for Republicans but not for Democrats.

Fig. 1 Predicted marginal effects of rural social identity strength on anti-intellectualism (Model 2, Table 1)

Fig. 2 Predicted interaction between rural identity strength and partisanship on anti-intellectualism, (Table A3, Lucid data)

ANES Correlational Survey Analysis

As mentioned above, I also use data from the 2019 ANES Pilot study to further test the above hypotheses. Since this data set has a rural identity question that was

Table 3 ANES distribution of rural/small town respondents and rural identity

	Non-rural identifier	Rural identifier
Not a rural/small-town resident	1452 (46%)	481 (15%)
Rural/small-town resident	328 (10%)	904 (29%)

Percentages in parentheses are the proportion of respondents in each category over all respondents in the study (N=3165)

asked to respondents living in different place categories, I can then interact residency with rural identity to examine whether the relationship of rural identity and anti-intellectualism differs between people who live in rural areas versus those who do not. Table 3 shows the distribution of respondents by rural identity and rural residency. Approximately 73% of rural and small-town respondents identify as being rural, while only 25% of non-rural respondents identify as rural. Of all rural identifiers, 35% are living outside a rural or small town and 65% are living in a rural or small-town area.

Using OLS regression, I show that rural identity positively and significantly correlates with anti-intellectualism, controlling for other factors (Model 1, Table 4). This aligns with expectations from *H1*. Substantively speaking, the effect is very small however: there is a predicted 0.03 difference (on a zero to one scale) between anti-intellectualism scores for rural identifiers versus other respondents (Fig. 3). As shown in Fig. 3, several other factors, such as education level, party identity, and especially symbolic ideology, have much larger substantive effect sizes when predicting anti-intellectualism. For instance, symbolic ideology has around 7.5 times the effect that rural identity has.

This differs greatly from the Lucid results (Table 2), where rural identity strength is the strongest predictor of anti-intellectualism. It is possible that the very small effect size in the ANES results is due to the differences in rural identity measures between the Lucid and ANES data sets. The ANES measure contains only one question, and for this reason may not capture the strength of identity as well as the five-item Lucid battery. Previous research suggests that strength of identity better accounts for effects of identity (Huddy, 2003; Huddy et al., 2015). This could explain the substantively strong effect of rural identity in the Lucid study and the experiment, compared to the relatively weak substantive effect in the ANES data.

Further, and once again, rural residency does not significantly predict anti-intellectualism (Model 2, Table 4), in line with expectations from *H3*. Notably, the relationship between rural identity and anti-intellectualism does not seem to be conditional on whether the rural identifier actually lives in a rural or small town (Model 3, Table 4). In addition, the relationship between rural identity and anti-intellectualism does not differ by partisanship in the ANES data (Model 4, Table 4), in contrast to the Lucid data. It is also worth noting that education level, income level, and age all negatively and significantly correlate with anti-intellectualism, while party identity, symbolic ideology, and being a Black respondent, all positively and significantly correlate with anti-intellectualism.

Table 4 Predicting anti-intellectualism for rural identity importance, compared to place identity importance for other areas, ANES data

	(1) Anti-intell.	(2) Anti-intell.	(3) Anti-intell.	(4) Anti-intell.
Rural identity	0.031*** (0.009)		0.035** (0.013)	0.029 + (0.015)
Rural resident		0.006 (0.009)	– 0.010 (0.016)	
Party ID	0.129*** (0.017)	0.132*** (0.017)	0.129*** (0.017)	0.128*** (0.020)
Symbolic ideology	0.225*** (0.020)	0.228*** (0.020)	0.225*** (0.020)	0.225*** (0.020)
Age	– 0.056** (0.020)	– 0.062** (0.020)	– 0.055** (0.020)	– 0.056** (0.020)
Gender	0.016 + (0.009)	0.016 + (0.009)	0.017 + (0.009)	0.016 + (0.009)
Black	0.035* (0.016)	0.032* (0.016)	0.034* (0.016)	0.035* (0.016)
Hispanic	0.015 (0.017)	0.012 (0.017)	0.014 (0.017)	0.015 (0.017)
Born-again Christian	0.041*** (0.010)	0.043*** (0.010)	0.042*** (0.010)	0.041*** (0.010)
Income level	– 0.049* (0.022)	– 0.053* (0.022)	– 0.051* (0.023)	– 0.049* (0.022)
Education level	– 0.104*** (0.016)	– 0.108*** (0.016)	– 0.105*** (0.016)	– 0.104*** (0.016)
South	– 0.010 (0.014)	– 0.010 (0.014)	– 0.010 (0.014)	– 0.010 (0.014)
Midwest	0.005 (0.012)	0.005 (0.012)	0.005 (0.012)	0.005 (0.012)
West	0.014 (0.013)	0.013 (0.013)	0.013 (0.013)	0.014 (0.013)
Rural identity = 1 × Rural resident = 1			0.000 (0.021)	
Rural identity = 1 × Party ID				0.003 (0.024)
Constant	0.322*** (0.021)	0.337*** (0.021)	0.324*** (0.022)	0.322*** (0.022)
Observations	2351	2351	2351	2351
Adjusted R ²	0.321	0.318	0.321	0.321

OLS regression model results. All variables have been recoded to range from 0 to 1. Data weighted to population benchmarks

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Fig. 3 Predicted effects of rural social identity on anti-intellectualism (upper left), compared to the predicted effects of symbolic ideology, party identity, and education level (Model 1, Table 4)

Experimental Results

To analyze the data from the initial experiment, I compare the anti-intellectualism means for four groups: (1) self-identified rural residents in the control group, (2) self-identified rural residents in the treatment group, (3) self-identified non-rural residents in the control group, and (4) self-identified non-rural residents in the treatment group. I expect that the mean score in group 2 should be significantly higher (according to a t test) than the mean score in group 1. This would provide support for rural identity driving anti-intellectualism, as I expect more rural identifiers in the rural residency group (and stronger identifiers in the rural residency group too). Furthermore, to control for other factors, I use OLS regressions predicting anti-intellectualism with an interaction between rural identifier (binary) and experimental condition (treatment = 1, control = 0) that should have a positive and significant coefficient. The controls are the same as those found in the above Lucid analyses.

Figure 4 below shows the mean anti-intellectualism scores for rural and non-rural respondents for each condition. Rural respondents in the control group had an average anti-intellectualism score of 0.33 [95% CI (0.25, 0.40)], while rural respondents in the treatment group had a mean score of 0.45 [95% CI (0.35, 0.55)]. In other words, the average treatment effect is 0.12 points on the zero to one anti-intellectualism scale. A t -test of the means between these two treatment groups for rural respondents rejects the null hypothesis that the means are the same with a probability of $p < 0.05$. This suggests a statistically significant difference in means; exposure to the treatment for rural respondents yielded higher anti-intellectualism scores, on average, compared to those in the control. These results confirm $H2$.

For non-rural respondents, the mean anti-intellectualism score for those in the control group is 0.41 [95% CI (0.38, 0.45)] and 0.36 [95% CI (0.33, 0.40)] for those in the treatment group. A t test of the means between these two treatment groups for non-rural respondents rejects the null hypothesis that the means are the same with a probability of $p < 0.05$. In other words, exposure to the treatment for non-rural respondents resulted in a very slight *decrease* in anti-intellectualism, compared to the control. Furthermore, these differences remain statistically significant when controlling for a variety of demographic variables. Please see Tables A9 and A10 in the appendix for more information.

As described above, I replicate the initial experiment to verify these experimental results. In the replication study, recall that I also include rural identity strength as a dependent variable to verify that the treatment increases rural identity salience. Note that I do *not* condition the analyses on rural identity strength. I find that, in the control condition only, rural identity strength and anti-intellectualism are moderately and positively correlated for self-identified rural respondents (0.27 for the three-item measure of anti-intellectualism, 0.26 for the two-item measure). Conversely, rural residency is not correlated with anti-intellectualism for those in the control group: the three-item measure of anti-intellectualism, is correlated with the rural residency measure at -0.05 . The two-item measure of anti-intellectualism is correlated with rural residency at -0.01 , i.e., they are uncorrelated. These findings echo results from the sections above and hold when controlling for other factors (see Table A13

Note: The difference in means (t-test) is statistically significant for both the left- and right-hand graphs. Results for non-rural respondents can be found in the supplemental materials. 95% confidence intervals shown.

Fig. 4 Average anti-intellectualism scores by experimental condition and rural self-identification

in the supplemental materials for details). This is again in line with expectations in *H1* and *H3*.

The results of the replication experiment are similar to those of the initial experiment for rural residents. For the full three-item scale of anti-intellectualism, participants in the treatment condition have a mean score of 0.40, while those in the control have a mean score of 0.33; this difference in means is statistically significant ($p=0.03$). Using only the two-item anti-intellectualism scale yields similar results, according to a t test ($p=0.05$). Though substantively speaking these effects are smaller, its direction is consistent with the initial study. These results can be found in Figs. A5 and A6 in the appendix.

Further, for all respondents (regardless of where they live or grew up), the mean three-item anti-intellectualism score is 0.34 in the treatment group and 0.42 in the control group. These means statistically differ from one another ($p<0.001$). For all respondents in the control group, the mean two-item anti-intellectualism score is 0.36, compared to 0.47 in the control group ($p<0.001$).

In addition, rural identity strength among the treatment group was higher on average (0.55) than rural identity strength among the control group (0.48). The difference is statistically significant according to a t test ($p<0.01$). This serves as a check to verify that the treatment does indeed manipulate rural identity strength, suggesting that the treatment effectively makes rural identity more salient.

Discussion and Conclusion

The above results imply that rural social identity drives anti-intellectual attitudes. These two constructs are significantly correlated, and experimentally increasing rural identity salience results in higher anti-intellectualism scores compared to the control group (on average) for rural respondents. I argue that this relationship is specific to rural identity and does not translate to identification with urban or metropolitan areas; the results show this to be the case. In addition, just living in a rural area also does not significantly predict anti-intellectualism, in line with theoretical expectations from SIT.

Further, the ANES analysis also suggests that the effect of rural psychological identification does not differ between rural versus non-rural residents. This implies that, when it comes to certain attitudes, place is in many ways a construct in the mind rather than a physical location. However, the experimental evidence does find a difference in how increased rural salience affects rural versus non-rural participants. It could be the case that the experimental difference is accounted for by rural respondents being more likely to identify as rural. Ideally the Lucid survey data could have also asked the rural social identity strength questions to all respondents to highlight the difference more clearly between rural identity and residency when considering anti-intellectualism. Future studies should delve into the differences between rural identifiers living in rural areas versus rural identifiers not living (or never having lived) in rural areas.

This study is limited in other respects. Though it purposefully only looks at rural social identity, it is possible that other previously unexplored types of social

identification predict anti-intellectualism, as anti-intellectualism is, by definition, group based. Similarly, rural social identity may encompass other values, norms, or group-based attitudes that shape politically relevant outcomes. For instance, perhaps certain other values or cultural signifiers of rural identity, such as hunting recreationally, determines policy attitudes toward guns. Further, it is unclear whether certain subgroups within rural identifiers *or* within anti-intellectual individuals—such as racial or regional differences—affect the dynamic explored here. Lastly, it is unclear whether rural identity beyond the U.S. context predicts anti-intellectualism in a similar manner. I suspect this may be the case, given widespread urban–rural divides among populism and certain health-specific attitudes, particularly in Western developed countries.

The results of this study imply that anti-intellectualism in American society is group-based and rooted in longstanding norms and attitudes relating to groups. In addition, subjective rural identification matters in certain ways compared to rural–urban categorical designations; rural identification encompasses a worldview not *necessarily* tied to current location. In other words, we must be choosy about how we measure rural–urban distinctions. Parts of this study also suggest that social identification with certain groups does not necessitate actual group membership. Rather, in select instances, social group identification may occur merely by adopting group values or norms and feeling positively toward those in the group.

These findings also have implications for the study of populism, misinformation adoption, science communication, and public health. Understanding what drives a major factor of people’s attitudes toward populism and information adoption is an important step in gathering greater support for science-backed evidence and policies. For instance, future studies could use the above findings to develop pro-health and pro-science communication strategies aimed at concerns and values specific to rurality. As we have seen in the past several years, the consequences of anti-intellectualism can be highly consequential and problematic; hopefully, this study can be one step closer to understanding why this is happening and how it can be managed.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11109-022-09770-w>.

Acknowledgements I thank the members of my dissertation committee at the University of Minnesota—Dr. Howard Lavine, Dr. Wendy Rahn, Dr. C. Daniel Myers, and Dr. Carrie Henning-Smith—for their feedback and support. This paper was also a product of the Center for the Study of Political Psychology at the University of Minnesota, which has aided my project with resources, support, and feedback. I also thank members of the University of Toronto’s PEARL lab, as well as the 2021 Politics and Life Sciences workshop participants, for their feedback. Finally, I would like to thank the editor and the anonymous reviewers for their valuable comments and suggestions for the manuscript.

Data Availability Replication materials for this study, including code and data files, can be found on the *Political Behavior* Dataverse here: <https://doi.org/10.7910/DVN/ZXYKLX>.

Declarations

Conflict of interest The author has no competing interests to declare that are relevant to the content of this article.

Ethical Approval This study has been declared exempt by the University of Minnesota's Institutional Review Board (IRB), institutional IRB IDs: STUDY00006213 and STUDY00011697.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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