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Creating sustainability transitions will require more than companies taking proactive measures in their own operations and supply chains. Fostering significant change will also require business leaders to harness their power to call for public policy solutions, a challenging proposition in a politically polarized environment. This paper focuses on how CEOs engage in the political process to encourage government policies that will foster sustainability transitions and address other social problems. Distinct from nonmarket strategy and traditional corporate social responsibility, the recent wave of CEO activism focuses on social issues unrelated to their core business, ranging from environmental issues to LGBT rights and race relations. Using two field experiments we provide evidence on how CEO activism can influence public opinions about government policies and consumer attitudes about the CEO's company. We conclude by providing a roadmap for future research on this emerging phenomenon.

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INTRODUCTION

Sustainability transitions that “lead to systemic adoption of markedly better practices in entire industries” (Delmas et al., 2017) cannot be achieved solely by the world’s largest corporations greening their operations and supply chains. The scale of many of today’s sustainability problems is simply well beyond the scope of companies’ numerous well-meaning but idiosyncratic efforts. For example, even the most environmentally-friendly operations and supply chain one could envision would have no appreciable impact on global climate change, a key environmental challenge of our time. But this does not mean that business leaders are powerless. On the contrary, business leaders may be particularly well-positioned to instigate sustainability transitions by using their bully pulpit to call for new public policies. However, in an era where sustainability touches on several controversial political issues, particularly in the United States, this kind of activism can also present challenges.

This paper explores the extent to which CEOs can influence sustainability transitions through their public activism. We take a broad view of sustainability to include not just environmental issues but a larger set of societal issues, including human rights. There has been a recent wave of “CEO activism”, where corporate leaders seek to influence social issues not directly related to their core business (Chatterji and Toffel, 2015). Distinct from nonmarket strategy and traditional corporate social responsibility, CEO activists have spoken out on topics ranging from climate change to LGBT rights and race relations to gender equality. For example, a number of business leaders, most prominently Apple CEO Tim Cook, spoke out publicly against Indiana’s Religious Freedom Restoration Act (RFRA) before and immediately after it was signed into law on March 26, 2015 (Cook 2015). Paul Polman, CEO of Unilever, has called on CEOs to take more prominent leadership roles in pushing for policies to address climate change.¹

¹ Paul Polman, “The business case for tackling climate change,” CNN, October 29, 2015, (<http://www.cnn.com/2015/10/29/opinions/polman-business-case-tackling-climate-change>) Last accessed December 2016.

Lloyd Blankfein, CEO of Goldman Sachs, publicly supported gay marriage in 2012 (*CBS News* 2013) and Sheryl Sandberg, COO of Facebook, is a frequent commentator on workplace gender equality and wrote a bestselling book on the topic (*Wall Street Journal* 2013). In another recent example, CEOs from 79 companies with over \$2 trillion in revenue publicly encouraged world leaders to secure an “an ambitious climate deal” at the 2015 Paris climate conference.² But despite this spate of CEO activism, our study is the first to our knowledge that examines whether CEO activism actually has the intended impact on public opinion.

There is some historical precedent for American business leaders speaking out on polarizing social and environmental issues, ranging from prohibition to capital punishment to civil rights (*Chicago Daily Tribune* 1927; *PBS* 2011; Burrell 2015). At a time when the United States is undergoing rapid demographic and social change, corporate leaders are once again emerging as prominent advocates on several controversial issues, hoping to influence the debate.

It is not obvious, though, that CEOs will successfully be able to shape public opinion in this era or what the potential downsides might be. Although some customers might view CEO activism favorably, others might be alienated by it, as happened when Chick-fil-A CEO Dan Cathy spoke out against gay marriage in 2012, sparking calls for boycotts of his fast-food restaurants on college campuses and leading some to question whether the company could successfully expand to the more politically liberal northeastern states (McGregor 2012; Horovitz 2014). When Howard Schultz, CEO of Starbucks, publicly urged his baristas to write “Race Together” on coffee cups in 2015 to encourage a discussion about race relations in the aftermath of several police shootings and the subsequent protests, the press largely ridiculed his efforts (*Economist* 2015). While prior academic work has explored the strategic implications of corporate social responsibility (CSR) (e.g., Lantos 2001; McWilliams, Siegel, and Wright 2006; Marquis and Qian, 2013; Flammer and Luo 2015) and how firms develop and deploy nonmarket strategy towards the government and other key stakeholders (e.g., Eesley and Lenox 2006; Mahoney, McGahan

² “Open Letter from CEOs to world leaders urging climate action.” November 23rd, 2015 (<https://www.weforum.org/agenda/2015/11/open-letter-from-ceos-to-world-leaders-urging-climate-action/>) Last accessed December 12th, 2016

and Pitelis 2009; McDonnell and King, 2013; McDonnell, King and Soule, 2015; McDonnell, 2015), our paper is among the first to estimate the impact of CEO activism on consumer attitudes.

We conducted a field experiment to investigate the effects of CEO activism on public opinion and consumer attitudes in the specific context of Cook's statements on Indiana's RFRA and in the efforts of several corporate leaders to shape public opinion on regulation to mitigate the effects of climate change. We view these two issues as part of the broad category of sustainability transitions (Delmas et al. 2017), related to protecting the natural environment and human rights. We adopt broadly similar approaches in studying both domains, with some important distinctions.

In the RFRA case, to investigate the influence on public opinion, we designed a set of one-question surveys that asked respondents to indicate their support for the law.³ In our baseline condition, we simply asked respondents whether they supported RFRA. In another condition, we prefaced this question with an unattributed statement indicating that some were concerned that this law would allow discrimination. We ran other conditions attributing this concern to Cook, to another business leader, or to particular politicians. We crafted our research design to discern whether mentioning the discrimination concern—and who expressed it—affected public support for the law. We developed a second set of one-question surveys to assess the influence of Cook's CEO activism on consumers' intent to purchase Apple products in the near future. We primed each respondent with a statement describing Cook's generic management philosophy, or with one describing Cook's opinion of RFRA, or with no statement at all. We then asked respondents to indicate their intent to purchase Apple products. We created these alternative versions to evaluate whether informing respondents about Cook's opinions affected their intent to purchase Apple products and whether the content of his opinions (generic management philosophy versus CEO activism) mattered. As described below, we randomly deployed these various survey conditions amongst respondents.

We find that exposure to Cook's statement that RFRA may allow discrimination resulted in 40 percent of respondents supporting the law, substantially less than the 50-percent support reported by

³ As described below, our alternative versions of this question were randomly inserted as "question 2" of a three-question survey deployed by CivicScience.

respondents who were not prompted with this statement; this was a statistically significant difference. We observed similar lower levels of support, ranging from 38 percent to 42 percent, among respondents who were presented with statements containing language identical to Cook's but attributed to another CEO or to a politician or not attributed to anyone. These results reveal that CEO activism can shape public opinion by framing the public discourse and suggest that they can do so as effectively as statements by politicians or unattributed remarks. The power of framing arguments to persuade audiences has been demonstrated in other settings (Grewal, Gotlieb, and Marmorstein 1994; Lakoff 2004; Scheufele and Tewksbury 2007), but not every activist commands a large audience. However, since the media often widely report CEO statements (c.f. Westphal and Deephouse, 2011)—especially on contentious topics—our results imply that when CEOs frame public discourse, they have the potential to shape public policy. We also find suggestive evidence that the effect of framing depends on the audience. Our subsample analysis reveals that Cook's discrimination remarks erode RFRA support among advocates of same-sex marriage, but not among opponents. By contrast, the unattributed statements of concern that RFRA would allow discrimination do erode support for the law even among same-sex-marriage opponents.

Turning to the potential influence of CEO activism on consumers, we find higher intent to purchase Apple products among respondents who were exposed to Cook's CEO activism than among those who were not. (Even if respondents in the control group were aware of Cook's advocacy through other channels, it would introduce bias against finding a difference between the groups.) We find strong evidence indicating that Cook's CEO activism, and not simply the mention of him, drives this effect. Moreover, we find that same-sex-marriage supporters drive this effect; we find no evidence that Cook's statements altered the purchase intent of same-sex-marriage opponents. These results suggest that CEO activism can serve as a signal, letting consumers know where a company leader stands on a controversial issue and potentially galvanizing support and generating goodwill for the company, especially among those who already support the CEO's stance.

After providing evidence that CEO activism can have an impact on a specific sustainability issue, in this case public opinion about human rights, we turn to addressing some of the underlying mechanisms

in a different context, climate change, Employing the same approach as above, we use the Civic Science platform to ask users the following baseline question: “Do you think the U.S. government is doing too much, too little, or about the right amount in terms of addressing climate change?”. We then run several variations of treatments, prefacing this question with preambles stating that “CEOs from many S&P 500 companies”, “many award winning actors” and “some” individuals believe that climate change is one of the biggest threats confronting various entities, including our country, our economy and the next generation. We find no statistically significant impacts from these treatments and no evidence that CEOs as an unnamed group are more effective advocates than others, including celebrities Moreover, we find no evidence that the influence of climate change messages varies depending on whether the issue is framed in economic, nationalistic or moral terms. As we detail below, we reflect on the extent to which these results might relate to our choice of unnamed groups of individuals as opposed to a single, identifiable CEO and the underlying differences between climate change and LGBT rights.

Our results provide some evidence that CEOs can shape public opinion and purchasing intent, which is an important step in driving wide-scale adoption of new sustainability practices. However, the findings, particularly of study 2, should also remind us of the limitations of this approach to sparking transformative change. We discuss these implications below. First, we expand on the motivation for the study and discuss our experimental design. After presenting our results, we formulate implications for CEOs and other business leaders seeking to promote transition on environmental sustainability and related issues. We conclude by providing a roadmap to guide future research on this emerging phenomenon.

MOTIVATION

Firms have long pursued nonmarket strategies that aim to shape the rules of the marketplace; for example, by seeking to influence government policies on taxation, subsidies, trade, human resources, the environment, and other issues (e.g., Baron 1995; Bonardi, Holburn, and Vanden Bergh 2006; Baron 2012). CEOs are sometimes the key principals in executing nonmarket strategies, as when Microsoft CEO Satya Nadella lobbied Congress to change US immigration policy to allow in more high-skilled workers,

the very kind his firm relies on (Romm 2014). Many firms have also embarked on nonmarket strategies to promote environmental sustainability, such as when General Electric CEO Jeffrey Immelt advocated that the US government adopt clean energy policies (Behr 2010) that would promote his firm's large wind-turbine business, or when wind and solar company leaders encouraged ever higher renewable portfolio standards to encourage more environmentally-friendly sources of electricity generation, and Dupont's public support for the Montreal Protocol to phase out many ozone-depleting substances. Because these are nonmarket strategies, these instances constituted "win-wins": firms were attempting to change the rules of the game as part of their profit motive, and the rules changes they were advocating would also improve environmental quality.

Beyond efforts to shape the rules of the marketplace in ways that directly increase corporate profits, firms sometimes take public stances on issues that shape society more broadly that concern corporations and their leaders. For example, many companies rallied during the 1980s to defend affirmative action programs by filing amicus briefs in court cases and testifying to Congressional bodies (Kelly and Dobbin 1998). Some firms conduct ambitious programs to help underserved communities, such as Goldman Sachs's 10,000 Women program, which provides business training to women around the world (Goldman Sachs 2016). Such programs, however, face two kinds of critique. First, the literature on "strategic CSR" (Lantos 2001; McWilliams, Siegel, and Wright 2006; Porter and Kramer 2006) argues that if these efforts are not closely aligned with the organization's core business, their social impact will be limited. Second, these corporate initiatives suffer enduring suspicion that they are thinly veiled attempts to enhance brand equity and attract customers, rather than good-faith efforts to translate corporate values into social impact (e.g., Hess and Warren 2008; Karnani 2010; Lyon and Maxwell 2011).

These concerns make it challenging for companies to become "activists" for social causes. Business leaders, however, have the opportunity to speak out as individuals to try to influence social issues. We view the statements of Cook, Cathy, Schultz, Sandberg, Blankfein, and other corporate leaders

as examples of this kind of activity—that is, as CEO activism—which is distinct from nonmarket strategy, strategic CSR, and other kinds of corporate engagement with the public sphere.

As noted, these corporate leaders are speaking out on issues that are largely *unrelated* to their core businesses. Although race relations, gender equality, and LGBT rights are certainly relevant to the employees of Starbucks, Facebook, and Goldman Sachs, gains in these areas are unlikely to boost those companies' short-term operating performance. When Apple CEO Tim Cook spoke out against Indiana's RFRA, Apple was already perceived as providing an attractive working environment for LGBT employees (Frank 2013) and the company is primarily located in California, where there was no threat of similar legislation (Berry 2014).

To understand the conditions under which CEOs speak out, we build on Delmas et al. (2017), which highlights the policy lifecycle, which is comprised of four stages: initiation, early adoption, diffusion, and standardization. We view CEO activism as typically occurring in the early adoption and diffusion stages. Some instances of CEO activism involve pushing for specific legislation during the early adoption stage, such as when Duke Energy's then-CEO Jim Rogers spearheaded the U.S. Climate Action Partnership to advocate for legislation on greenhouse emissions.⁴ In other cases, CEO activism has taken the form of advocating against pending legislation, such as when Bill Oesterle, then CEO of Angie's List and well-connected to Indiana's politicians, personally lobbied against RFRA just *before* it became law. Similarly, Whole Foods Market CEO John Mackey wrote an op-ed in the *Wall Street Journal* to support alternative health reform measures as Congress was debating whether to pass the Affordable Care Act."⁵

In other cases, CEO activism occurs after legislation has been passed, particularly to build political will to repeal or oppose specific pieces of legislation, in some instances aiming to prevent diffusion. For example, days after the Indiana law was passed, Apple CEO Tim Cook wrote an op-ed in the *Washington Post* that criticized the Indiana law and a similar one recently enacted in Arkansas as

⁴ Mulkern, Anne C. 2010. "USCAP, Opponents Craft Rival Energy Strategies for New Congress." December 13th, 2010.

(<http://www.nytimes.com/gwire/2010/12/13/13greenwire-uscap-opponents-craft-rival-energy-strategies-60804.html?pagewanted=all>) Last accessed December 12th, 2016.

⁵ John Mackey. 2009. "The Whole Foods Alternative to ObamaCare." *The Wall Street Journal*. August 11th, 2009. (<http://www.wsj.com/articles/SB10001424052970204251404574342170072865070>) Last accessed December 12th, 2016.

“dangerous” and argued that similar bills, “introduced in more than two dozen states, would allow people to discriminate against their neighbors”.⁶ Two days later, nine CEOs from some of Indiana’s largest employers, including Eli Lilly and Anthem Health signed an open letter urging the governor and legislative leaders to modify the law to ensure it “will not sanction or encourage discrimination against any residents or visitors to our state by anyone.”⁷ This example is also notable because CEOs are also able to act as a group rather than individuals, an issue that we address directly in our experiment. Many other examples of CEO activism occurred soon after legislation was passed. Thomas Monaghan, founder and former CEO of Domino’s Pizza, sued the federal government on behalf of his business over provisions in the Affordable Care Act (“ObamaCare”) that required companies to provide employees with contraception coverage,⁸ arguing that contraception was “gravely immoral” and that mandatory provision violated his religious beliefs.⁹ Business leaders use both economic and moral appeals in their activism, a dimension we incorporate into our experimental design.

CEOs can use their economic leverage as part of the effort to build political support during this stage. Once RFRA became law with the governor’s approval, Oesterle suspended the ongoing negotiations with the state to expand the company’s headquarters in its capital, Indianapolis. That move, thought to cost the state millions of dollars of activity, was widely publicized and “dealt one of the most damaging political blows” to the governor.¹⁰ Similarly, the CEOs of PayPal and Deutsche Bank

⁶ Tim Cook. 2015. “Tim Cook: Pro-discrimination ‘Religious Freedom’ Laws are Dangerous.” *Washington Post*, March 29. https://www.washingtonpost.com/opinions/pro-discrimination-religious-freedom-laws-are-dangerous-to-america/2015/03/29/bdb4ce9e-d66d-11e4-ba28-f2a685dc7f89_story.html?utm_term=.a4589e2f4263

⁷ Jeff Swiatek and Tim Evans. 2015. “9 CEOs call on Pence, Legislature to Modify 'Religious Freedom' Law.” *Indianapolis Star*, March 31. <http://www.indystar.com/story/money/2015/03/30/nine-ceos-call-pence-legislature-modify-religious-freedom-law/70689924/>, accessed August 26, 2016.

⁸ “Domino’s Founder Sues Government Over Mandatory Contraception Coverage Required by Obama’s New Health Care Law,” *New York Daily News*, December 15, 2012, <http://www.nydailynews.com/news/national/domino-founder-sues-feds-mandatory-contraception-coverage-article-1.1221007>, accessed May 1, 2016.

⁹ “Domino’s Founder Sues Government Over Mandatory Contraception Coverage Required by Obama’s New Health Care Law,” *New York Daily News*, December 15, 2012, <http://www.nydailynews.com/news/national/domino-founder-sues-feds-mandatory-contraception-coverage-article-1.1221007>, accessed May 1, 2016.

¹⁰ Philip Bump. 2015. “How Angie’s List got involved in the Indiana religious freedom law.” *The Washington Post*. March 30th, 2015 (https://www.washingtonpost.com/news/the-fix/wp/2015/03/30/the-complicated-politics-behind-angies-lists-response-to-indianas-religious-freedom-bill/?utm_term=.1b2248edfb97), accessed December 12, 2016.

responded to North Carolina’s controversial HB2 law in 2016 by threatening to limit the number of jobs their organizations would create in the state until the law was repealed.¹¹

When corporate leaders speak out on issues unrelated to their companies’ core businesses, it is an open question whether they have much impact on the likelihood of sustainability transitions. Further, it is unclear whether this activism creates financial benefits—intentionally or unintentionally—for the firm. These are the two questions we seek to answer in our study. We also aim to understand how any impact might be conditioned by whether a single business leader or a group is speaking out and by how the issue is framed.

Although numerous studies have examined corporate campaign contributions (e.g., Ansolabehere, Figueiredo, and Snyder, Jr. 2003), lobbying (e.g., Hillman, Keim, and Schuler 2004), and CSR (e.g., Margolis and Walsh 2003), we know of no research that has explored CEO activism, although one recent study exploring a related phenomenon of corporate social advocacy found that consumers are more likely to buy products and services from firms whose political and social stances they support (Dodd and Supa 2014). Our study focuses on the role of individual leaders and not only examines the influence of CEO activism on purchasing intent, but also compares the influence that business and political leaders’ social statements have on public opinion on a given issue.

Ascribing causality from a relationship between CEO activism and particular outcomes is especially difficult using traditional empirical methods because business leaders might champion causes that are already popular or might simply add their voices to a chorus of advocates already promoting the same position. To explore these questions while overcoming such methodological challenges, we deployed a field experiment (described below)—a technique rarely used in research on strategy or business and public policy (Chatterji et al. 2016).

DATA AND MEASURES

Study 1

¹¹ Claire Groden, 2016. “Deutsche Bank Freezes North Carolina Expansion in Response to Bathroom Law.” *Fortune*, April 12, 2016. (<http://fortune.com/2016/04/12/deutsche-bank-north-carolina/>), accessed January 12, 2017.

We developed a survey to gather data on how CEO activism affects an individual's (a) views on the relevant policy issue and (b) intention to purchase the company's products. To avoid cross-contamination, we asked each subject a single question about *either* public policy preference *or* purchase intent.

RFRA Policy Support. To assess a respondent's public policy preference, we developed six versions of a question that inquired about the respondent's views on RFRA, the Indiana legislation discussed above. Our treatment condition provided the following preamble and question: "Apple CEO Tim Cook recently expressed his concern about Indiana's new law about religious freedom because he believes the law may allow discrimination against gays and lesbians in that state. Do you support this law?" For this and all other versions of the question, the variable *RFRA policy support* was coded 1 for yes and 0 for no.¹² To assess whether respondents' views were shaped by the particular individual to whom the statement was attributed, other respondents received a version of this question in which we replaced "Apple CEO Tim Cook" with one of the following corporate or political leaders: "Indiana-based Angie's List CEO Bill Oesterle," "The Republican mayor of Indianapolis," and "The mayor of Indianapolis." Each of these people actually did speak out against the law: Indianapolis's Republican mayor, Greg Ballard, issued statements opposing it before and after it passed (Terkel 2015).¹³ To assess whether attribution in itself shaped respondents' views, another group of respondents received the following version, which provided no attribution: "Indiana recently passed a law about religious freedom, and some believe the law may allow discrimination against gays and lesbians in that state. Do you support this law?" This unattributed version is akin to a traditional political or product advertisement, or re-tweet on Twitter, when the author is ambiguous or unrecognized.¹⁴ We asked one group of respondents a

¹² The survey also included a "not sure" option to avoid forcing respondents to make an arbitrary yes-or-no choice when they were unsure. We excluded those responses from our primary analysis and coded *policy support* as a dummy variable. As a robustness test, we recoded *policy support* by including "not sure" responses, which we coded with the intermediate value of 0.5, and then conducted the policy support analysis using two-sample t-tests. The results of this alternative approach were very similar to those of our primary analysis.

¹³ No deception was involved in framing the alternative scenarios, survey respondents were anonymous, and no questions were asked that risked harming respondents. Our study received a determination of exemption from the Harvard University Committee on the Use of Human Subjects under Category 2 (that is, 45 CFR 46.101(b)(2)).

¹⁴ A 2002 law in the United States, the Bipartisan Campaign Reform Act, includes a provision that requires some political ads to identify their sponsor, commonly adding the phrase "I approve this message."

baseline version of the question that omitted the preamble about discrimination and simply asked, “Do you support Indiana’s new law protecting religious freedom?”

Purchasing Intent. To proxy for consumer response to CEO activism, we rely on “intent to purchase,” a dependent variable commonly used in the marketing literature to measure the likelihood that a consumer will eventually purchase a product (Fishbein and Ajzen 1975; Sewall 1978; Silk and Urban 1978; Infosino 1986; Morwitz and Schmittlein 1992; Bemmaor 1995; Cobb-Walgren, Ruble, and Donthu 1995). We address the limitations of this measure—namely, that we cannot observe actual purchases in our data—in the discussion section. We developed three versions of a question about the intention to purchase Apple products. Our treatment condition provided the same preamble described above along with a purchase-intent question: “Apple CEO Tim Cook recently expressed his concern about Indiana’s new law about religious freedom because he believes the law may allow discrimination against gays and lesbians in that state. How likely are you to buy Apple products in the near future?” For this and all other versions of this question, we asked participants to respond based on the following five-point Likert scale: “Definitely not” (coded 1) “Not likely” (2), “Not sure” (3), “Likely” (4), or “Very likely” (5). We assign these values to the variable *purchase intent*. Other respondents faced an alternative question that provided a preamble about Cook’s management philosophy: “Apple CEO Tim Cook recently said his management philosophy was to focus on people, strategy, and execution. How likely are you to buy Apple products in the near future?” A different set of respondents faced our control condition, which omitted any preamble and simply asked about purchase intent: “How likely are you to buy Apple products in the near future?”

Study 2

Support for Government Policy to Mitigate Effects of Climate Change. Our second study explores the extent to which CEO activism can influence public opinion on the extent to which the United States federal government should combat climate change. Following the same general approach as in Study 1, we used the following baseline question: “Do you think the U.S. government is doing too much, too little, or about the right amount in terms of addressing climate change?” We coded these responses based on a three-point Likert scale: “Too much” (coded 1), “About the right amount” (2), or “Too little” (3). We

assign these values to the variable *climate change policy support*. We then randomly presented participants with either the baseline question alone, or the question prefaced with one of nine different preambles to explore the mechanisms by which CEO activism could impact public opinion. The preamble cites one group—either “CEOs from many S&P 500 companies”, “Many award winning actors”, or “Some”—who “believe that climate change is one of the biggest threats confronting...” either “our country”, “our economy” or “the next generation”.

By attributing the statement to different groups, we seek to isolate the general impact of CEO activism, avoiding attributes to a particularly well-known CEO such as Tim Cook. Moreover, including “many award winning actors” in one condition enables us to distinguish the influence of two groups—CEOs and actors—whom some view as celebrities. Furthermore, by randomizing the focal point of the statement between “country”, “economy” and “the next generation”, we seek to understand whether CEO activism is more effective when framed in economic terms, which aligns with their public image as business leaders, than when they refer to national pride or moral arguments.

Survey Implementation

We worked with market research firm CivicScience to gather data on our survey questions. CivicScience collects over 300,000 survey responses each day via approximately 250 third-party websites in categories such as newspapers, television and radio stations, and entertainment (Pierce, Rogers, and Snyder 2015). CivicScience installs a “survey widget” on these websites to conduct surveys that consist of a series of three questions: an “engagement” question, then a “value” question, and finally a “profile” question.¹⁵ CivicScience maintains lists of these questions and draws from each list at random so that the three questions it poses to any given user are the result of three random draws.

CivicScience designs engagement questions to attract a user’s attention. Engagement questions typically ask about current events or other topics relevant to the website on which the survey is being conducted. The value question, presented second, is most important for market research and is the one

¹⁵ In some instances, CivicScience deployed a four-question survey, in which our value question appeared second or third, but always after an engagement question and before a profile question. To avoid confusion, in discussing the survey below, we use the three-question format as a point of reference.

that clients typically pay CivicScience to ask, such as “What are the most important features you will look for in buying your next smartphone?” The alternative versions of our questions were positioned as value questions. Civic Science reported that among respondents who completed an engagement question and then viewed one of our value questions, more than 95 percent responded to it across both studies, giving us an attrition rate of less than five percent. Given that our value question randomly appears after respondents answer the first question and that the attrition rate is so low, it seems unlikely that individuals are “selecting” into answering our question because of existing political beliefs or other factors.

CivicScience designs the third and final question, the profile question, to ask for a demographic characteristic such as gender, age bracket, income bracket, or a psychographic trait. CivicScience randomly selects the particular profile question to ask from a pool of many alternatives. As described below, our analysis used data from one of these profile questions: “Do you support or oppose the legalization of same-sex marriage in your state?”¹⁶ CivicScience accumulates information about people who respond to several of its surveys if their Web browsers have cookies enabled. This process enabled us to obtain CivicScience data on multiple demographic variables for people who had previously answered CivicScience surveys before our questions were deployed.

CivicScience began administering the survey for study 1 on April 2, 2015, the day Indiana’s governor signed the revised version of RFRA. We asked the firm to gather data for two weeks, ceasing on April 15. CivicScience administered the survey for study 2 over the two-week period of December 16, 2016 through January 1, 2017. Sample sizes are reported in Tables 1 and 3 for each group of study 1 respondents, and in Table 7 for each group of study 2 respondents.

CivicScience stratifies its target respondents based on gender and age strata and makes real-time adjustments while surveys are underway to ensure that respondents are nationally representative along

¹⁶ Note that we posed this question before the U.S. Supreme Court’s June 2015 decision in *Obergefell v Hodges*, requiring states to provide marriage licenses to same-sex partners.

these dimensions.¹⁷ As a result, the distributions of these demographic characteristics are very similar between each of our samples and the U.S. population.

Females make up 48 percent of our study 1 sample and 47 percent of our study 2 sample, both of which are very similar to 51 percent of the U.S. population according to the 2010 Census. The distributions in our two samples also closely approximate to the U.S. population in terms of age groups¹⁸ and household income.¹⁹ In terms of race, our sample has a slightly higher proportion of whites (84% for study 1; 79% for study 2), and thus fewer minorities, than the national population that is 72% white according to the 2010 Census.

We believe that the method by which Civic Science collects survey responses is an appropriate methodological approach for answering our research questions. First, while Civic Science does not know who views the engagement questions and then chooses not to answer them, we do know that conditional on answering the engagement question that preceded our survey questions, which were randomly deployed, nearly all individuals who were then presented with one of our survey questions provided a response (95 percent for both studies). These statistics imply that attrition is not introducing significant bias in the responses. Second, because Civic Science constructs samples to approximate the American population as a whole, the demographic characteristics of our respondents do not appear to be biased in a way that would affect the interpretation of our results.

¹⁷ For example, once our survey respondents include a sufficient number of millennial males (that is, once their proportion of the intended total number of respondents is commensurate with their national representation), CivicScience would only display our value question to other demographic groups until the data collection is complete.

¹⁸ 18-to-29 year olds constitute 25% of respondents in our study 1 sample and 18% of our study 2 sample, compared to 24% of the U.S. population. 30-to-44 year olds constitute 29% of our study 1 sample and 26% of our study 2 sample, compared to 26% of the U.S. population. 45-to-64 year olds constitute 33% of our study 1 sample and 37% of our study 2 sample, compared to 34% of the population. Those 65 and older constitute 13% of our study 1 sample and 18% of our study 2 sample, compared to 17% of the population.

¹⁹ Those reporting household income under \$50,000 make up 41% of our study 1 sample and 38% of our study 2 sample, compared to 47% of the population according to U.S. Census Bureau's Current Population Survey, 2015 Annual Social and Economic Supplement. Those reporting \$50,001-\$100,000 make up 35% of our study 1 sample and also 35% of our study 2 sample, compared to 29% of the population. Those reporting \$100,001-\$150,000 make up 15% of our study 1 sample and 17% of our study 2 sample, compared to 13% of the population. Those reporting more than \$150,000 make up 10% of our study 1 sample and 11% of our study 2 sample, compared to 11% of the population.

ANALYSIS AND RESULTS

Study 1: RFRA Policy Support

To analyze whether CEO activism influenced public support for RFRA, we conducted several two-sample tests of proportions that assess whether the average level of *RFRA policy support* differed amongst the groups of respondents who received our alternative questions.²⁰ Table 1 reports mean levels of *RFRA policy support* along with 95-percent Agresti-Coull binomial confidence intervals²¹ and the results of the two-sample tests of proportions. Compared to the 50 percent *RFRA policy support* among respondents to the unframed question, the 40.2 percent *RFRA policy support* among respondents to the question following Tim Cook’s discrimination framing was statistically significantly less ($z = 3.29$, $p < 0.01$). Additional results in Table 1 indicate indistinguishable *RFRA policy support* levels across all discrimination framing conditions, whether the discrimination concern was attributed to Cook, Angie’s List CEO Bill Oesterle, the Republican mayor of Indianapolis, or just the mayor of Indianapolis—or was not attributed to anyone in particular. These results indicate that the discrimination framing, irrespective of which of these individuals did the framing—or even whether the framed statement was attributed to anyone at all—drove the decrease in public support. These results also suggest that CEOs and politicians have commensurate ability to influence the public debate by framing issues in a particular manner. Figure 1 depicts *RFRA policy support* levels associated with three of our conditions: unframed, the Cook discrimination framing, and the unattributed discrimination framing.

To explore potential heterogeneity in how public opinion might be swayed by CEO activism, we explored whether and how *RFRA policy support* differed between respondents who indicated support or opposition in response to the following question: “Do you support or oppose the legalization of same-sex marriage in your state?” Table 2 reports these results. Among supporters of same-sex-marriage

²⁰ We test the difference between two proportions for two samples (1 and 2) using *prtest* in Stata version 13.1, using the following test statistic:

$$z = \frac{(\hat{p}_1 - \hat{p}_2)}{\sqrt{\hat{p}_p \hat{q}_p \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}, \text{ where } \hat{q} = 1 - \hat{p}, \hat{p}_p = \frac{x_1 + x_2}{n_1 + n_2}, \text{ where } n_i \text{ is the number of respondents in sample } i \text{ who responded}$$

yes or no and x_i is the number of respondents in sample i who responded yes.

²¹ Agresti-Coull binomial confidence intervals are suitable for dichotomous variables and are recommended by Brown, Cai, and DasGupta (2001).

legalization, the RFRA garnered only 14.3 percent *RFRA policy support* from those responding to the unframed question, which fell significantly to zero support from those responding to the question framed by Cook as discrimination ($z = 2.32, p = 0.02$). This unanimous opposition associated with the Cook discrimination framing condition represents less backing than the 8.3 percent *RFRA policy support* exhibited by the group primed with the unattributed discrimination statement ($z = -1.74, p = 0.08$). Although these results are based on small samples (approximately 30 respondents per cell), they suggest that, in some circumstances, CEO activism can be more persuasive than unattributed messages.

We find contrasting results among opponents of same-sex-marriage legalization, who were overall much more supportive of RFRA, with *RFRA policy support* averaging 91.7 percent for those responding to the unframed question and a nearly identical 90.0 percent for those responding to the question framed by Cook's statement. Interestingly, *RFRA policy support* was a much lower 70.2 percent among same-sex-marriage opponents who responded to the question primed by the unattributed discrimination framing, significantly less than the support among those primed by the identical discrimination statement but attributed to Cook ($z = 2.53, p = 0.01$). That same-sex-marriage opponents were more persuaded by the unattributed message than by the same message attributed to Cook reveals that CEO activism can sometimes be counterproductive and that CEOs wishing to persuade some groups might be more effective funding unattributed messages rather than speaking out themselves. Together, these heterogeneous results suggest that the influence of CEO activism depends on the audience. In this case, Cook may be more credible and persuasive to same-sex-marriage supporters—especially given his public statement in 2014 that he is gay—than he is to same-sex-marriage opponents.

Study 1: Purchasing Intent and RFRA

A one-way ANOVA indicates that *purchasing intent* differed significantly across the three groups of survey respondents whom we asked ($F = 10.21; p < 0.01$).²² To further analyze the effects of CEO

²² ANOVA might not be appropriate in the analysis of our data because Bartlett's test for homogenous variance across groups indicates that this assumption should be rejected ($\chi^2 = 6.68; p = 0.04$). We therefore also used OLS to regress *purchase intent* on two dummies indicating whether a participant was subjected to the discrimination framing or the business philosophy framing (the unframed group was the omitted category), using White robust

activism on consumers' intent to purchase the company's products, we conducted a series of two-sample t-tests comparing groups of survey respondents. Table 3 reports these results. *Purchase intent* among those primed with Cook's discrimination framing averaged 3.02, significantly higher than both (a) the group of respondents who answered the unframed question (average 2.70, $t = -4.42$, $p < 0.01$) and (b) the group of respondents who were primed with Cook's business philosophy (average 2.87, $t = -2.08$, $p = 0.04$). Interestingly, the 2.87 average *purchasing intent* among those primed with Cook's business philosophy was significantly higher than the 2.70 average among respondents to the unframed question ($t = -2.46$, $p = 0.01$). Together, these results indicate that merely mentioning Tim Cook increased consumers' intention to purchase Apple products and that Cook's CEO activism increased it further. Figure 2 illustrates purchase-intent levels associated with the unframed condition, the Cook discrimination framing, and the Cook business-philosophy framing.

Table 4 reports how these framing effects differed between those who supported the legalization of same-sex marriage and those who opposed it. Among supporters, *purchase intent* averaged 2.47 for those responding to the unframed question but 3.48, significantly higher ($t = -4.50$, $p < 0.01$), for those responding to Cook's discrimination-framed statement. *Purchase intent* among supporters primed by Cook's business-philosophy statement averaged 3.20, also significantly higher than the 2.47 average for unframed responses ($t = -3.20$, $p < 0.01$) and statistically indistinguishable from the 3.48 average among those primed by the Cook discrimination framing ($t = -1.29$, $p = 0.20$). In summary, for same-sex-marriage supporters, Cook's framing bolstered purchasing intent, especially when he described RFRA as discriminatory toward gays and lesbians.

A different pattern emerged among opponents of same-sex marriage. *Purchase intent* averaged 2.47 for those responding to the unframed question, statistically indistinguishable from the 2.29 average for those primed by Cook's discrimination statement ($t = 1.05$, $p = 0.30$) and the 2.66 average for those primed by Cook's business philosophy ($t = -1.21$, $p = 0.22$). Interestingly, the difference between the two

standard errors that are robust to heteroscedasticity. The resulting F-statistic of 9.84 ($p < 0.01$) yields the same conclusion as ANOVA: that the *purchasing intent* significantly differs across the three groups of respondents.

Cook conditions is statistically significant ($t = -2.09$, $p = 0.04$). This indicates that when Apple products are associated with the company's CEO, Cook's CEO activism can backfire by eroding purchasing intent amongst those who disagree with his position.

In summary, our subsample analyses suggest that CEO activists may have considerably more influence on some audiences than others and that CEO activism is a double-edged sword that can promote or erode purchasing intent, depending on the audience.

Study 2: Climate Change Policy Support

Tables 5-7 report the results of study 2. The respondents in our baseline condition, who were simply asked the question without being primed with any of our framing conditions, exhibited a moderate preference for more government policy. Their average *climate change policy support* was 1.74 [95% confidence interval of 1.68-1.79], between “too little” (coded 1) and “about the right amount” (coded 2) but closer to the latter.

Table 5 displays aggregate results (across all three agents) for the conditions that refer to each threat target: “the economy,” “our country,” and “the next generation.” Referring to climate change as one of the biggest threats to the next generation yielded the exact same average *climate change policy support* as the unframed condition (2.26). Referring to climate change as one of the biggest threats to the economy or our country each yielded slightly higher average support for policy intervention (2.30), but none of the groups exposed to these threat target frames exhibit statistically significant different average levels of *climate change policy support* than the unframed condition. Turning to comparisons between the threat target frames, we find that average *climate change policy support* is 2.30 for those whose messages were framed by threats to the economy or to our country, and is slightly lower at 2.26 for those whose messages were framed by the next generation; the difference between the latter and each of the former groups is marginally statistically significant (t-test $p = 0.08$). In other words, referring to climate change as one of the biggest threats to the economy or country engenders more support for policy intervention than referring to climate change as one of the biggest threats to the next generation.

Table 6 displays aggregate results (across all three threats) for the conditions that refer to each agent: “CEOs from many S&P 500 companies,” “Many award winning actors,” and “Some.”

Average levels of *climate change policy support* is 2.32 for those exposed to messages referring to actors, 2.31 for the “some” group, 2.26 for the unframed group, and 2.24 for the CEOs group. T-tests indicated that average support between each group that referred to an agent was statistically indistinguishable from the unframed group, and that the actors and “some” groups were also statistically indistinguishable. However, those exposed to the messages that referred to CEOs exhibited statistically significantly lower levels of support for additional climate policy intervention than those exposed to messages that referred to either actors ($t = -3.06$, $p < 0.01$) or “some” ($t = -2.90$, $p < 0.01$).

Table 7 shows that average levels of *climate change policy support* are remarkably stable across all ten conditions, ranging from 2.20 to 2.32. Looking across all nine framed conditions in Table 7, t-tests revealed that none of these groups’ average levels of *climate change policy support* significantly differed from the unframed group, with one exception: The group told that “some” believed the climate change is one of the biggest threat to the economy exhibited marginally stronger support for more climate policy than those in the unframed condition (average 2.34 vs. 2.26; $t = -1.76$, $p = 0.08$).

We then focused on the three conditions that mentioned CEOs. Average levels of *climate change policy support* among these three conditions was lowest when CEOs framed climate change as one of the biggest threats to the next generation [average = 2.20; 95% CI = 2.16 – 2.25], intermediate when CEOs framed it as one of the biggest threats to the economy [average = 2.25; 95% CI = 2.18 – 2.32], and highest when CEOs framed it as one of the biggest threats to our country [average = 2.30; 95% CI = 2.23 – 2.36]. T-tests indicated that support among these three CEO groups was statistically distinguishable only between the next generation and country groups ($t = 2.38$, $p = 0.02$). In other words, CEOs appear to be more influential in encouraging individuals to seek more government action on climate policy when they referred to climate change as being one of the biggest threats to our country, rather than one of the biggest threats to the next generation.

We also compared the average *climate change policy support* level among those exposed to the condition in which CEOs referred to climate change as an economic threat (average = 2.25) to average policy support levels for each of the other conditions. The only condition that exhibited a significant difference was the group who were exposed to the statement that “some” believed that climate change is one of the biggest threat to the economy (average of 2.25 vs. 2.34; $t = -1.85$, $p = 0.06$). In other words, when climate is cast as one of the biggest threat to the economy, “some” saying this is apparently more convincing than major CEOs saying this. Moreover, we find no evidence that describing climate change as one of the biggest threats to the economy is any more convincing when CEOs make the case than when actors do (average of 2.25 vs. 2.32, $t = -1.36$, $p = 0.17$).

DISCUSSION

This study presents the first analysis of CEO activism, whereby corporate leaders speak out on social or environmental issues that are largely unrelated to their companies’ core businesses. To usher in a sustainability transition, we posit that this kind of activism from the business community to shape public policy will be required. However, it is an open question as to how effective this kind of activism is. Using a field experiment that examines the effects of Apple CEO Tim Cook’s statements opposing Indiana’s religious freedom law, we demonstrate that Cook’s views decrease public support for the law, but no more so than identical statements attributed to other business and political leaders or than an identical but unattributed statement. These results suggest that there is considerable power in how political or social issues are framed (Grewal, Gotlieb, and Marmorstein 1994; Lakoff 2004; Scheufele and Tewksbury 2007) and that corporate leaders—whose activism often attracts media attention—can use this power to their advantage when advocating in the public domain.

Further, we find that Cook’s contention that the religious freedom law legalizes discrimination against gays positively influenced consumers’ intent to purchase Apple products, particularly among people who supported same-sex marriage. This finding implies that when CEOs take public stands on controversial issues, they can galvanize support for their company from those who share the same viewpoint. In this manner, CEO activism’s primary effect is through signaling which side of a public

debate CEOs and, by implication, their companies are on. At the same time, CEO activism risks alienating consumers who disagree with the CEO's public stance.

In our second study however, we find no evidence that a group of (unnamed) CEOs influence public opinion on climate change policy, irrespective of how the issue is framed. These results suggest that there may be important differences between the impact of activism from individual, well-known CEOs like Tim Cook and groups of unnamed CEOs. On one hand, a large number of economically powerful activists could be a boon to a sustainability cause, but on the other hand, one publicly identifiable CEO activist might be a more effective advocate. Similarly, compared to an unnamed group of prominent actors, an individual celebrity might have more impact on public opinion.

Finally, the issue at hand is also likely to be crucial. Sustainability is a large umbrella term, encompassing natural environment issues such as climate change and human rights issues such as LGBT rights. Study 1 and 2 differ on the issues they focus on within sustainability, which might be another reason for the divergent results. We encourage future research to identify the circumstances under which various individual CEOs or groups of CEOs are more influential, and how their influence varies by sustainability topic.

Our focus on CEOs and their decisions to speak out contributes to the literature examining how the personal preferences of C-level executives and board members influence firm behavior. While the bulk of this literature focuses on how CEO beliefs and preferences affect firm strategy and performance (e.g., Hambrick and Mason 1984; Finkelstein and Hambrick 1996; Waldman and Yammarino 1999, Plamback and Weber, 2009; Chen, Crossland, and Luo 2014), our study relates more closely to the few recent articles on the role of CEOs' political attitudes on business decisions, which find associations between a CEO's attitude and (a) the firm's corporate social responsibility practices (Chin, Hambrick, and Trevino 2013; Di Giuli and Kostovetsky 2014) and (b) employees' tendency to engage in activism (Briscoe, Chin, and Hambrick 2014). Our work supplements this literature by examining the influence of a CEO's political and social attitudes on citizens' attitudes and consumers' purchasing intent.

Our results provide some of the first insights into the phenomenon of CEO activism, but much remains unexplored. For example, our first study focused on a single famous CEO of a world-renowned company and a single policy issue. Moreover, Cook had already announced he was gay in a *Bloomberg Businessweek* article in 2014, the year before he made his remarks about RFRA, and was the first CEO of a *Fortune* 500 company to do so. Given that opponents of the Indiana law were already framing it as being anti-LGBT, Cook's statements might have been particularly influential because of his own sexual orientation (Jenni and Loewenstein 1997) and notoriety. Future work that spans multiple named CEOs and multiple policy issues can shed light on the generalizability of our results.

Finally, although CEO activism can have costs as well as benefits, our results suggest that under some conditions the benefits can outweigh the costs for individual CEOs and their companies. In our case, the increase in purchasing intent for Apple products among respondents strongly supportive of same-sex marriage occurs with no commensurate decline among those opposed to same-sex marriage. However, the benefits and costs of CEO activism will likely vary with the issue, with the nature of the corporate leader's involvement, and with the elasticity of demand for the company's products. Finally, purchase intent proxies for actual purchasing behavior that we cannot reliably observe. It is possible that the effects of CEO activism fade by the time the consumer is actually making a purchasing decision. These are all areas for future study.

We believe that CEO activism is a fertile area of inquiry and we hope that future research will investigate when such activism is more likely to arise in the context of sustainability transitions, whether it serves as a substitute or complement to strategic CSR and nonmarket strategies, and what influence it has on public opinion, public policy, and the company's various stakeholders.

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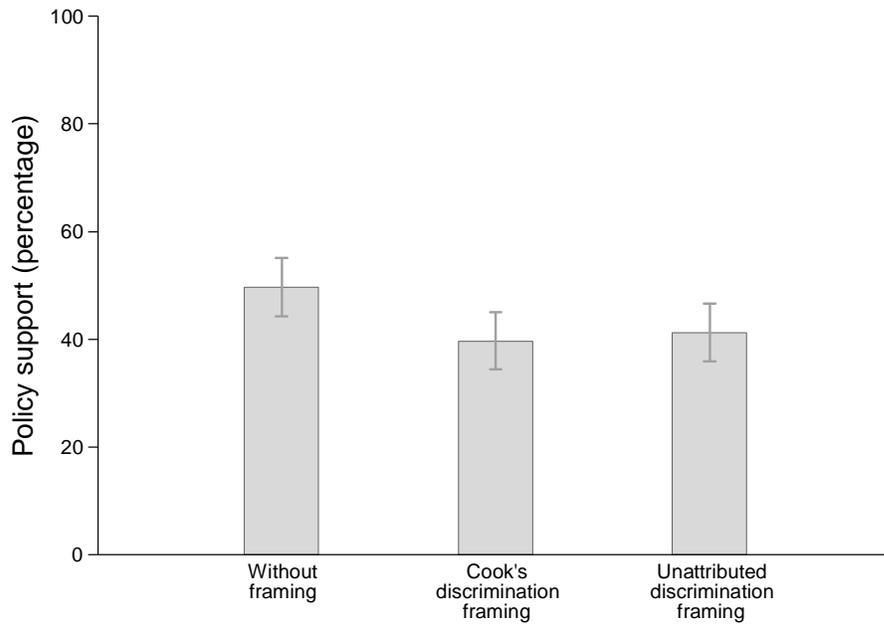
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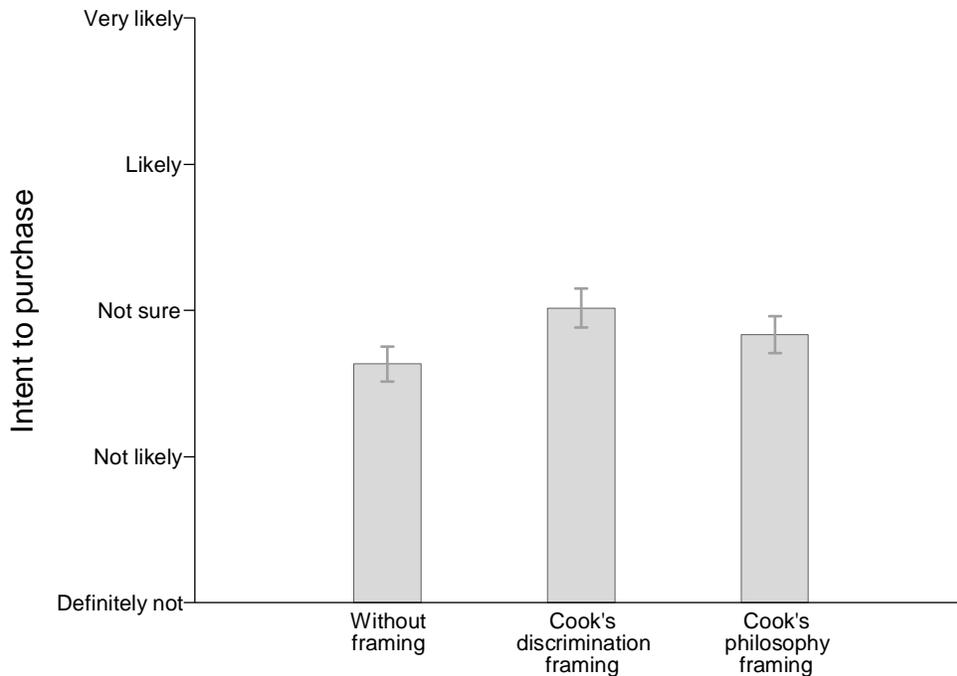
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Figure 1. Policy support after three alternative framing conditions



Note: This figure reports average levels of *policy support* after each framing condition, along with 95% Agresti-Coull binomial confidence intervals that accommodate the dichotomous nature of this variable.

Figure 2. Intent to purchase after three alternative framing conditions



Note: This figure reports average levels of *purchase intent* after each framing condition, along with 95% confidence intervals.

Table 1. Policy support for RFRA under alternative framings

Framing condition	Survey question	Mean <i>RFRA</i> policy support,	Two-sample tests of proportions	
		[95% confidence interval], sample size (N)	Comparison to Cook condition	Comparison to unattributed condition
Unframed	Do you support Indiana's new law protecting religious freedom?	50.0% [45.9 – 54.2%] N = 557	z = 3.29 p < 0.01	z = 3.42 p < 0.01
Cook	Apple CEO Tim Cook recently expressed his concern about Indiana's new law about religious freedom because he believes the law may allow discrimination against gays and lesbians in that state. Do you support this law?	40.2% [36.1 – 44.2%] N = 549	(benchmark)	z = -0.11 p = 0.91
Oesterle	Indiana-based Angie's List CEO Bill Oesterle recently expressed...	41.1% [37.0 – 45.3%] N = 540	z = 2.88 p = 0.77	z = -0.40 p = 0.69
Rep. mayor	The Republican mayor of Indianapolis recently expressed...	41.5% [37.8 – 45.2%] N = 687	z = 0.44 p = 0.66	z = -0.56 p = 0.58
Mayor	The mayor of Indianapolis recently expressed...	37.7% [33.6 – 41.9%] N = 519	z = -0.84 p = 0.40	z = 0.73 p = 0.47
Unattributed	Indiana recently passed a law about religious freedom, and some believe the law may allow discrimination against gays and lesbians in that state. Do you support this law?	39.9% [35.9 – 44.0%] N = 566	z = -0.11 p = 0.91	(benchmark)

Note: Two-sample tests of proportions were conducted using Stata's *prtest* command. 95% CI refers to Agresti-Coull binomial confidence intervals, used here to accommodate the dichotomous nature of *RCRA* policy support.

Table 2. Policy support under alternative framings, by respondents' opinion on legalizing same-sex marriage in their state

Framing condition	Support legalizing same-sex marriage		Oppose legalizing same-sex marriage	
	Mean <i>RFRA</i> policy support, [95% CI], N=sample size	Two-sample tests of proportions	Mean <i>RFRA</i> policy support, [95% CI], N=sample size	Two-sample tests of proportions
Unframed	14.3% [5.8 – 29.9%] N = 35	} z = 2.32 p = 0.02	91.7% [81.5 – 96.8%] N = 60	} z = 0.30 p = 0.76
Cook	0.0% [0.0 – 11.8%] N = 35		70.2% [57.3 – 80.5%] N = 57	
Unattributed	8.3% [1.2 – 27.0%] N = 24	} z = -1.74 p = 0.08		

Note: Two-sample tests of proportions were conducted using Stata's *prtest* command. 95% CI refers to Agresti-Coull binomial confidence intervals, used here to accommodate the dichotomous nature of *RFRA* policy support.

Table 3. Intention to purchase Apple products under alternative framings

Framing condition	Framing preceding question: “How likely are you to buy Apple products in the near future?”	Mean <i>purchase intent</i> , [95% CI], N=sample size	Two-sample t-tests	
			Comparison to unframed condition	Comparison between Cook conditions
Unframed	(none)	2.70 [2.60 – 2.80] N = 738	(benchmark)	
Cook discrimination framing	Apple CEO Tim Cook recently expressed his concern about Indiana’s new law about religious freedom because he believes the law may allow discrimination against gays and lesbians in that state.	3.02 [2.92 – 3.12] N = 727	t = -4.42 p < 0.01	
Cook business-philosophy framing	Apple CEO Tim Cook recently said his management philosophy was to focus on people, strategy, and execution.	2.87 [2.78 – 2.97] N = 711	t = -2.46 p = 0.01	t = -2.08 p = 0.04

Table 4. Intention to purchase Apple products under alternative framings, by respondents’ opinion on legalizing same-sex marriage in their state

Subsample:	Same-sex-marriage supporters			Same-sex-marriage opponents		
	Mean <i>purchase intent</i> , [95% CI], N=sample size	Two-sample t-tests		Mean <i>purchase intent</i> , [95% CI], N=sample size	Two-sample t-tests	
Framing condition	Comparison to unframed condition	Comparison between Cook conditions	Comparison between Cook conditions	Comparison to unframed condition	Comparison between Cook conditions	Comparison between Cook conditions
Unframed	2.47 [2.13 – 2.80] N = 62	(benchmark)		2.47 [2.26 – 2.68] N = 120	(benchmark)	
Cook discrimination framing	3.48 [3.18 – 3.78] N = 84	t = -4.50 p < 0.01	t = -1.29 p = 0.20	2.29 [2.03 – 2.55] N = 107	t = 1.05 p = 0.30	t = -2.09 p = 0.04
Cook business-philosophy framing	3.20 [2.88 – 3.51] N = 61	t = -3.20 p < 0.01		2.66 [2.42 – 2.91] N = 98	t = -1.21 p = 0.22	

Table 5. Public support for climate change policy, by threat

Framing conditions aggregated by threat target	Framing preceding question: “Do you think the U.S. government is doing too much, too little, or about the right amount in terms of addressing climate change?”	Mean <i>climate change policy support</i> , [95% confidence interval], sample size (N)	Two-sample t-tests		
			Comparison to baseline condition	Comparison to “threat to economy” conditions	Comparison to “threat to country” conditions
Unframed	(none)	2.26 [2.21 – 2.32] N = 921	(benchmark)	t = -1.19 p = 0.24	t = -1.15 p = 0.25
Economy	[Agent] believe that climate change is one of the biggest threats confronting our economy.	2.30 [2.26 – 2.34] N = 1,877	t = -1.19 p = 0.24	(benchmark)	t = 0.05 p = 0.96
Country	[Agent] believe that climate change is one of the biggest threats confronting our country.	2.30 [2.26 – 2.34] N = 2,002	t = -1.15 p = 0.25	t = -0.05 p = 0.96	(benchmark)
Next generation	[Agent] believe that climate change is one of the biggest threats confronting the next generation.	2.26 [2.22 – 2.29] N = 2,705	t = 0.15 p = 0.88	t = -1.76 p = 0.08	t = -1.73 p = 0.08

Note: [Agent] refers to “CEOs from many S&P 500 companies,” “Many award winning actors,” or “Some.”

Table 6. Public support for climate change policy, by agent

Framing conditions aggregated by agent	Framing preceding question: “Do you think the U.S. government is doing too much, too little, or about the right amount in terms of addressing climate change?”	Mean <i>climate change policy support</i> , [95% confidence interval], sample size (N)	Two-sample t-tests		
			Comparison to baseline condition	Comparison to “CEOs” conditions	Comparison to “actors” conditions
Unframed	(none)	2.26 [2.21 – 2.32] N = 921	(benchmark)	t = -0.73 p = 0.46	t = 1.60 p = 0.11
CEOs	CEOs from many S&P 500 companies believe that climate change is one of the biggest threats confronting [target].	2.24 [2.21 – 2.27] N = 2,694	t = 0.73 p = 0.46	(benchmark)	t = 3.06 p < 0.01
Actors	Many award winning actors believe that climate change is one of the biggest threats confronting [target].	2.32 [2.28 – 2.36] N = 1,969	t = -1.60 p = 0.11	t = -3.06 p < 0.01	(benchmark)
Some	Some believe that climate change is one of the biggest threats confronting [target].	2.31 [2.28 – 2.35] N = 1,921	t = -1.50 p = 0.13	t = -2.90 p < 0.01	t = 0.11 p = 0.91

Note: [target] refers to “our economy,” “our country,” or “the next generation.”

Table 7. Public support for climate change policy under alternative framings

Framing condition	Framing preceding question: “Do you think the U.S. government is doing too much, too little, or about the right amount in terms of addressing climate change?”	Mean <i>climate change policy support</i> , [95% confidence interval], sample size (N)	Two-sample t-tests	
			Comparison to unframed condition	Comparison to CEO/economy condition
Unframed	(none)	2.26 [2.21 – 2.32] N = 921	(benchmark)	t = -0.32 p = 0.75
CEOs/economy	CEOs from many S&P 500 companies believe that climate change is one of the biggest threats confronting our economy.	2.25 [2.18 – 2.32] N = 565	t = 0.32 p = 0.75	(benchmark)
CEOs/country	CEOs from many S&P 500 companies believe that climate change is one of the biggest threats confronting our Country.	2.30 [2.23 – 2.36] N = 761	t = -0.81 p = 0.42	t = -1.01 p = 0.31
CEOs/next generation	CEOs from many S&P 500 companies believe that climate change is one of the biggest threats confronting the next generation.	2.20 [2.16 – 2.25] N = 1,368	t = 1.63 p = 0.10	t = 1.03 p = 0.30
Actors/economy	Many award winning actors believe that climate change is one of the biggest threats confronting our economy.	2.32 [2.25 – 2.38] N = 643	t = -1.20 p = 0.23	t = -1.36 p = 0.17
Actors/country	Many award winning actors believe that climate change is one of the biggest threats confronting our country.	2.32 [2.25 – 2.39] N = 597	t = -1.35 p = 0.18	t = -1.49 p = 0.14
Actors/next generation	Many award winning actors believe that climate change is one of the biggest threats confronting the next generation.	2.31 [2.25 – 2.38] N = 729	t = -1.20 p = 0.23	t = -1.36 p = 0.17
Some/economy	Some believe that climate change is one of the biggest threats confronting our economy.	2.34 [2.27 – 2.4] N = 669	t = -1.76 p = 0.08	t = -1.85 p = 0.06
Some/country	Some believe that climate change is one of the biggest threats confronting our country.	2.29 [2.22 – 2.36] N = 644	t = -0.59 p = 0.56	t = -0.82 p = 0.41
Some/next generation	Some believe that climate change is one of the biggest threats confronting the next generation.	2.31 [2.24 – 2.38] N = 608	t = -1.13 p = 0.26	t = -1.30 p = 0.19