AMERICAN ACADEMY
OF ARTS & SCIENCES

PERCEPTIONS
OF SCIENCE IN AMERICA

A REPORT FROM
THE PUBLIC FACE OF SCIENCE INITIATIVE

THE PUBLIC FACE OF SCIENCE

PERCEPTIONS
OF SCIENCE IN AMERICA

AMERICAN ACADEMY OF ARTS & SCIENCES
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CONTENTS

Preface

Science shapes American society in many ways, from the scientific information that guides fundamental personal choices—like which foods we eat and products we buy—to the technologies that lead to entirely new industries. Every day, Americans enjoy the benefits of science, including job growth, economic prosperity, cutting-edge disease treatments, cleaner drinking water, and the technological advances that enable faster communication than ever before.

The essential role of the natural and social sciences in everyday life raises a number of questions about how Americans view science, scientists, and the impacts of scientific research. Decades of public opinion surveys provide a useful window into our general attitudes about science, such as confidence in the scientific community and support for science funding, and our views on more specific questions, such as the level of trust in scientists to contribute impartially to public debate.

The available data paint a picture of a heterogeneous public whose perceptions are dependent on context and values. The goal of this report is to increase awareness of these nuances among science communicators, advocates, and researchers so they can better understand their audiences when developing outreach programs, messaging strategies, and educational materials. By identifying gaps in the current understanding, this report underscores the need for additional studies on the influences on attitudes toward science, as well as how those attitudes impact both personal decisions and public support for evidence-based policy. For additional data pertaining to these issues, the reader is encouraged to consult the publications in which the research originally appeared.

This report is the first in a series of publications from the Academy's Public Face of Science Initiative, a three-year endeavor to learn more about the complex and evolving relationship between scientists and the public. Subsequent reports will highlight the numerous ways that individuals encounter science in their everyday lives and present recommendations for improving the practice of science communication and engagement.

The Academy is grateful to the Gordon and Betty Moore Foundation, the Rita Allen Foundation, the Alfred P. Sloan Foundation, and the Hellman Fellows Fund for their generous support of the Public Face of Science Initiative. The Academy would also like to thank the participants at workshops held in June 2016 and June 2017, as well as the many project advisors whose thoughtfulness and insights contributed to the development of this report, particularly Arthur Gelb (Four Sigma Corporation), Alan Leshner (American Association for the Advancement of Science), David Skorton (Smithsonian Institution), and Mary Woolley (Research!America). Special thanks to Cary Funk (Pew Research Center), Chris Volpe (ScienceCounts), Suzanne Ffolkes (Research!America), and Peter Muhlberger (National Science Foundation) for helpful conversations and for sharing data in advance of publication.

TOP THREE TAKEAWAYS

from *Perceptions of Science in America*

1

Confidence in scientific leaders has remained relatively stable over the last thirty years. (SECTION 1: GENERAL PERCEPTIONS OF SCIENCE)

- Americans express strong support for public investment in research.
- A majority of Americans views scientific research as beneficial.
- Americans support an active role for science and scientists in public life.
- Americans have varying interpretations of the word "science" and the scientific process; additional research is necessary to understand how these differing interpretations influence perceptions of—and support for—science.

2

Confidence in science varies based on age, race, educational attainment, region, political ideology, and other characteristics. (SECTION 2: DEMOGRAPHIC INFLUENCES ON GENERAL VIEWS OF SCIENCE)

- Although attitudes toward science are generally positive, the degree of confidence in science varies among demographic groups.
- For example, U.S. adults without a high-school diploma are less likely than those with a college degree to view science as beneficial.

3

There is no single anti-science population, but more research is needed to understand what drives skepticism about specific science issues. (SECTION 3: CASE STUDIES OF PERCEPTIONS ON SPECIFIC SCIENCE TOPICS)

- Attitudes toward science are not uniformly associated with one particular demographic group but instead vary based on the specific science issue.
- Recent research suggests that underlying factors, such as group identity, can strongly influence perceptions about science.
- A person's knowledge of science facts and research is not necessarily predictive of acceptance of the scientific consensus on a particular question. Indeed, for certain subgroups and for certain topics such as climate change, higher levels of science knowledge may even be associated with more-polarized views.
- More research is needed to determine how cultural experience and group identities shape trust in scientific research, and how to address skepticism of well-established scientific findings.
- Future studies should include an expanded definition of science literacy that incorporates the understanding of the scientific process and the capacity to evaluate conflicting scientific evidence (see Reexamining the Deficit Model on page 3).

Introduction

Over the past several decades, surveys from leading public opinion research groups have evaluated Americans' perceptions of science from a variety of angles, including confidence in science as an institution, views on the impact of science on society and the economy, and support for science funding. Polling data reveal a complex relationship between citizens and scientists wherein scientists' achievements are generally recognized and valued, but views on certain science-related issues are context-dependent. These divergences differ according to political leanings, age, race, education, religious beliefs, and other factors, and they hold implications for policy development and other public decision-making processes.

One goal of this publication is to improve understanding and awareness of the public's perceptions of scientists among science communicators, advocates, and researchers. A second objective is to encourage new scholarship on these topics. Through a heightened awareness of the current landscape and the pursuit of new analyses, the ultimate goal is to systematically improve science communication and strengthen support for science.

This report presents a portrait of how science is perceived in America, based primarily on previously reported polling data (see Overview of Data Sources on page 2). Nationally representative polling data from NORC at the University of Chicago,[1] the National Science Board, and the Pew Research Center highlight general perceptions of science and how those perceptions vary among different populations. Market research studies from ScienceCounts and Research!America provide additional context for these data as well as insights into the factors that shape individuals' attitudes toward science and their support for public investment in research. This compilation of data also underscores the value of public opinion research, along with the need for additional research and more nuanced surveys. It will be increasingly important to ensure that the underlying methodologies for data collection and analysis be publicly available, particularly as data collection by private entities becomes more common.

To better understand the various factors that influence perceptions of science, the report is divided into three sections:

Section 1 provides an overview of people's confidence and trust in science as an institution, the perceived impact and benefits of science, and support for research and scientists. It shows that overall confidence in the leaders of the scientific community has been relatively stable over the past few decades. Furthermore, many people support federal investment for scientific research as well as scientists' role in shaping policy. Confidence declines, however, in certain scenarios. When findings go against the interests of the sponsor of the research, for example, the public is less likely to trust that the scientist will report the findings. Additionally, although people are aware of the benefits of research, some feel that scientific discoveries make their way of life change too fast.

One complication for thinking about public views of science stems from the scope of the scientific enterprise and lack of consensus about science's boundaries. Public views of science may vary depending on the types of "science" that come to mind in different contexts (see Defining "Science" on page 3).

Section 2 examines these questions through the lens of demographic context, revealing opinion differences based on political party and ideology, age, education level, income level, gender, race, and religion. These data make clear that no single monolithic "public" exists when considering views on scientists and scientific issues. For example, general confidence in scientific leaders varies by age, race, gender, political affiliation, education, and geographic region. People prioritize different outcomes of scientific research depending on their education and ideology. Lower educational attainment is also correlated

Overview of Data Sources

See Appendix A for more information on polling methodologies. Additional information on error margins and statistical methods can be found by consulting each data source.

NORC at the University of Chicago is an independent, nonpartisan research institution formerly known as the National Opinion Research Center. Since 1972, NORC has produced the biennial General Social Survey (GSS) to provide insight into U.S. adults' perspectives on specific issues, including confidence in scientific leaders.

National Science Board Science and Engineering Indicators (NSB SEI) compiles factual and policy-neutral quantitative data on science and the engineering enterprise. SEI data on public attitudes were originally derived from a National Center for Science and Engineering Statistics survey on public attitudes. Since 2006, NSB has contracted with NORC to collect data on their behalf through the GSS.

Pew Research Center is a nonpartisan fact tank that conducts public opinion polling on domestic and international issues and trends. This report presents data from five recent surveys looking at general perceptions of science as well as attitudes on several particular issues, including vaccines, genetically modified foods, and climate change. Polling data are a representative sample of adults in the United States.

Research!America is a nonprofit public education and advocacy alliance that conducts public opinion polling to gauge Americans' attitudes toward medical, health, and scientific research. This report focuses in particular on data from *America Speaks: Volume 17* and *Public Perception of Clinical Research*.

ScienceCounts is a nonprofit established in 2014 that is focused on enhancing public support for federally funded research. This report draws on unpublished data from the organization's "Raising Voices for Science: Exploratory and Benchmarking Survey," which was designed to gain a greater understanding of attitudes toward science and support for the government's role in funding research.

with greater skepticism about the benefits of scientific research and concerns about the resulting pace of change.

Section 3 examines the associations between demographics and other factors and opinions on particular scientific issues. It presents case studies that illustrate the variations in trust and perceptions on three issues: vaccinations, genetically modified foods, and climate change. For example, people aged 18–29 are less likely to view childhood vaccines as safe compared with older populations, although they view medical scientists as equally trustworthy. The data in Section 3 are correlative, not causative, and highlight the need for additional research into the underlying influences on perceptions on specific science issues. These additional insights will allow for theory-based analyses that could inform more targeted approaches to helping the public evaluate scientific information.

The report shows how academic analysis of these patterns can help generate evidence-based explanations for how public opinion is shaped. Each section concludes with a discussion of several critical, underexamined questions that require more attention from scholars, pollsters, and funding organizations.

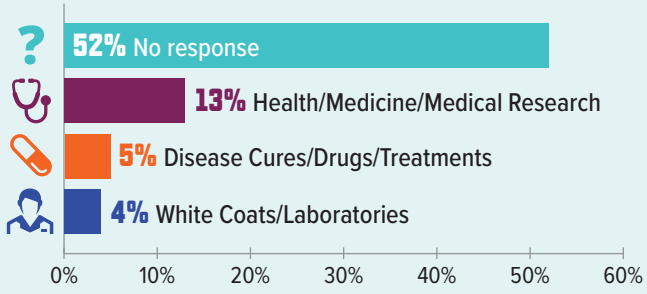
Although polling on trust and support for science fluctuates on some specific scientific issues, overall perceptions of science remain strong relative to other professions. The degree to which this support for science and scientific research is reflected in science policy decisions is a question that requires further consideration. As scientific organizations and communications professionals seek to develop evidence-based approaches to science communication and engagement, it will be critical to expand the scope of, and support for, studies on the factors that shape attitudes toward science.

Defining "Science"

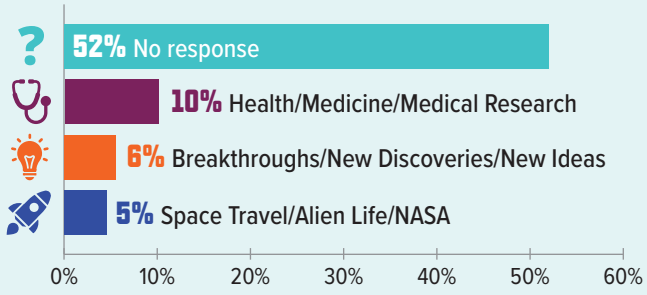
The term "science" encompasses a range of disciplines in the physical, social, and life sciences, along with applied fields, such as engineering and medicine. Science can be defined as "the use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process."[2] However, the word "science" is interpreted differently by different individuals. Often, public opinion polling does not identify whether an individual perceives "science" to mean medical treatments, technological advancements, or fundamental research in either a particular field or across multiple fields (such as chemistry, physics, biology, psychology, or sociology). Based on the context, science may also be viewed generally as an institution, a body of facts, or a process. When interpreting the available survey data, it is important to consider the range of responses a question might prompt.

What is the Very First Thing That Comes to Mind When You Hear the Phrase _____?

"Scientific Research"



"Scientific Discoveries and Advances"



SOURCE: ScienceCounts, unpublished data from "Raising Voices for Science: Exploratory and Benchmarking Survey" (survey conducted October 2015).

Reexamining the Deficit Model

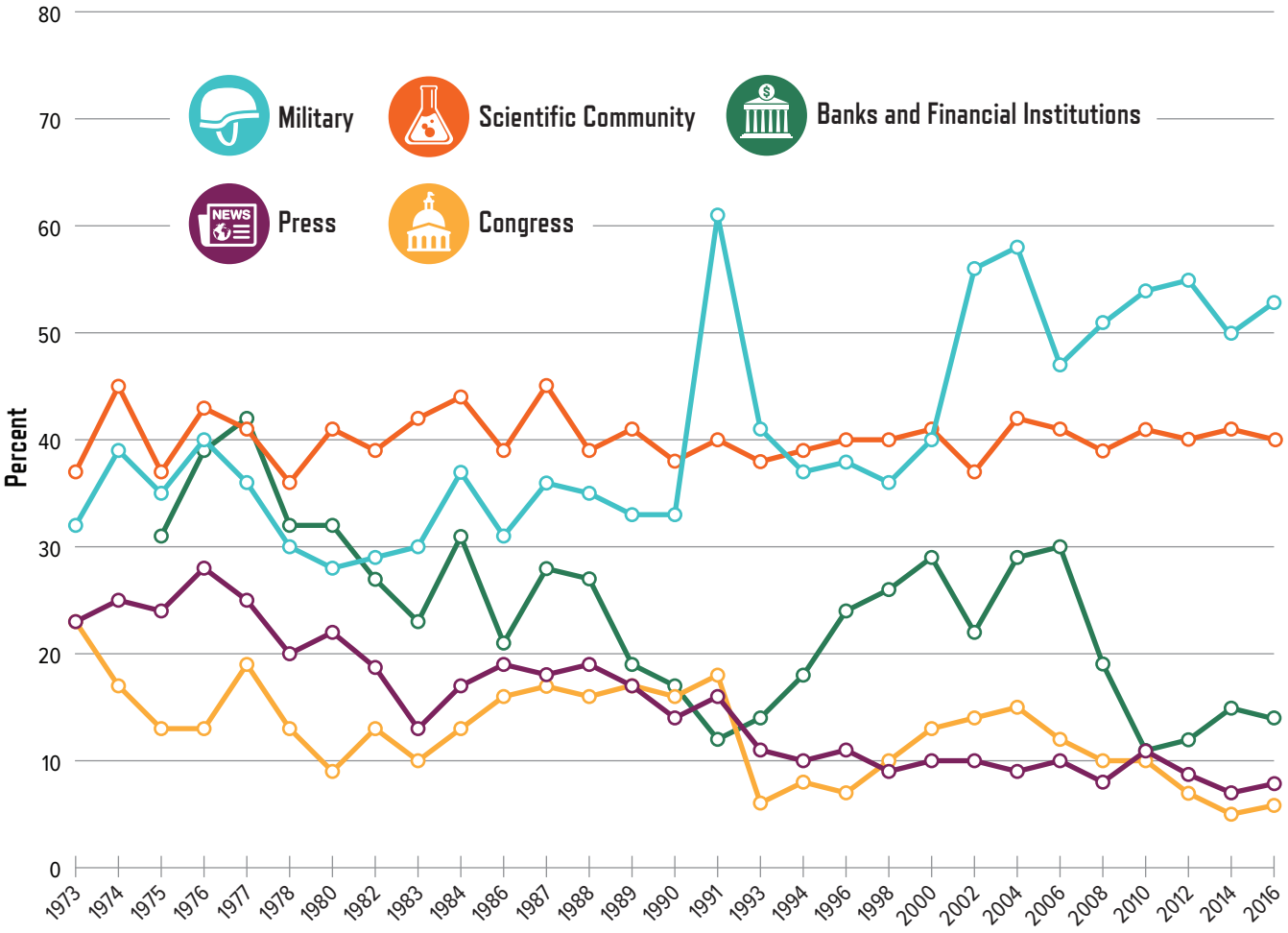
Early efforts to understand the factors underlying public attitudes toward science led to the development and popularization of the so-called deficit model, which predicted that improving science literacy and knowledge would lead to more favorable public attitudes toward science. A majority of studies in this area, however, support only a small positive relationship between science knowledge and perception.[3] As a result, social scientists increasingly focus on other factors that may play a larger role in shaping public perceptions of science.

A more nuanced approach to studying the role of science literacy also needs to be considered. Historically, "science literacy" has been defined as basic knowledge of science facts, and research on this topic has relied on assessments of content knowledge and understanding of science principles. As explained in a 2016 report from the National Academies of Science, Engineering, and Medicine, the definition of science literacy among scholars in the field has changed over recent years to include such concepts as "understanding of scientific processes and practices, familiarity with how science and scientists work, a capacity to weigh and evaluate the products of science, and an ability to engage in civic decisions about the value of science."[4]

To date, research on the connection between science literacy and public attitudes toward science has mainly used the previous, narrower definition of the concept. Moreover, the influence of science knowledge on attitudes varies depending on the specific science issue in question. In some cases, greater science literacy may even be inversely correlated with agreement with the scientific consensus (see Research Highlight on page 26). A 2015 report from the Pew Research Center highlights how science knowledge varies by demographic factors and increases with education attainment.[5] More research is necessary to understand the circumstances in which improving science literacy could positively influence perceptions.

Confidence in Scientific Leaders Remains Relatively Stable

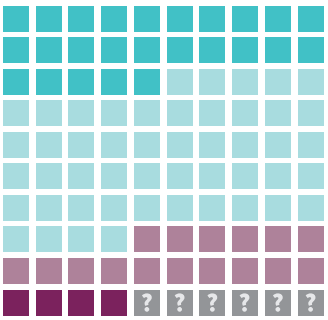
Percentage of U.S. Adults with a "Great Deal" of Confidence in the Leaders of the Following Institutions:



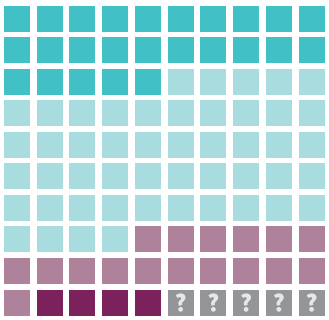
SOURCE: NORC at the University of Chicago, *General Social Survey* (1973–2016).

One of the longitudinal indicators of public perceptions is institutional confidence. In the 1970s, the National Opinion Research Center (NORC) at the University of Chicago began surveying the degree of confidence in the leaders of numerous institutions, including the scientific community, as part of its General Social Survey (GSS). This figure depicts the percentage of people who express a "great deal" of confidence as opposed to "only some" or "hardly any confidence at all." For at least four decades, about 40 percent of the public had a "great deal" of confidence in the scientific community. As of 2016, approximately 90 percent of Americans had *either* a "great deal" or "only some" confidence in the scientific community (see pages 14–15), in line with the military and far above the press, Congress, and banks and financial institutions (all below 50 percent; data not shown).

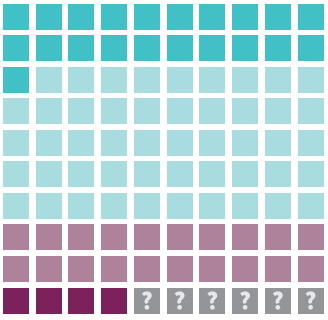
Percentage of Respondents Who Trust Research Scientists to:



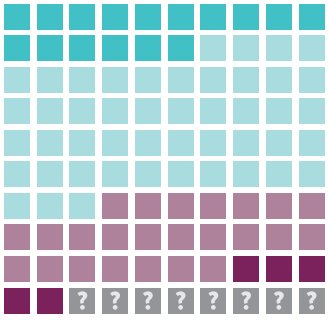
Tell the **Truth**.



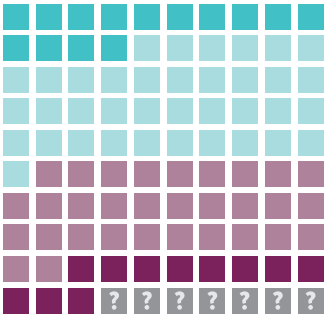
Report Their Findings **Accurately**.



Conduct Scientific Research That is in the **Best Interests** of All Humanity.



Give **Impartial Evidence** on Matters of Public Debate.



Report Findings even if They **Go Against the Sponsor** of the Research.

A Great Deal of Trust
Some Trust
Not Too Much Trust
No Trust at All
? Not Sure

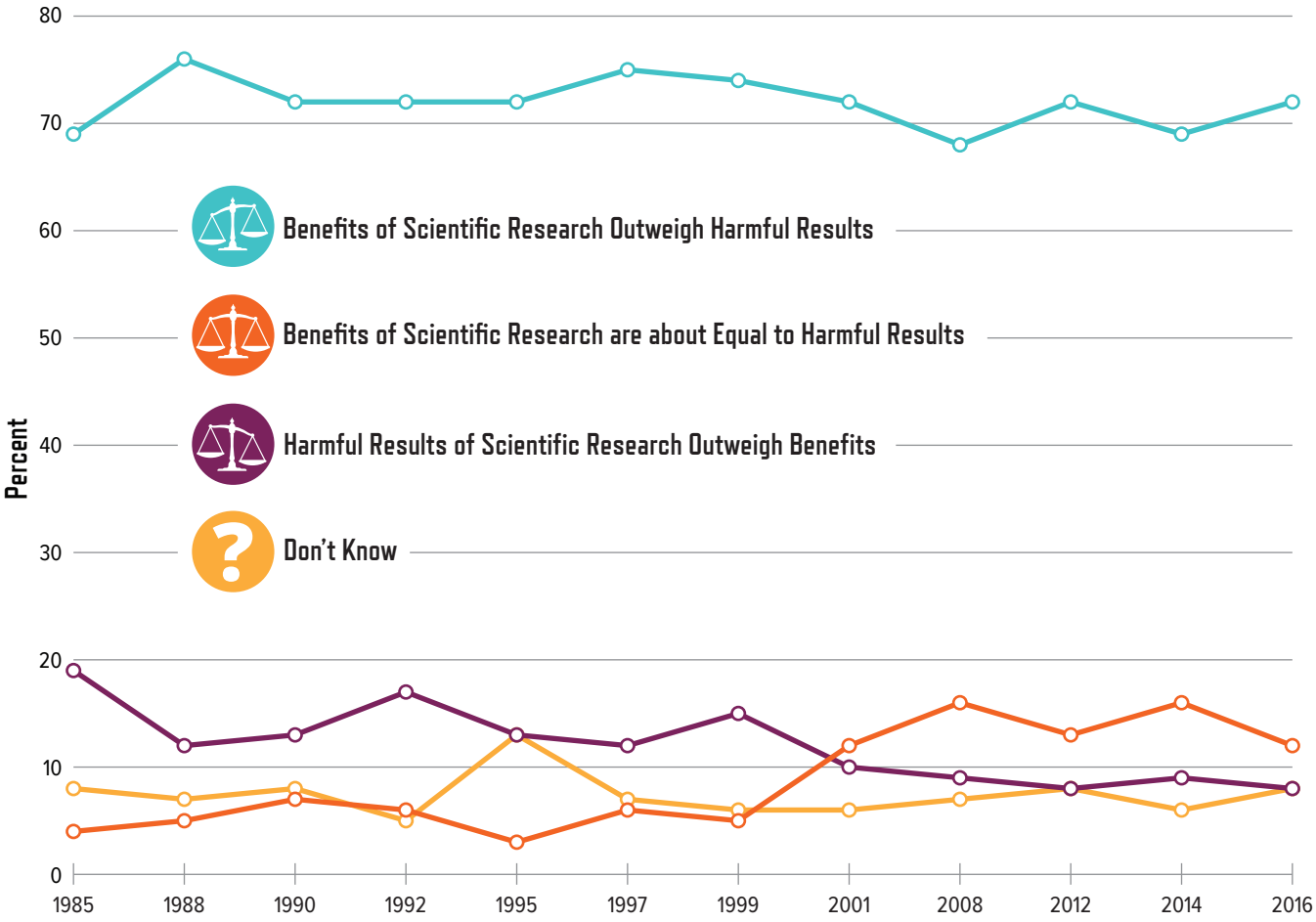
Each square represents 1 percent.

SOURCE: ScienceCounts, unpublished data from "Raising Voices for Science: Exploratory and Benchmarking Survey" (survey conducted October 2015).

Although overall confidence remains high, the level of trust in research scientists may vary based on their perceived responsibilities. In a recent exploratory market research study by ScienceCounts, approximately three-quarters of respondents placed either a "great deal" or "some" trust in research scientists to tell the truth and to report their findings accurately. By comparison, respondents expressed less trust in scientists to report findings that disagree with the interests of the research sponsor. Recent studies suggest that communicators should use approaches that convey trustworthy intentions rather than attempts at persuasion, which may be seen as indicative of an underlying agenda.[6]

A Majority of Americans Views Scientific Research as Beneficial . . .

Percentage of People Who Say That:

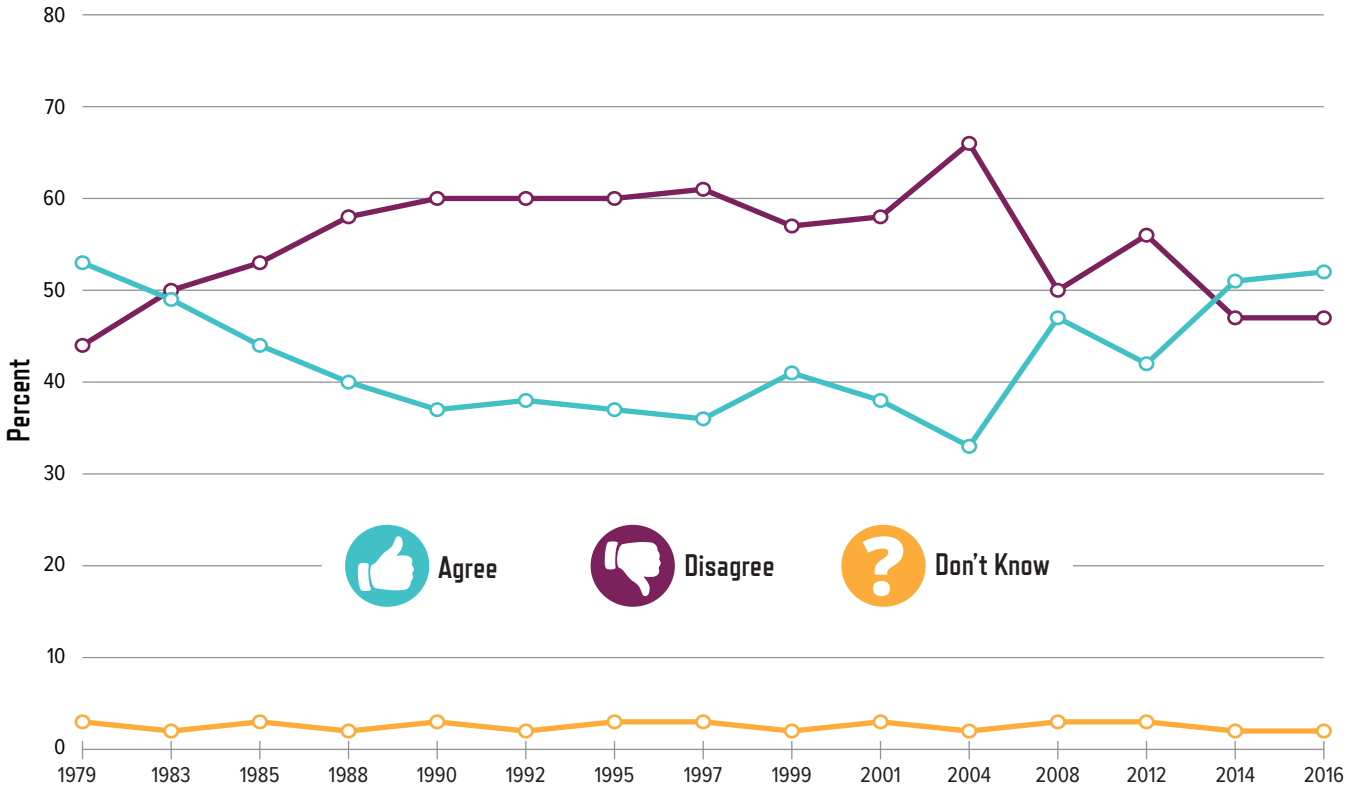


SOURCE: National Science Board, *Science & Engineering Indicators* (2018). Data from 1979–2001 collected by the National Center for Science and Engineering Statistics; and from 2006–2016 collected by NORC at the University of Chicago, *General Social Survey*. See Appendix A for information on survey methods.

Many surveys have examined how the public perceives the impact of science on societal progress, well-being, and the economy. In 2016, 72 percent of U.S. adults thought the benefits of scientific research either strongly or slightly outweighed harmful results. Consistent with this observation, a 2015 Pew Research Center study revealed that 79 percent of U.S. adults believe science has made life easier for most people, whereas only 15 percent believe that science has made life more difficult (data not shown).[7] Although a clear majority perceives science as beneficial, this sentiment varies with demographic criteria, including education, income, age, and science knowledge (see page 16).

. . . But Many Are Concerned about the Pace of Change

Percentage of People Who Agree or Disagree with the Statement "Science Makes Our Way of Life Change Too Fast":



SOURCE: National Science Board, *Science & Engineering Indicators* (2018). Data from 1979–2001 collected by the National Center for Science and Engineering Statistics; from 2004 collected by the University of Michigan; and from 2006–2016 collected by NORC at the University of Chicago, *General Social Survey*. See Appendix A for information on survey methods.

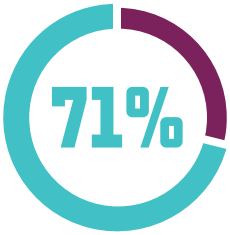
Although U.S. adults generally believe that scientific research is beneficial, other indicators of the perceived impact of science are less conclusive. For more than thirty years, U.S. adults have been asked about the extent to which they agree or disagree with the statement "Science makes our way of life change too fast." From 1983 to 2012, the majority either disagreed or strongly disagreed with the statement. In 2016, Americans were split on the sentiment, with 52 percent agreeing and 47 percent disagreeing.

A caveat for interpreting these results is the potential for acquiescence bias, a phenomenon in which respondents tend to agree with the questioner when they are uncertain about the answer.

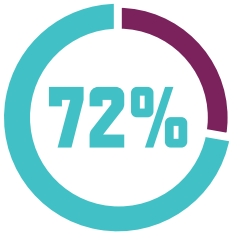
Research into how people interpret the word "science" during surveys would be helpful for understanding the results of such studies (see Defining "Science" on page 3).

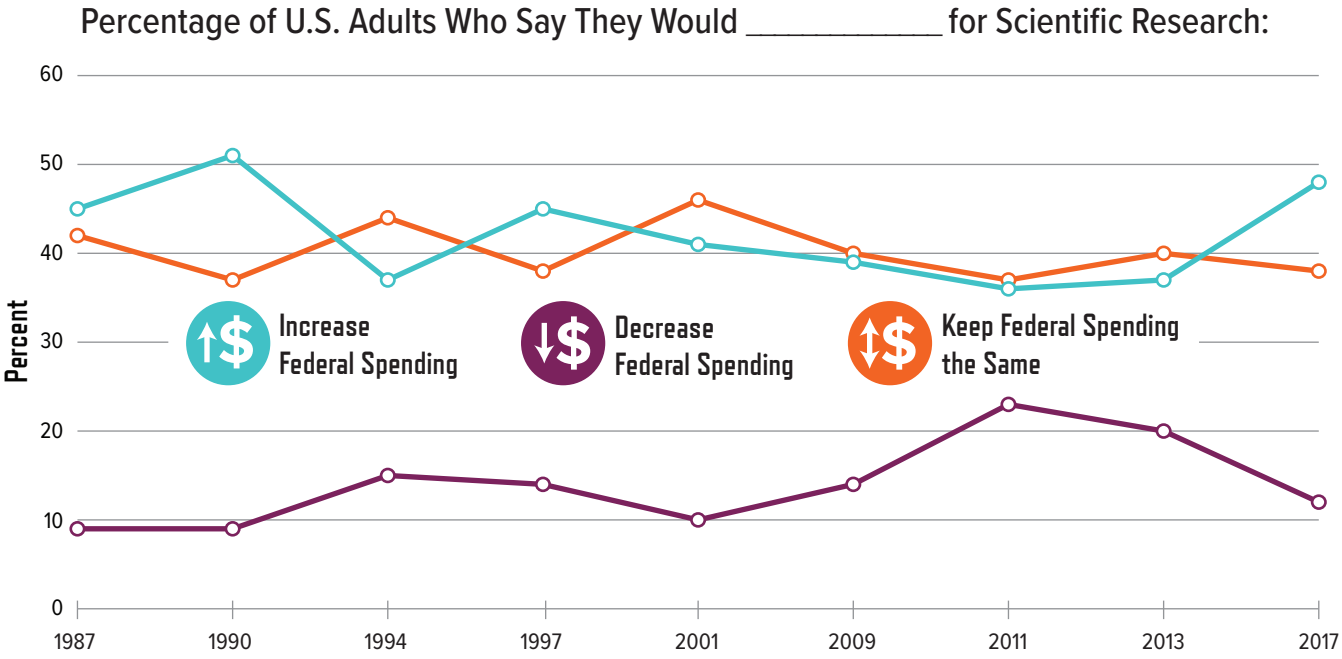
Americans Express Strong Support for Public Investment in Research

Support for Basic Science Funding
Percentage of U.S. adults saying government investments in basic scientific research pay off in the long run:



Support for Funding in Engineering and Technology
Percentage of U.S. adults saying government investments in engineering and technology pay off in the long run:



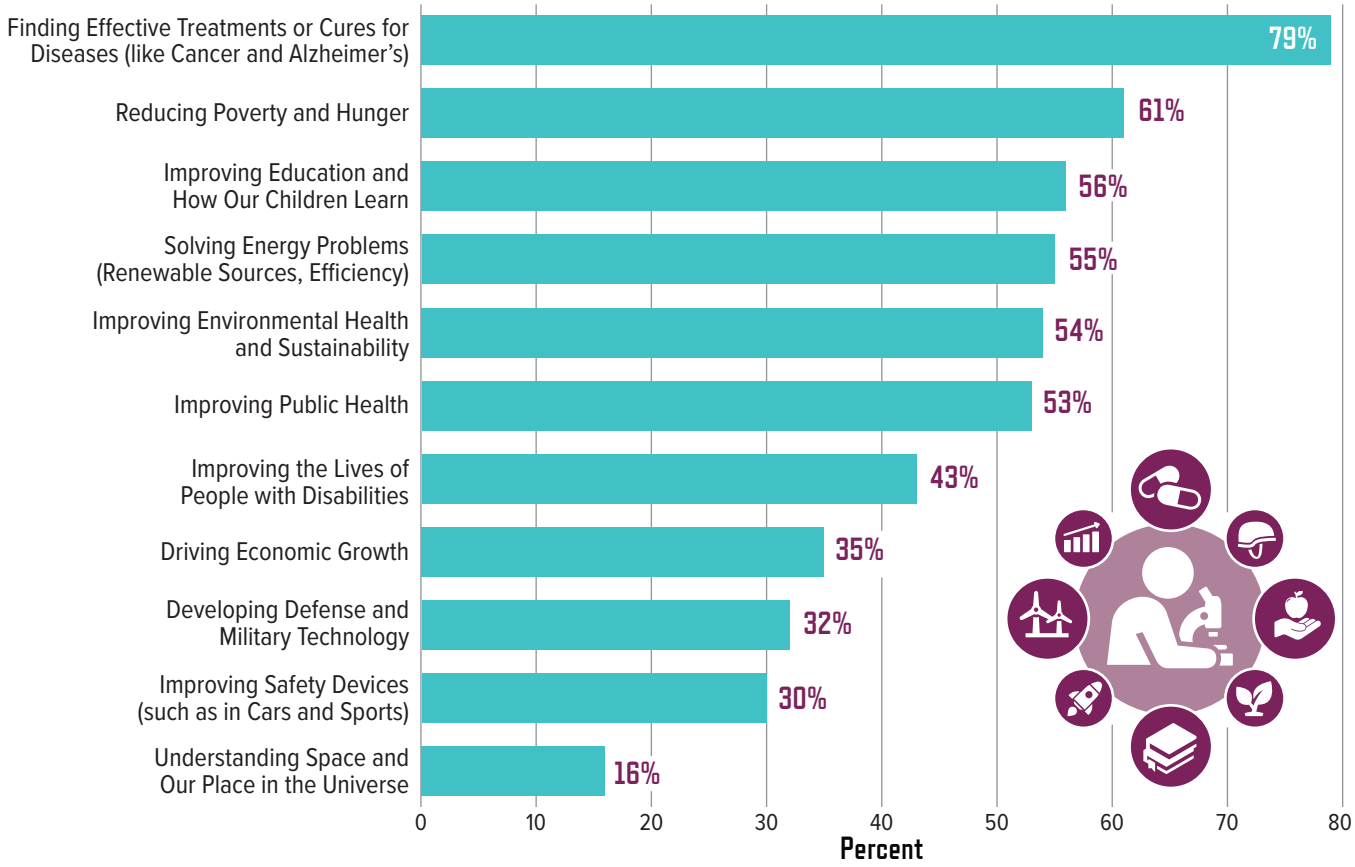


SOURCE: Cary Funk and Lee Rainie, *Americans, Politics and Science Issues*, Pew Research Center (July 1, 2015; survey conducted August 2014); and Pew Research Center, *With Budget Debate Looming, Growing Share of Public Prefers Bigger Government* (2017; survey conducted April 2017).

A majority of the public supports federal funding of basic science research and investments in engineering and technology. Support for research funding has been relatively steady over the last two decades (data not shown).[8] In a 2017 Research!America survey, 79 percent of respondents thought research investment was either "very important" or "somewhat important" for job creation, technological breakthroughs, and economic growth (data not shown).[9]

Despite a recent uptick in Americans who would like to see federal funding for scientific research increase, about half of Americans say funding should be kept the same or decreased. Recent research suggests that people become more supportive of increases in funding when misconceptions of the current funding levels in relation to the overall budget are corrected.[10]

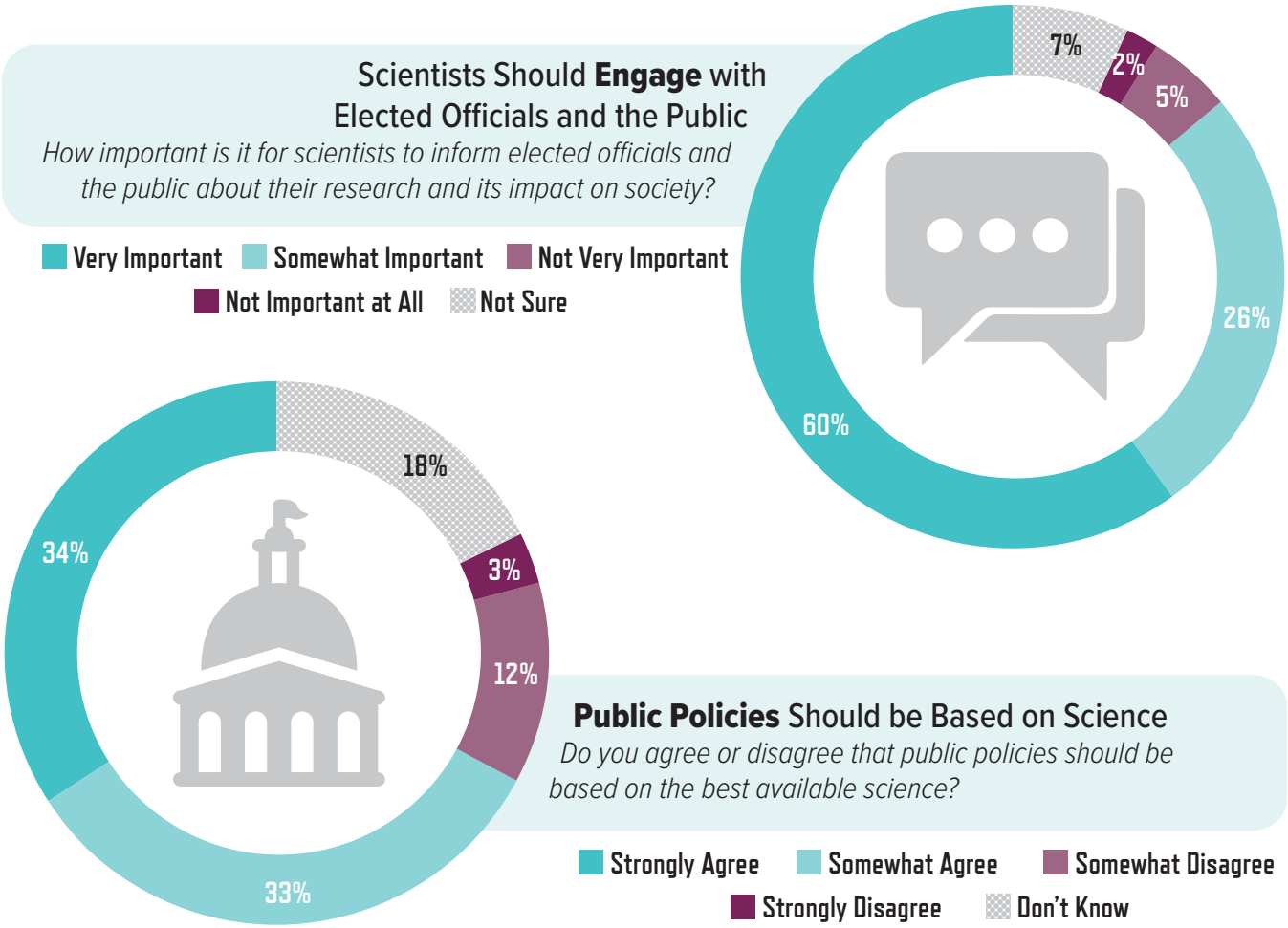
Percentage of Respondents Who Consider These Outcomes of Scientific Research to be an "Urgent Priority":



SOURCE: ScienceCounts, unpublished data from "Raising Voices for Science: Exploratory and Benchmarking Survey" (survey conducted October 2015).

Americans generally recognize science as a critical contributor to solving societal issues. In an exploratory survey commissioned by ScienceCounts, respondents were asked to rate several potential outcomes of scientific research as "urgent," "important but not urgent," "not important at this time," or "not sure." More than 60 percent of respondents considered each of the indicated research outcomes to be "urgent" or "important" (data not shown). While more studies will be needed to confirm and extend the results of this market research survey, they illuminate potential differences in how individuals perceive different scientific outcomes. For example, although climate change is a politically polarizing issue (see Section 3), approximately 55 percent of respondents considered "solving energy problems" and "improving environmental health and sustainability" to be "urgent" priorities.

Americans Support an Active Role for Science and Scientists in Public Life

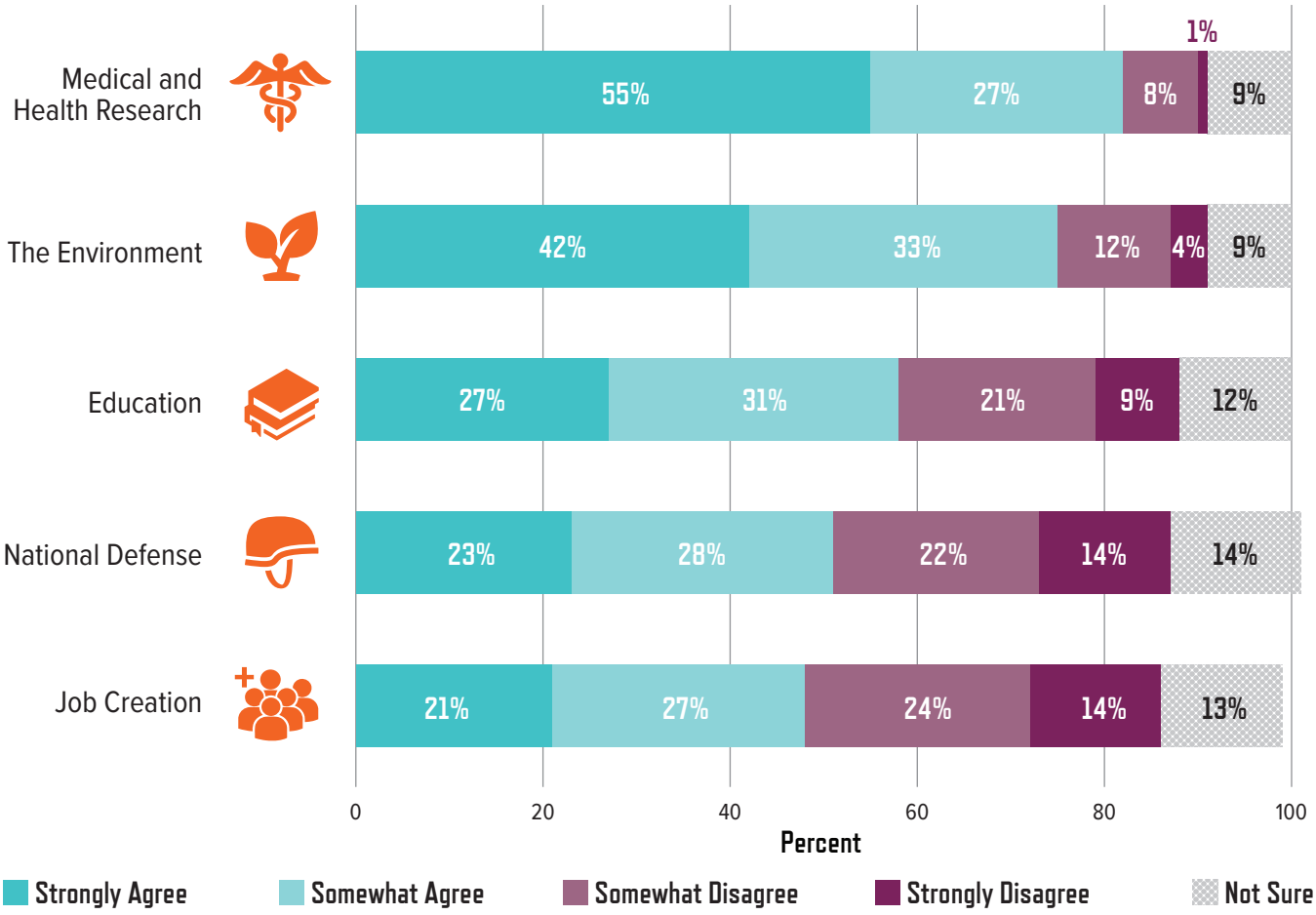


SOURCE: Research!America, *America Speaks: Volume 17* (2017; survey conducted January 2017); and Research!America, *Public Perception of Clinical Research* (2017; survey conducted July 2017).

Polling suggests relatively high confidence in scientists and awareness of the societal benefits of scientific research. But does this confidence translate to support for scientist engagement or science in policy? In a 2017 Research!America market research survey, 67 percent of respondents indicated that they "strongly agree" or "somewhat agree" that public policies should be based on the best available science. Another 2017 Research!America survey found that 86 percent of respondents agreed that it is either "very" or "somewhat" important for scientists to inform elected officials and the public about their research and its impact. The number of respondents who think engagement is "very important" increased 9 percent from a 2015 survey (to 60 percent), although this shift corresponded with a 7 percent decrease in those who consider engagement "somewhat important" (26 percent).[11]

Scientists Should Play a Major Role in Shaping Public Policy

Scientists Should Play a Major Role in Shaping Policy for . . .



SOURCE: Research!America, *America Speaks: Volume 17* (2017; survey conducted January 2017). Data may not total 100 percent due to rounding.

Views on scientists' role in shaping policy vary based on the issue. While 82 percent of respondents to a Research!America market research survey agreed that scientists should help shape medical and health research policy, fewer support scientist participation in job creation and national defense policy. This gap aligns with the prioritization of research to find disease cures rather than drive economic growth or develop military technology (page 9). Likewise, Pew Research Center studies show that 73 percent of Americans say medical scientists should have a major role in childhood vaccine policy[12] and 67 percent say climate scientists should be involved with global climate change policy.[13] More research is necessary into how a person's understanding of science's role in policy affects his or her perceptions.

Discussion and Research Considerations

Data on perceptions of science reveal robust, long-term support for the leaders of scientific institutions, federal science funding, the use of scientific evidence to inform policy, and an active role for scientists in advising policy-makers. Although the scientific community continues to enjoy broad support, surveys also suggest the potential for specific questions to provoke different reactions. To understand the nature of these reactions, additional research and surveys are needed on people's understanding of the scientific process and the government's role in funding science. Insights from these research considerations would allow scientists, science communicators, and science advocates to develop targeted strategies for maintaining or increasing public support for science.

Contextualizing Trust in Science and Scientists

Trust in scientists tends to be higher when people consider general metrics, such as trust in scientists to "tell the truth," compared with particular scenarios, like trusting scientists to report findings that "go against the sponsor of the research" (pages 4–5). Similarly, when people are surveyed on specific impacts, such as a changing way of life, the responses are mixed (page 7). To better understand these responses, additional research should consider:

1. ***How do people interpret the words "science" and "scientists" when responding to survey questions?*** Interpretations may vary based on demographic background and life experience, so understanding this question is critical for interpreting survey results. For example, the words "science" and "research" may bring to mind distinct scientific disciplines, products, or experiences for different people.
2. ***To what extent are individuals' perceptions of science and trust in scientists influenced by their variable understanding of the scientific process, including issues related to study design, peer review, reproducibility, and the iterative nature of scientific discovery?***
3. ***How does trust in science and scientists change based on where the research is performed? Is there more trust in federally funded versus privately funded research?***

Some of these questions could be answered through the administration of new and more nuanced surveys, while others will require partnerships between public opinion researchers and social scientists. A finer distinction among different groups and contexts would also be beneficial.

An expanded understanding of the interplay of factors that shape trust in science may identify areas of weakness that require greater attention from the scientific community. Moreover, these insights may inform science communication efforts to counteract any potential erosion of trust. Expanded polling and research also will be important for addressing emerging scientific questions that have policy implications. For instance, understanding trust in technology companies and their researchers is an important context for understanding attitudes toward innovations such as artificial intelligence and the many emerging regulatory and policy issues related to privacy and security.

Perceptions of Science Funding and the Role of Science in Policy

A majority of the public believes that scientists should inform elected officials about their work and that federal support for basic research pays off in the long run (pages 8 and 10). However, data also show that support for incorporating science into policy varies by issue. The available polling data do not reveal whether people accurately understand how science is funded and how it can inform public policy, nor is it clear to what extent this understanding, or lack thereof, shapes an individual's attitudes. To better comprehend public support and improve science advocacy, future research on the subject should consider:

1. ***What do people know about how policy processes incorporate the results of scientific research? Do positive attitudes toward science and/or a greater knowledge of the policy process lead to more support for the use of science in policy?***
2. ***What do people know about the role of science institutions (like research universities) in their communities? Does a greater understanding of science institutions improve perceptions within local communities?***
3. ***What do people know and understand about science funding? To what extent is public support for investment in research dependent on their understanding of how science is funded and the relative roles of public and private support? How do current social, political, and economic trends influence the prioritization of science funding by policy-makers and their constituents?***

Research on these questions would provide insight into the potential causes of negative perceptions, such as whether misperceptions of the role of public funding influence the desire to maintain or decrease funding for research. Such research would also contribute to an expanded definition of science literacy (see Reexamining the Deficit Model on page 3).

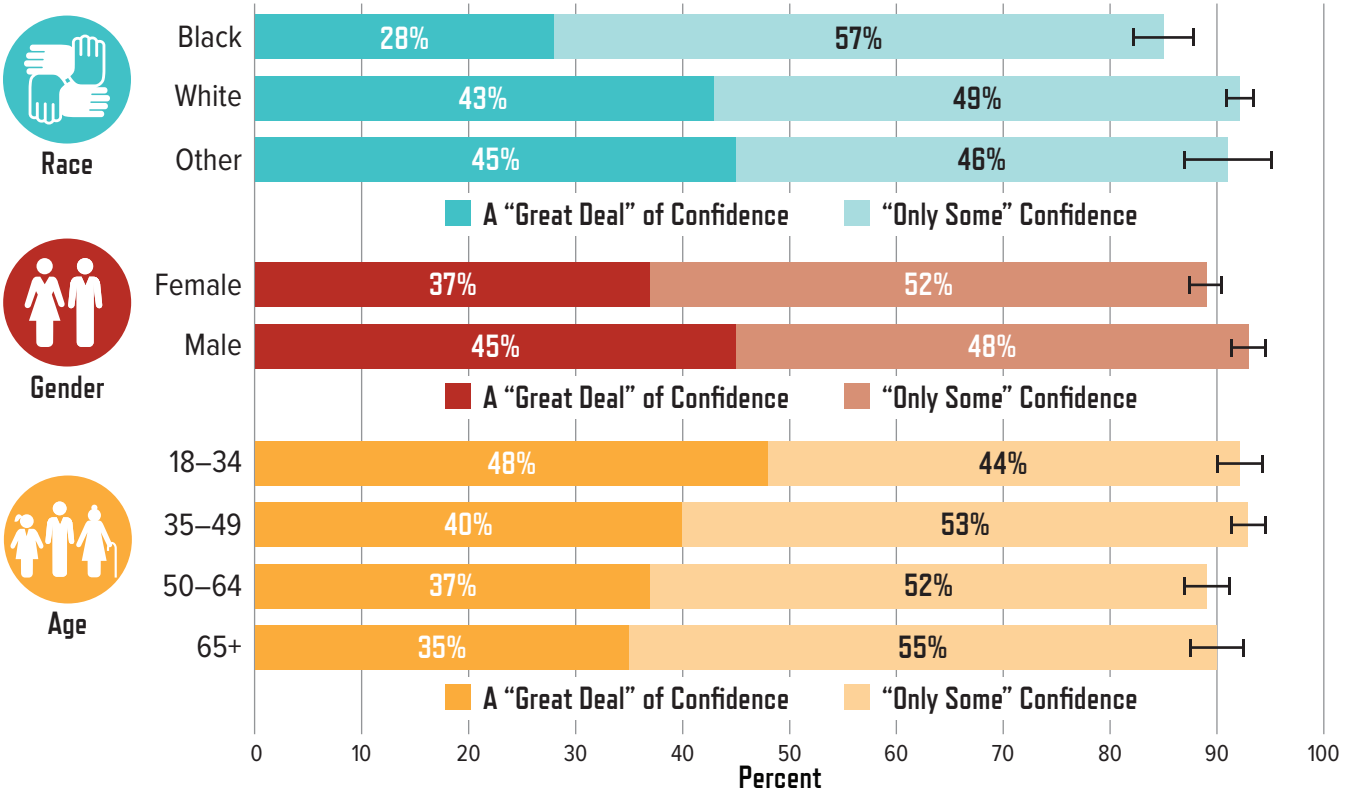
Moreover, when conducting these studies, it will be important to consider how external factors, such as the state of the economy, may shift support for science funding.

To help craft effective research questions on public policy, researchers will need to work with experts familiar with the use of science in policy.

Due to the expansive nature of these science funding and policy questions, researchers should identify and focus on the areas in which an improved understanding would have the highest impact. For example, the data indicate less support for scientist engagement in job creation and national defense policy than in medical and health research (page 11). The results of these studies could help guide efforts to advocate for greater support in these areas.

Confidence in Scientific Leaders Varies Based on Demographics and Other Factors

Percentage of U.S. Adults with a "Great Deal" of or "Only Some" Confidence in the Leaders of the Scientific Community:

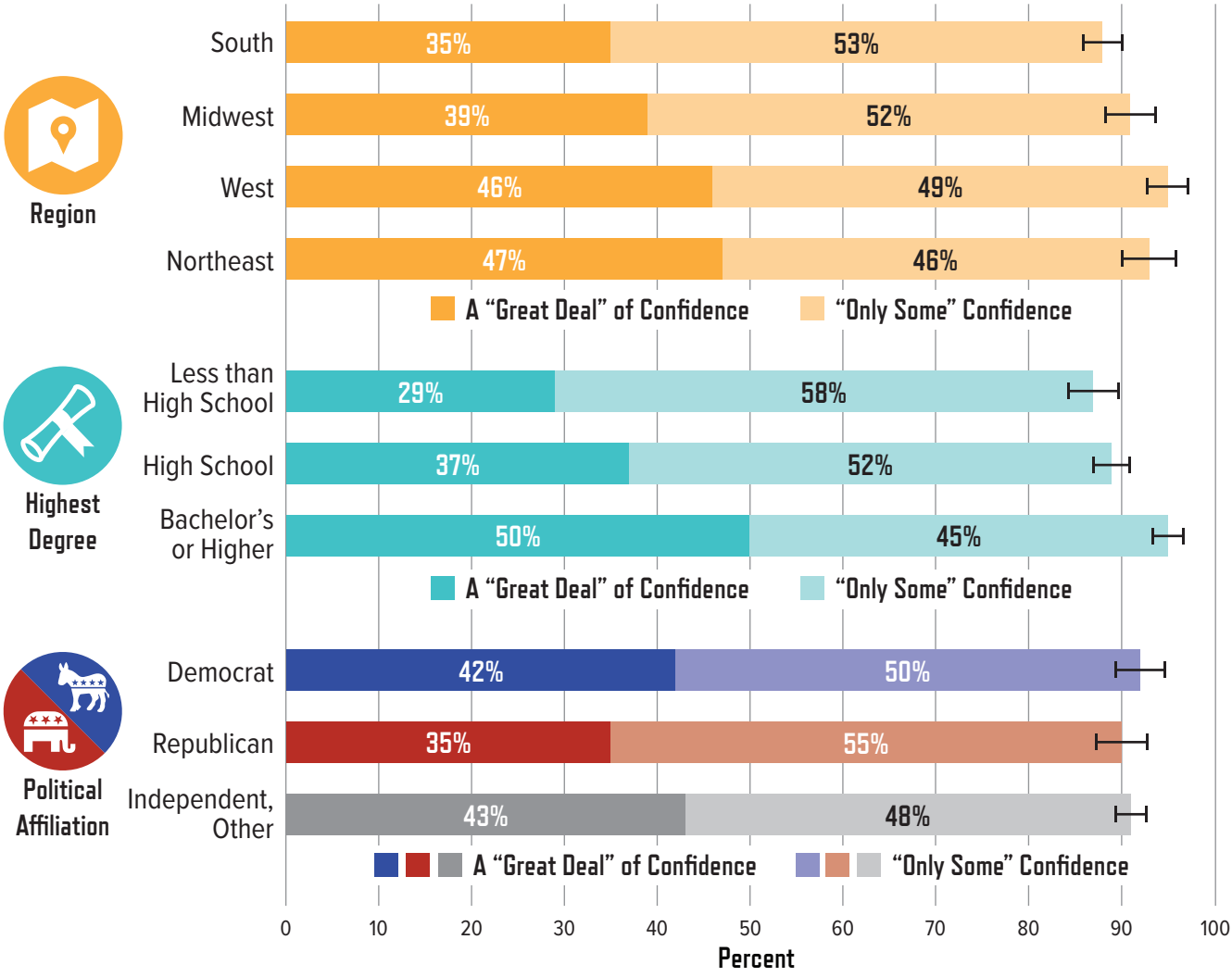


SOURCE: NORC at the University of Chicago, *General Social Survey* (2016). Race was self-identified through the question, "What race do you consider yourself?" Race categories are as reported by NORC; "Other" includes all respondents, including Hispanics, who did not self-identify as "Black" or "White." The black bar signifies standard error.

Overall, 90 percent of Americans express either a "great deal" or "only some" confidence in scientific leaders; this number does not significantly vary among various demographic groups. In contrast, black and female adults are less likely to report a "great deal" of confidence in scientists, while younger Americans are more likely to. Black and female adults did not report comparatively lower trust in other institutions, such as education and banks/financial institutions (data not shown).[14]

GSS data show that the gap between black Americans and other groups was narrower at certain points, such as the late 1980s and 2010. One recent analysis determined that inequitable educational experiences account for approximately one-third of the difference in trust.[15] Other cultural elements, including religious beliefs, accounted for most, but not all, of the remaining gap. More research is needed to understand the influence of additional factors, such as the historical relationship between science and race.

Percentage of U.S. Adults with a "Great Deal" of or "Only Some" Confidence in the Leaders of the Scientific Community (continued):

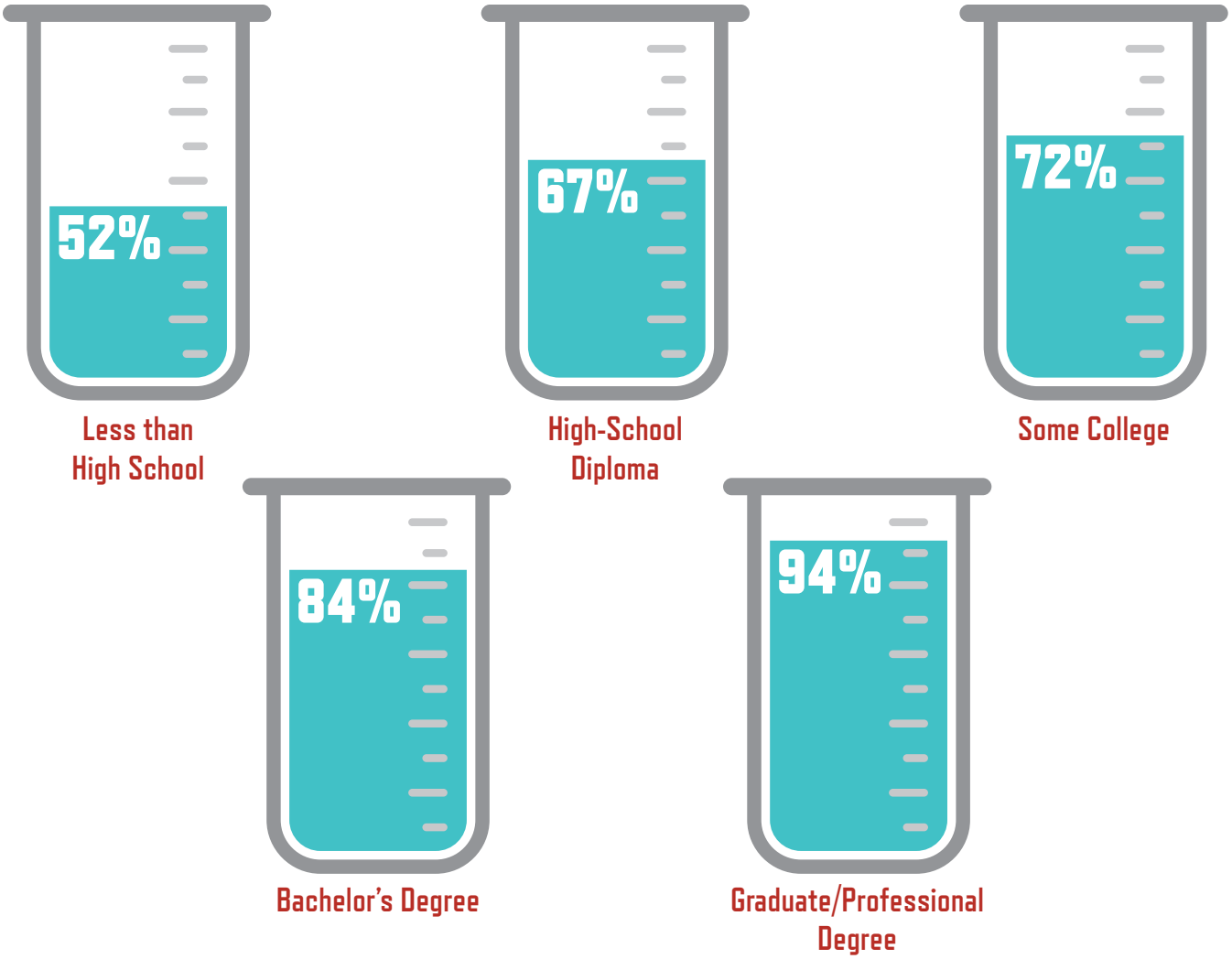


SOURCE: NORC at the University of Chicago, *General Social Survey* (2016). The black bar signifies standard error.

The 2016 GSS data also reveal that while 50 percent of college-educated adults have a "great deal" of confidence in scientific leaders, only 29 percent of respondents without a high-school diploma expressed this level of confidence. The positive relationship between education and trust is reversed for other institutions: people with higher educational attainment are less likely to have confidence in the military and education (data not shown).[16]

Higher Educational Attainment Correlates with Positive Perceptions of Science

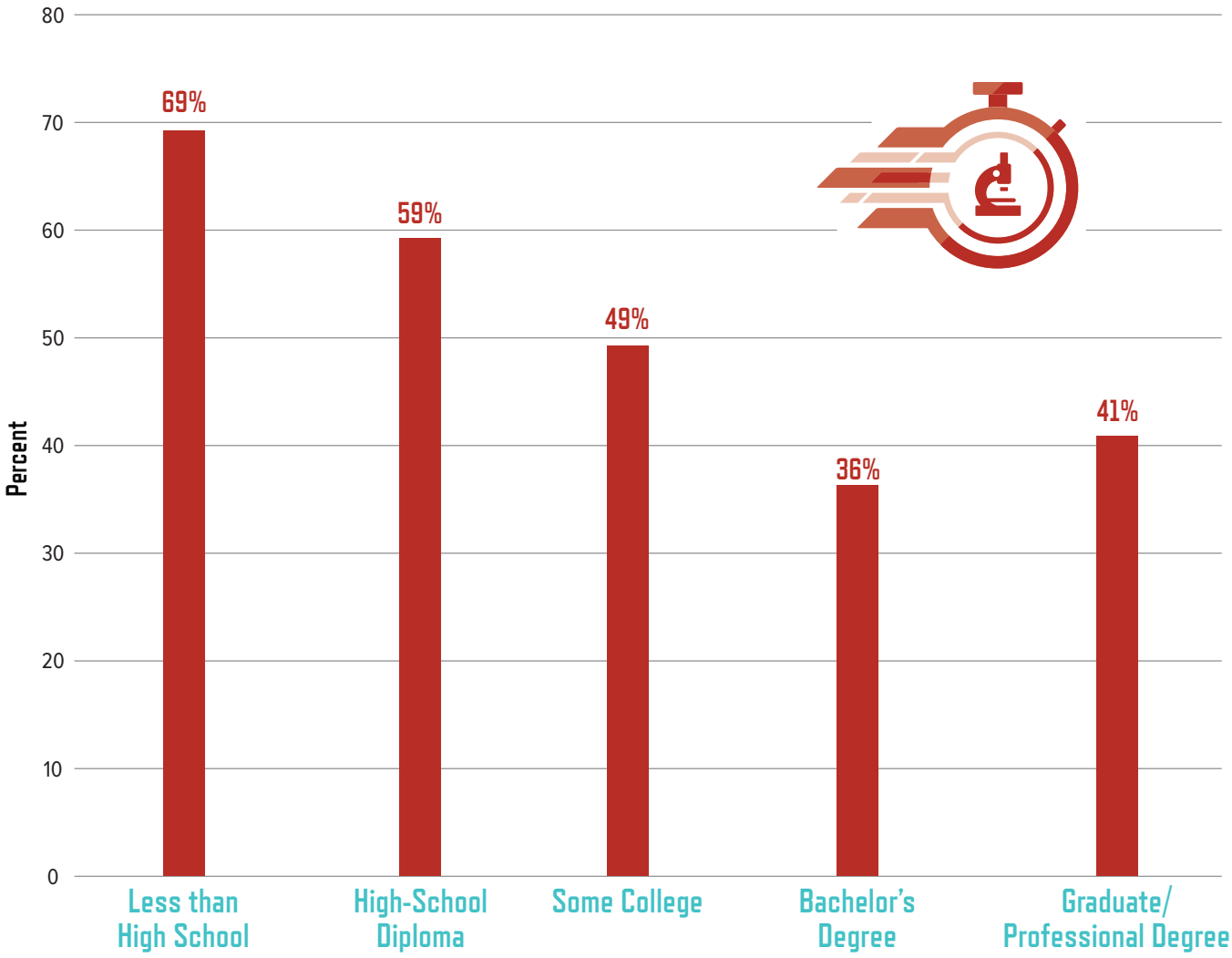
Percentage of People Who Say that the Benefits of Scientific Research Outweigh the Harmful Results, by Educational Level:



SOURCE: National Science Board, *Science & Engineering Indicators* (2018).

The NSB assessment of whether U.S. adults believe the benefits of scientific research either strongly or slightly outweigh the harmful results reveals a similar divide by education level. The 2016 data show that although 72 percent of the overall population agrees the benefits outweigh the harms, only 52 percent of people without a high-school diploma agree. Similar trends are observed with increasing family income, science knowledge, and age (although there is a dip in this perception among those 65 and older).

Percentage of People Who Agree that Science Makes Life Change Too Fast, by Education Level:

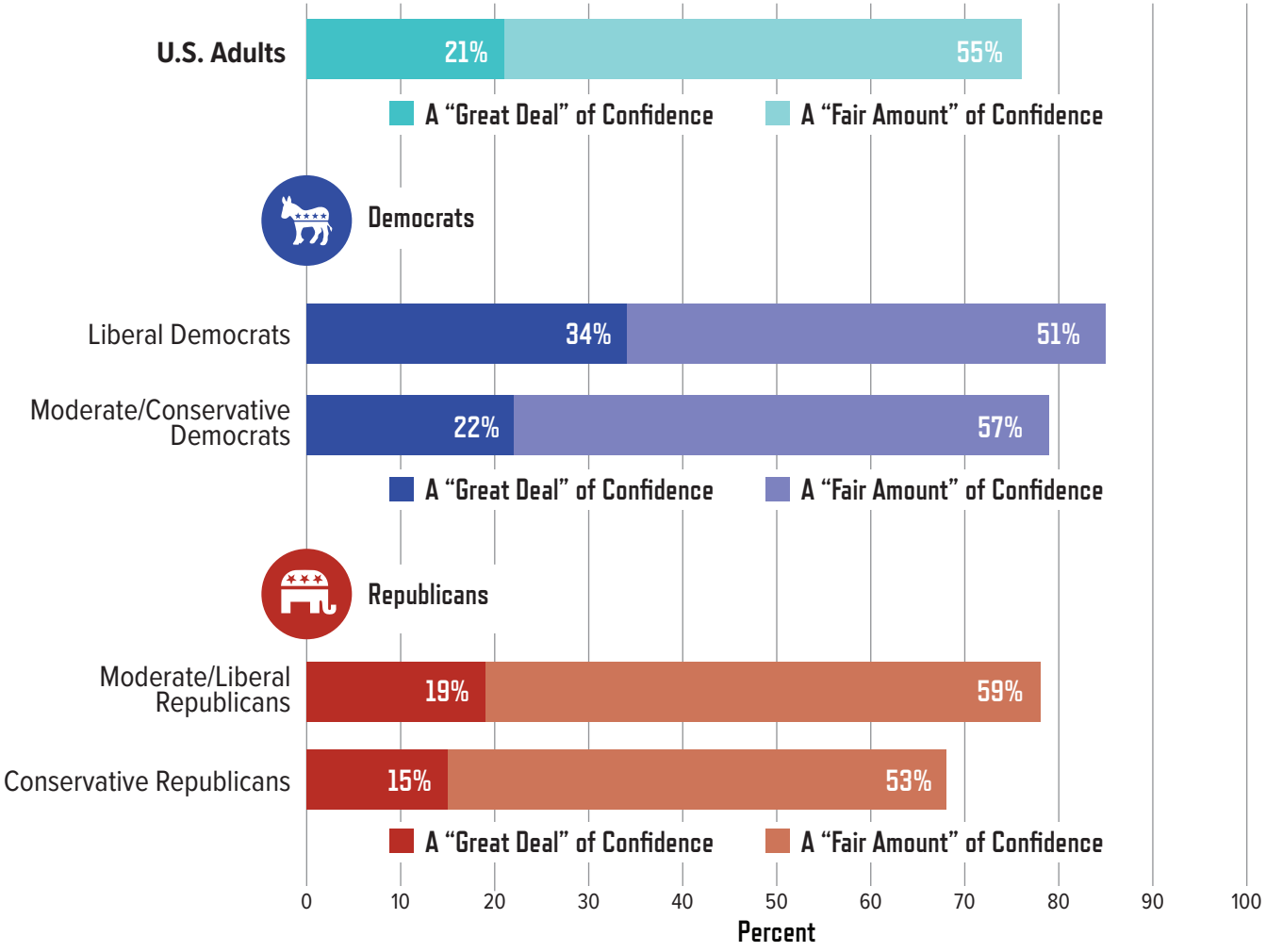


SOURCE: National Science Board, *Science & Engineering Indicators* (2018).

People were also asked about the extent to which they agree or disagree with the statement "Science makes our way of life change too fast." For the approximately 10 percent of Americans who did not complete high school, the vast majority (69 percent) agreed that science makes life change too fast.[17] In comparison, 36 percent of those with a bachelor's degree expressed this sentiment. Consistent with the strong correlation between education and income in the United States,[18] respondents with lower family income also were more likely to agree with the statement (data not shown).

Trust in Scientists Varies Based on Education and Politics

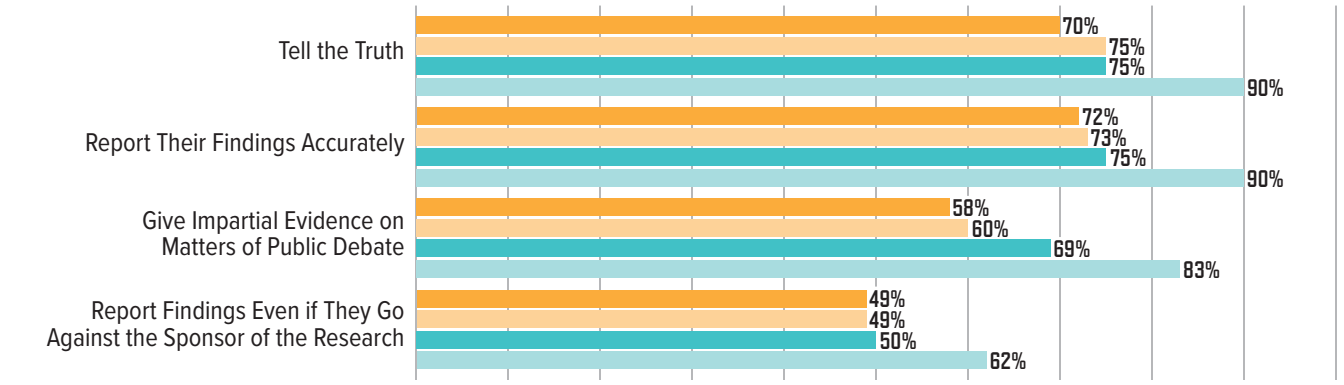
Percentage of U.S. Adults Who Say They Have Confidence in Scientists to Act in the Best Interests of the Public, by Political Affiliation:



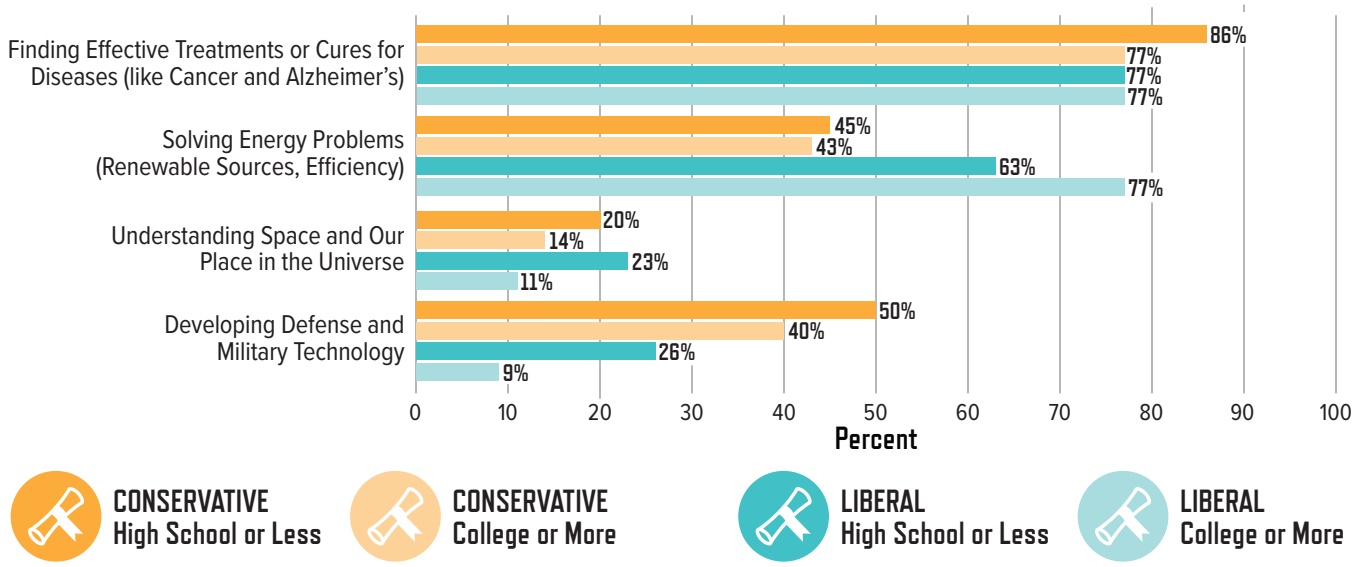
SOURCE: Cary Funk and Brian Kennedy, *The Politics of Climate*, Pew Research Center (October 4, 2016; survey conducted May and June 2016). Margins of error: U.S. Adults (+/- 4), LD (+/- 7.5), M/CD (+/- 6.9), M/LR (+/- 7.7), and CR (+/- 11.4).

A majority of both Democrats and Republicans express some degree of confidence in the scientific community. But a 2016 study from the Pew Research Center found that 34 percent of liberal Democrats expressed a "great deal" of confidence in the scientific community, while only 15 percent of conservative Republicans did the same. Studies suggest that skepticism among conservatives may originate from concerns with the relationship between science and government.[19]

Political/Educational Breakdown of People Who Place a "Great Deal" of or "Some" Trust in Scientists to:



Political/Educational Breakdown of People Who Consider These Outcomes of Scientific Research to be an "Urgent Priority":



SOURCE: ScienceCounts, unpublished data from "Raising Voices for Science: Exploratory and Benchmarking Survey" (survey conducted October 2015).

A recent exploratory market research survey from ScienceCounts included several questions to assess general public perceptions of scientists and priorities for public funding of scientific research (see pages 5 and 9). The survey examined answers based on political ideology and education level. Liberal respondents with a college degree or more placed the highest amount of trust in scientists in different scenarios—such as reporting their findings accurately—although trust among all groups still remained relatively high. Conservatives tended to cluster together in their responses despite their educational background, while the responses from liberals were more varied.

With respect to research priorities, all groups highly prioritized "finding effective treatments or cures for diseases." A higher percentage of conservative respondents considered outcomes related to "developing defense and military technology" a greater priority compared with college-educated liberal respondents.

Discussion and Research Considerations

Viewing perceptions of science through a demographic lens highlights the need to consider the audience when communicating science. The data support the perception that there is not one general "public" but rather many publics who consume information based on a range of underlying factors. Moreover, social science research suggests that characterizing attitudes solely through a demographic framework provides a limited explanation of the mechanisms that inform an individual's perspective. How people think about science varies in important ways among and within groups. In addition, while most demographic indicators are either static or subject to small shifts, perceptions change over time. A sizeable fraction of the public likely does not have strong, set attitudes about science.

Examining the Underlying Influences on Trust and Perception

People of different races, education levels, and political ideologies have differing levels of confidence in the scientific community, but the causes are unclear (pages 14–15). Moreover, there is a limited understanding of shared factors between groups and the governing influences behind perception. Additional research on this topic should consider the following questions:

1. ***What causes an individual to trust science messengers?*** There has been research on the area of trust generally, but more research is needed that looks specifically at science messengers and the concept of scientific authority.
2. ***How do an individual's experiences with science shape his or her attitudes? How flexible are these attitudes once established?***
3. ***How and when do people become curious about science? Are there general trends in how attitudes and curiosity change during a person's lifetime?***
4. ***What influence do various forms of news media, social media, and entertainment media have on trust? How do messages and cues provided by political leaders and like-minded peer groups influence trust and attitudes?***

When assessing the influence of individuals' experiences and worldviews on attitudes toward science, social scientists have the task of establishing a consensus on how to define fundamental terms such as "values" and "perceptions." There is also a need for targeted research on how specific values influence specific perceptions. In line with the questions contextualizing trust in Section 1, understanding the underlying factors that shape trust in science will help strengthen science communication efforts. More-extensive collaborations between social scientists and science communicators could improve the application of these concepts to communication strategies.

Exploring Group Identity and Specific Communities

Social scientists should specifically consider how perceptions of science are influenced by group identities based on gender, race, religion, political ideology, and other factors. Historical case studies could be useful for providing insights on this topic. When considering questions of group identity, it will be necessary to consider how the definitions of the subgroups and the scientific field in question can influence the quality and interpretation of these data. It is also important not to treat these groups as monolithic, since perceptions of science may vary even among those sharing a particular group identity.

Further research on group identities should explore:

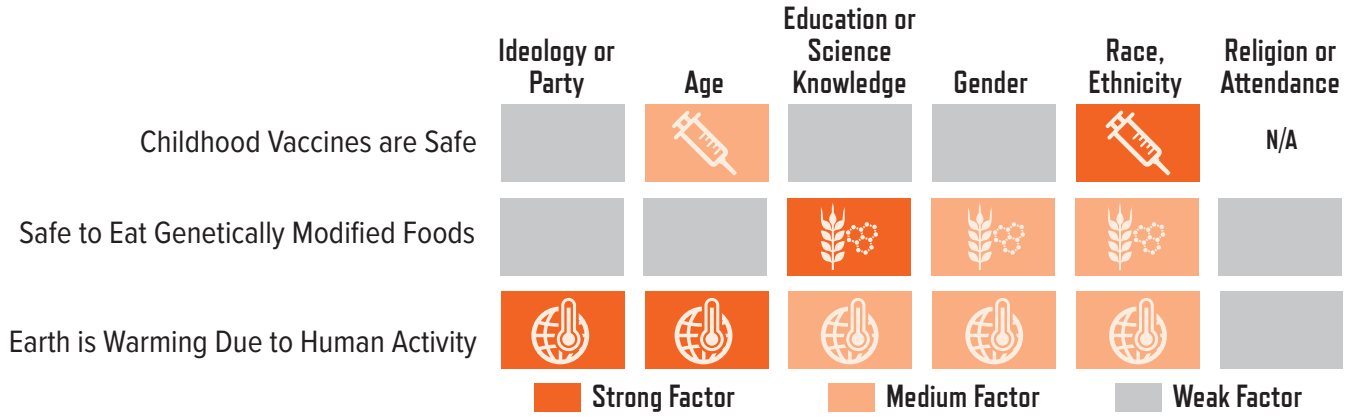
1. ***How do we understand the role of social norms and the media in shaping cultural perceptions of science?*** Studies on the role of culture should explore a range of media, such as poetry, literature, television, and movies, and should evaluate possible differential effects among different subpopulations.
2. ***What barriers to accessing science exist in low-income and marginalized communities? How does infrequent contact with high-quality scientific content affect perceptions of science?***
3. ***How do communication approaches prime a person to respond with a particular group identity? Are there communication strategies that elicit positive attitudes toward science?*** These questions should seek to identify the approaches that encourage discussion around shared identities and interests instead of the differences accompanying group identity.

There is No Single Anti-Science Population . . . But More Research is Needed to Understand Why

Sections 1 and 2 present data on general trust in scientists and the perception of science among select demographics. This section of the report explores trust on three topics that have generated controversy in public discourse despite clear consensus among scientists: vaccines, genetically modified foods, and climate change. Although such controversy arises from only a small minority of scientific issues, it threatens to undermine confidence in scientific research and diminish society's capacity to develop appropriate public policy.

A July 2015 report from the Pew Research Center, *Americans, Politics and Science Issues*, used multivariate analysis to determine the characteristics that associate independently with opinions for or against the scientific consensus on these three issues, among others (see figure below). For example, older adults are significantly more likely to agree with the scientific consensus that vaccines are generally safe for healthy children. And Americans with either a postgraduate education or greater general science knowledge agree most strongly with the scientific consensus that genetically modified foods are safe to consume, with weaker correlations with gender and race or ethnicity. Notably, of these three topics, only for climate change do political ideology and party affiliation correlate strongly with acceptance or rejection of the scientific consensus, with conservatives and Republicans being more likely to reject the consensus that the Earth is warming due to human activity.

Relative Strength and Statistical Significance of Factors Influencing Views on Controversial Issues



SOURCE: Cary Funk and Lee Rainie, *Americans, Politics and Science Issues,* Pew Research Center (July 1, 2015; survey conducted August 2014).

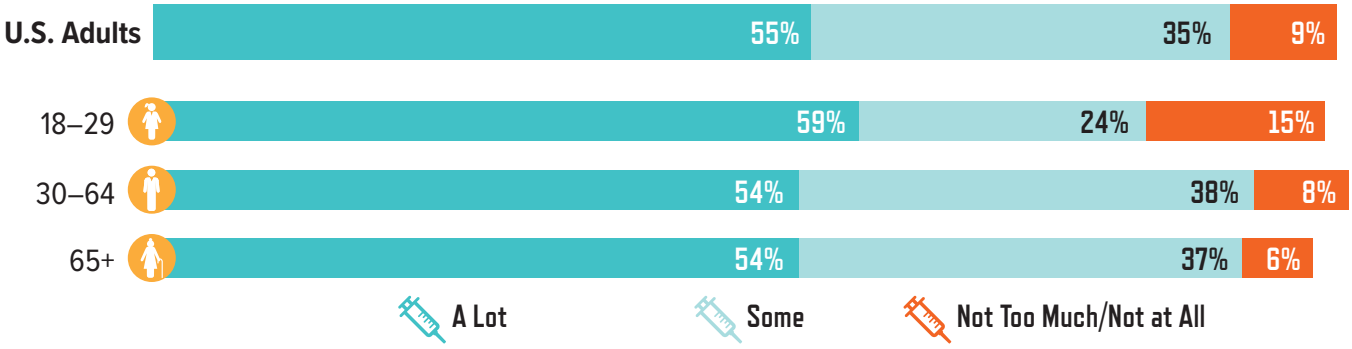
This figure does not identify *how* a particular characteristic correlates with views of the science; indeed, a given demographic group may report greater acceptance on some issues and less acceptance on others. For example, younger respondents are more likely than older respondents to agree with scientific findings on the cause of climate change but less likely to view childhood vaccines as safe.

The relationship between race or ethnicity and agreement with the scientific consensus also varies for each of these three issues. Black and Hispanic Americans are less likely to say vaccines are safe compared with non-Hispanic whites, but Hispanics are more likely to say the Earth is warming due to human activity compared with non-Hispanics of any race.

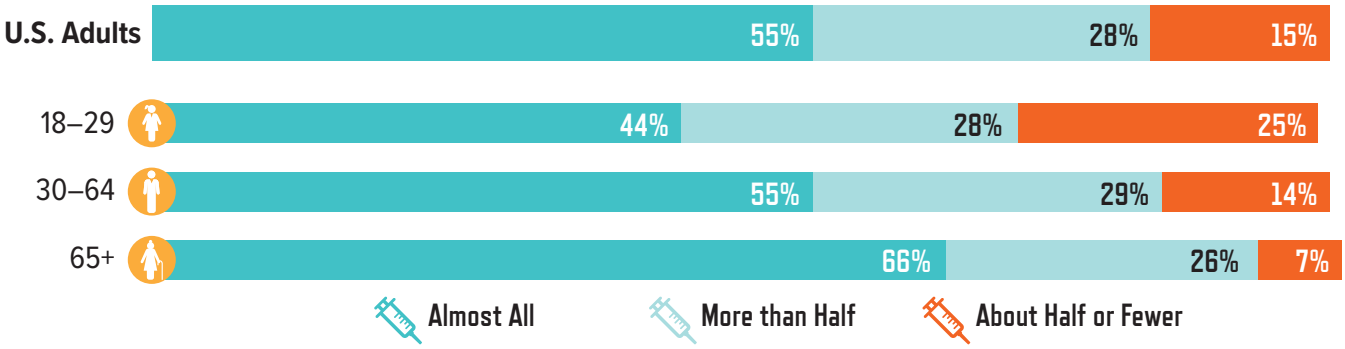
Subsequent reports from the Pew Research Center provided more details on how these characteristics are associated with public understanding of the scientific consensus on each of these three critical issues. The following case studies draw on data from those reports to illustrate the complexities of public opinion on these topics and highlight the need and potential avenues for additional research.

CASE STUDY: Vaccine Safety

Degree of Trust in Medical Scientists to Provide Full and Accurate Information on the MMR Vaccine, by Age of Respondent:



Perceived Share of Medical Scientists Who Agree the MMR Vaccine is Safe, by Age of Respondent:

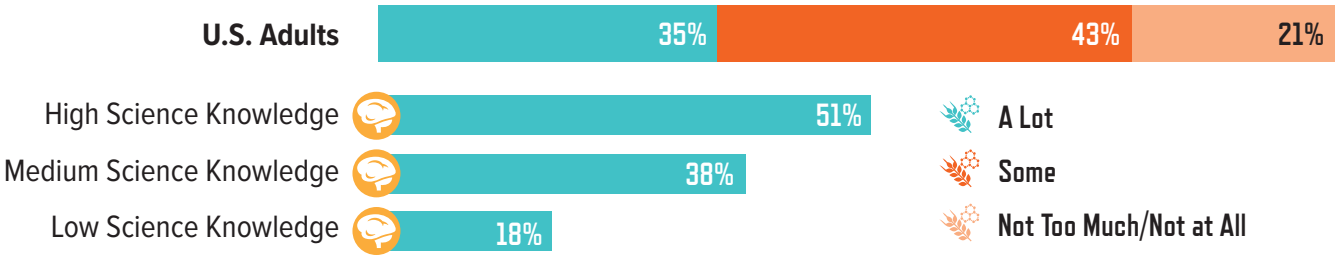


SOURCE: Cary Funk, Brian Kennedy, and Meg Hefferon, *Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks,* Pew Research Center (February 2, 2017; survey conducted May and June 2016). Margins of error: U.S. adults (+/- 4), 18–29 (+/- 11.4), 30–49 (+/- 7.7), 49–64 (+/- 6.9), 65+ (+/- 7.5).

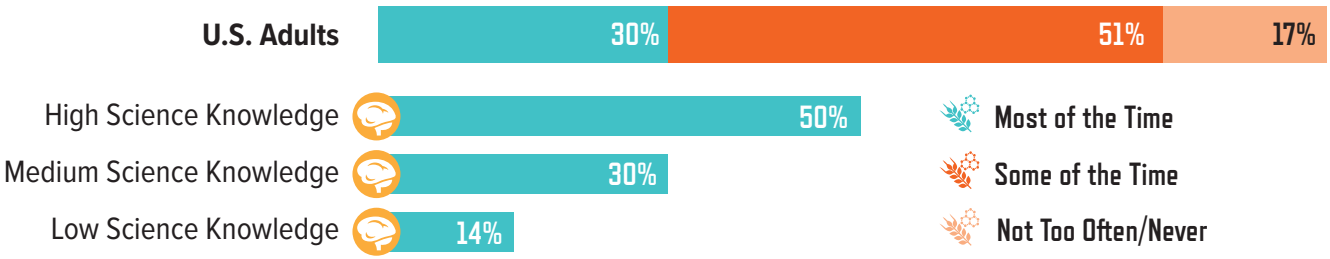
A 2017 Pew report found no statistical difference in the extent to which younger and older Americans trust medical scientists to provide accurate information about the safety of the MMR (mumps, measles, and rubella) vaccine, yet younger people expressed more skepticism of the scientific consensus that childhood vaccines are in fact safe. Researchers do not yet understand this discrepancy, since these data do not reveal respondents' justifications for their beliefs. For instance, researchers do not know whether the differences in views are related to the shared generational experiences of a given age group, a change in perception associated with the process of aging, lack of personal experience with vaccine-preventative diseases, or some other factor or combination of factors. More research is necessary to determine the underlying causative relationships between population demographics and views on vaccine safety.

CASE STUDY: Genetically Modified Foods

Degree of Trust in Scientists to Provide Full and Accurate Information on the Health Effects of GM Foods, by Science Knowledge of Respondent:



Perceived Frequency that Research Findings about GM Foods are Influenced by the Best Available Evidence, by Science Knowledge of Respondent:



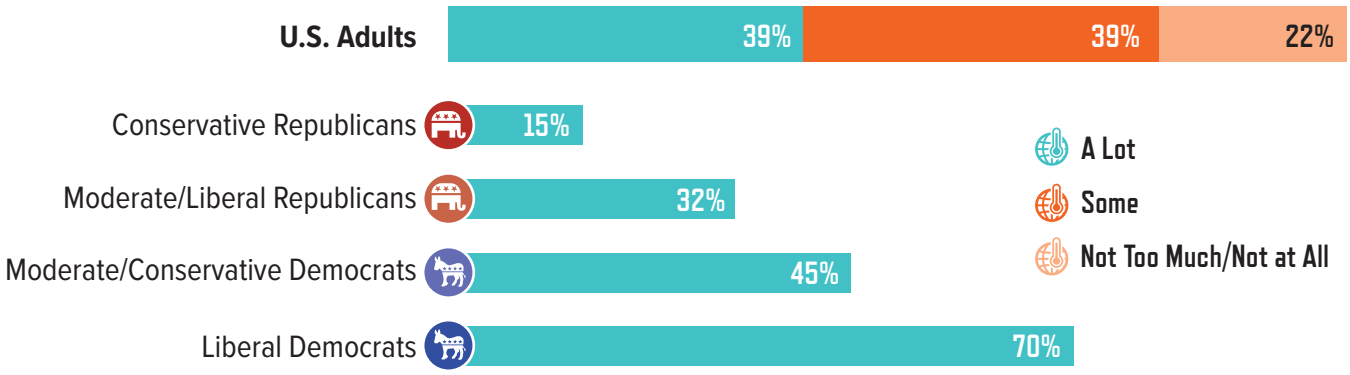
SOURCE: Cary Funk and Brian Kennedy, *The New Food Fights: U.S. Public Divides Over Food Science*, Pew Research Center (December 1, 2016; survey conducted May and June 2016). Margins of error: U.S. adults (+/- 4.1), High (+/-7.6), Medium (+/- 5.6), Low (+/- 9.4).

The Pew Research Center has also examined perceptions of genetically modified foods and found that only 42 percent of U.S. adults believe that most scientists agree that it is safe to consume genetically modified (GM) foods (data not shown). The perception that scientists have deemed GM foods safe to eat increases to 64 percent when only those with high science knowledge are considered (versus only 28 percent with low science knowledge).

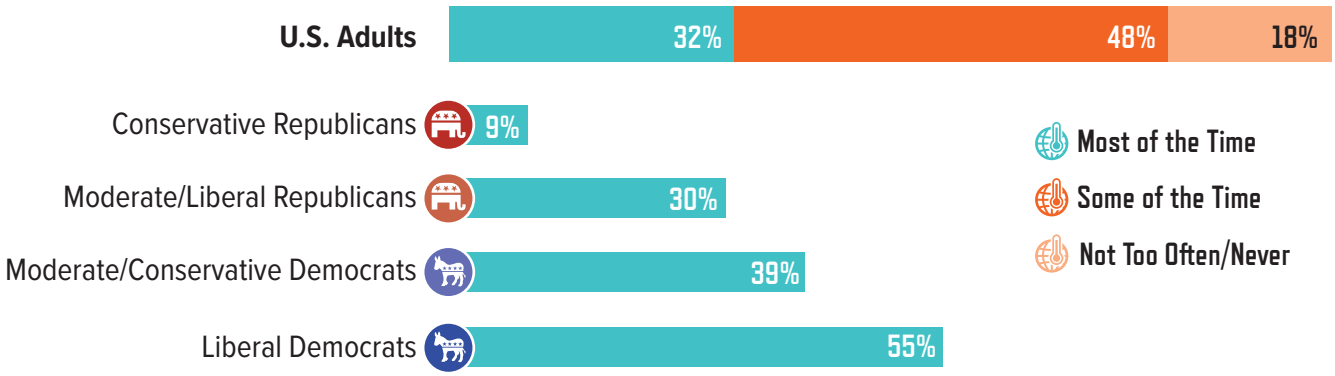
Pew assesses science knowledge through a nine-question index on the life sciences, Earth sciences, numeracy, and the scientific method. U.S. adults who answered at least seven questions correctly are categorized as having high science knowledge; these individuals were also more likely to trust scientists to provide full and accurate information on genetically modified foods and to base their research findings on the best available evidence. However, people with low science knowledge were slightly less likely to say that research findings are influenced by scientists' desire to help their industries. Further research is required to understand the influence of science knowledge on perceptions toward GM foods and trust in scientists on this issue. In addition to food safety, future studies should also investigate public perceptions of GM foods' effects on the environment and related ethical concerns.

CASE STUDY: Climate Change

Degree of Trust in Climate Scientists to Provide Full and Accurate Information about the Causes of Climate Change, by Political Affiliation of Respondent:



Perceived Frequency that Climate Change Research Findings are Influenced by the Best Available Scientific Evidence, by Political Affiliation of Respondent:



SOURCE: Cary Funk and Brian Kennedy, *The Politics of Climate*, Pew Research Center (October 4, 2016; survey conducted May and June 2016). Margins of error: U.S. adults (+/- 4), CR (+/- 7.5), M/LR (+/- 10.4), M/CD (+/- 7.7), LD (+/- 7.6).

When the Kyoto Protocol to the United Nations Framework Convention on Climate Change was adopted in 1997, a roughly equal proportion of Democrats and Republicans (46 and 47 percent, respectively) believed that the effects of global warming had already begun.[20] Since that time, however, a well-established link has emerged between conservative ideology and skepticism that global warming is caused by human activity. This skepticism also extends to a lower level of trust in climate scientists among conservative Republicans. The Research Highlight on the next page provides insight into the relationship between political polarization, science knowledge, and views of climate science.

Discussion and Research Considerations

A significant majority of scientific research is noncontroversial. For the particular issues in which public attitudes deviate from the scientific consensus, more research is needed on the underlying influences behind these attitudes. Insights from these studies can be used to anticipate future areas of concern and develop effective communication strategies.

The case studies presented in this report highlight the complex nature of public attitudes on controversial issues. Ongoing research in this field should be supported and expanded. Further research on the views associated with specific science issues should consider the following questions:

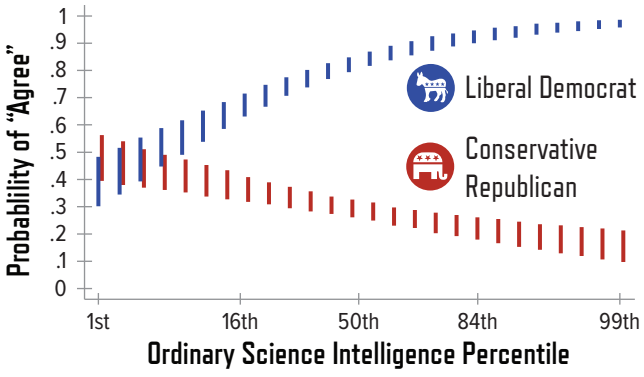
1. ***How does a scientific topic become associated with a particular group identity?***
2. ***How can communicators better identify the values or experiences that may inform attitudes on a particular scientific topic?***
3. ***Once a topic becomes associated with a group identity, are there communication strategies that can produce a receptive or positive response to scientific information on the topic?*** As discussed in Section 2, these questions should seek to identify the approaches that encourage discussion along shared identities and interests.

Moreover, longitudinal studies are necessary to account for the potential fluidity of group-identity associations with a specific issue. Ultimately, pilot programs that explore new approaches to communicating science on controversial issues need to be developed in conjunction with strategies seeking to improve the overall practice of science communication.

Research Highlight: Polarization and Science Knowledge

The public opinion data in this section reveal a high degree of divergence on climate science between liberal Democrats and conservative Republicans. Perhaps counterintuitively, recent research suggests that this political polarization is particularly severe among those with higher educational attainment, science education, or science literacy.[21] However, this phenomenon is limited only to a few areas of science; others, such as genetically modified foods, exhibit no such association.[22] Moreover, recent research suggests that conservative Republicans with a higher curiosity about science "for personal pleasure" are more likely to agree with the science of climate change.[23] Such insights demonstrate the value of additional research into the underlying factors that inform group identity, as well as the potential efficacy of various evidence-based communication strategies.

There is "Solid Evidence" of Recent Global Warming Due "Mostly" to "Human Activity such as Burning Fossil Fuels."



SOURCE: Graphic from Dan M. Kahan et al., "Science Curiosity and Political Information Processing," *Political Psychology* 38 (S1) (2017): 179–199. Data from this paper were collected in connection with the Annenberg Public Policy Center's Science of Science Communication initiative. Note: Colored bars denote 0.95 confidence intervals.

Conclusion

The data in this report demonstrate that there is no single "public" that perceives science through a shared lens of experiences and values. Mindfulness among science communicators, advocates, and researchers of the inherent multiplicity of attitudes toward science is necessary for effective, evidence-based communication and outreach efforts. Expanded research and polling on these topics can provide a detailed roadmap for navigating this complex landscape. Moreover, sustained research in this field is critical given the significant changes in the way people access and engage with scientific information since the start of the twenty-first century.

Endnotes

1. Previously named the National Opinion Research Center.

2. National Academy of Sciences, Engineering, and Medicine, *Science, Evolution, and Creationism* (2008).

3. Nick Allum, Patrick Sturgis, Dimitra Tabourazi, and Ian Brunton-Smith, "Science Knowledge and Attitudes Across Cultures: A Meta-Analysis," *Public Understanding of Science* 17 (1) (2008): 35–54.

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6. Susan T. Fiske and Cydney Dupree, "Gaining Trust as well as Respect in Communicating to Motivated Audiences about Science Topics," *Proceedings of the National Academy of Sciences* 111 (S4) (2014): 13593–13597.

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8. National Science Board, *Science & Engineering Indicators (*2018).

9. Research!America, *America Speaks: Volume 17* (2017; survey conducted January 2017).

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11. Research!America, *America Speaks: Volume 15* (2015; survey conducted September 2015).

12. Cary Funk, Brian Kennedy, and Meg Hefferon, *Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks*, Pew Research Center (February 2, 2017).

13. Cary Funk and Brian Kennedy, *The Politics of Climate*, Pew Research Center (October 4, 2016).

14. NORC at the University of Chicago, *General Social Survey* (2016).

15. Eric Plutzer, "The Racial Gap in Confidence in Science: Explanations and Implications," *Bulletin of Science, Technology & Society* 33 (5–6) (2013): 146–157.

16. NORC at the University of Chicago, *General Social Survey* (2016).

17. Camille Ryan and Kurt Bauman, *Educational Attainment in the United States*, United States Census Bureau (2016).

18. Bureau of Labor Statistics, U.S. Department of Labor, *The Economics Daily*. Median weekly earnings by educational attainment in 2014 available at https://www.bls.gov/opub/ted/2014/ted_20140725.htm.

19. G. W. Gauchat, "The Political Context of Science in the United States: Public Acceptance of Evidence-Based Policy and Science Funding," *Social Forces* 94 (2) (2015): 723–746.

20. Dunlap, "Climate-Change Views: Republican-Democratic Gaps Expand," GALLUP News, 2008.

21. Dan M. Kahan, Ellen Peters, Maggie Wittlin, et al., "The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks," *Nature Climate Change* 2 (10) (2012): 732–735.

22. Caitlin Drummond and Baruch Fischhoff, "Individuals with Greater Science Literacy and Education have More Polarized Beliefs on Controversial Science Topics," *Proceedings of the National Academy of Sciences* 114 (36) (2017): 9587–9592.

23. Dan M. Kahan, Asheley Landrum, Katie Carpenter, Laura Helft, and Kathleen Hall Jamieson, "Science Curiosity and Political Information Processing," *Political Psychology* 38 (S1) (2017): 179–199.

APPENDIX A: Methodology of Data Sources

NORC General Social Survey (GSS)

The GSS is conducted using primarily in-person interviews and targets adults aged 18 and over living in households in the United States. Starting in 2006, the GSS interviews were conducted in Spanish in addition to English. Samples are determined by area probability design in order to scientifically select a representative sample of U.S. residents. Each survey takes approximately 90 minutes; starting in 2002, interviewers began using computer-assisted personal interview techniques instead of printed questionnaires. For information on the methodology, visit gss.norc.org, and for interactive trends, visit gssdataexplorer.norc.org. Standard error for the 2016 GSS data shown on page 4 is +/- 1.4 percent (military), +/- 1.28 percent (scientific community), +/- 0.83 percent (banks and financial institutions), +/- 0.73 percent (press), and +/- 0.57 percent (Congress).

National Science Board Science and Engineering Index (NSB SEI)

All 2016 data from the 2018 SEI used in this report were acquired through a National Science Foundation (NSF)/National Center for Science and Engineering Statistics–funded science and technology module on the GSS. However, the source and acquisition methods for the longitudinal data have changed over time. Since 2006, when the contract with NORC began, the survey methodology has been the same as the NORC GSS. In 2004, these questions were conducted using a phone survey as part of the University of Michigan Survey of Consumer Attitudes. From 1979–2001, data were acquired through the NSF *Survey of Public Attitudes Toward and Understanding of Science and Technology*, a single-purpose telephone survey. Information on data usage and margins of error can be found in the 2018 SEI, available at https://www.nsf.gov/nsb/sei/.

Pew Research Center

The samples for the Pew report *Americans, Politics and Science Issues* were acquired through landline and cell random digital dial (RDD) to obtain a national sample of adults aged 18 and over in all fifty U.S. states. The 2,002 interviews were conducted live from August 15–25, 2014, in English and Spanish. For results based on the full sample, the margin of error was +/- 3.1 percentage points.

The survey samples for *With Budget Debate Looming, Growing Share of Public Prefers Bigger Government* were obtained through landline and cell RDD to acquire a national sample of adults aged 18 and over in all fifty U.S. states. The 1,501 interviews were conducted live from April 5–11, 2017, in English and Spanish. Data on page 8 are based on 755 interviews with a margin of error of +/- 4.1 percentage points.

For the three reports *The Politics of Climate, Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks,* and *The New Food Fights: U.S. Public Divides Over Food Science,* a combination of landline and cell RDD surveys in English and Spanish were used to recruit members of the Americans Trends Panel (ATP). ATP participants are a nationally representative sample of U.S. adults living in households who were asked to respond to monthly surveys over the Internet or by mail. The data were collected between May 10 and June 6, 2016, in English and Spanish. Most of the results in these reports use survey data from more than 1,450 respondents. Margins of error are included in the source information for each figure.

ScienceCounts

ScienceCounts' "Raising Voices for Science: Exploratory and Benchmarking Survey" was designed by Edge Research and conducted using the Web-enabled KnowledgePanel®, a probability-based panel designed to be representative of the U.S. population. Initially, participants were chosen scientifically by a random selection of telephone numbers and residential addresses. Panelists then received unique login information for accessing surveys online and were sent emails inviting them to participate in research. Data were collected from 2,021 participants in October 2015.

Research!America

For *America Speaks: Volume 17* and *Public Perception of Clinical Research*, Research!America commissioned Zogby Analytics to conduct an online survey of 1,005 U.S. adults from January 16–17, 2017 (*America Speaks: Volume 17*) and 1,000 U.S. adults from July 14–16, 2017 (*Public Perception of Clinical Research).* Thousands of adults were randomly invited to participate in this interactive survey. Using information based on Census data, voter registration figures, CIA Factbooks, and exit polls, Zogby used complex weighting techniques to best represent the demographics of the population being surveyed.

For additional information on all polling methodologies, margins of error, and statistical analyses, refer to the original data source. The potential for survey conditions and wording to influence responses and introduce additional error or bias should be considered when interpreting opinion polling.

APPENDIX B: Public Face of Science Steering Committee, Staff, and Data Advisors

Steering Committee

Richard A. Meserve, *Cochair*, Senior Of Counsel, Covington & Burling LLP; President Emeritus, Carnegie Institution for Science

Geneva Overholser, *Cochair*, Senior Fellow, Democracy Fund; former Director, USC Annenberg School of Journalism

Emilio Bizzi, Institute Professor, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

Geoffrey Cowan, University Professor, Annenberg Family Chair in Communication Leadership, and Director of the Center on Communication Leadership & Policy, University of Southern California

Ellen Futter, President, The American Museum of Natural History

Sylvester James Gates, Jr., Ford Foundation Professor of Physics and Affiliate Professor of Mathematics, Brown University

Robert M. Hauser, Executive Officer, American Philosophical Society; Vilas Research Professor and Samuel Stouffer Professor of Sociology, Emeritus, University of Wisconsin-Madison

Rush D. Holt, Jr., Chief Executive Officer and Executive Publisher of *Science*, American Association for the Advancement of Science

Kathleen Hall Jamieson, Elizabeth Ware Packard Professor of Communication, University of Pennsylvania's Annenberg School for Communication; Walter and Leonore Annenberg Director of the Annenberg Public Policy Center, University of Pennsylvania; Program Director of the Annenberg Foundation Trust at Sunnylands

Venkatesh Narayanamurti, Benjamin Peirce Research Professor of Technology and Public Policy, Harvard University

Nora S. Newcombe, Laura H. Carnell Professor of Psychology, Temple University

Kenneth Prewitt, Carnegie Professor, Special Advisor to the President, and Director of the Future of Scholarly Knowledge Project, Columbia University

Rebecca W. Rimel, President and Chief Executive Officer, The Pew Charitable Trusts

Cristián Samper, President and Chief Executive Officer, Wildlife Conservation Society; former Director, Smithsonian National Museum of Natural History

Samuel O. Thier, Professor of Medicine and Health Care Policy, Emeritus, Harvard Medical School; President Emeritus, Brandeis University; former President, Massachusetts General Hospital; former President, Institute of Medicine, National Academy of Sciences

Perceptions of Science in America Data Advisors

Cary Funk, Pew Research Center

Arthur Lupia, University of Michigan

Matthew C. Nisbet, Northeastern University

Project Staff

John Randell

Erica Palma Kimmerling

Alison Leaf

Keerthi Shetty

Shalin Jyotishi

The Public Face of Science

The American Academy's initiative on "The Public Face of Science" is a three-year project that began in Spring 2016 and involves a broad range of experts in communication, law, humanities, the arts, journalism, public affairs, and the physical, social, and life sciences. The initiative comprises a series of activities that address various aspects of the complex and evolving relationship between scientists and society and examine how trust in science is shaped by individual experiences, beliefs, and engagement with science.

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