Evolving Perceptions of Security

US National Security Surveys 1993–1995

UNM Institute for Public Policy
The University of New Mexico
Albuquerque, New Mexico, March 1996

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Scope: Continental US
Size: N = 2,490
Method: Telephone Interviews
Dates: September 30–November 14, 1996

Acknowledgments

The authors wish to express appreciation to the following individuals whose support made this project possible.

Sandia National Laboratories

Roger Hagengruber
Richard Schwoebel
David McVey
William Nickell
Laura Gilliom
Dennis Miyoshi
David Nokes
Arian Pregenzer

University of New Mexico

Carol Silva
Amy Fromer
John Gastil
Carol Brown
Scott Goold
Anna Brown
Dave Rose
Bianca Belmonte
Colleen Dugle
Catherine Davies
Steve Taylor
Dino Sawyer
Peter Elias

Others

Joe Stewart
Marilyn Herron
Kathleen Bailey

We would also like to recognize the fifty interviewers and thousands of respondents whose participation was central to this study.

Abstract

This study analyzes findings from a national survey of 2,490 randomly selected members of the US public conducted between September 30 and November 14, 1995. It provides an over time comparison of public perceptions about nuclear weapons risks and benefits and key nuclear policy issues between 1993 and 1995. Other areas of investigation include policy preferences regarding nuclear proliferation, terrorism, US/Russian nuclear cooperation, and personal security.

Public perceptions of post-cold war security were found to be evolving in unexpected ways. The perceived threat of nuclear conflict involving the US had not declined, and the threat of nuclear conflict between other countries and fears of nuclear proliferation and terrorism had increased. Perceived risks associated with managing the US nuclear arsenal were also higher. Perceptions of external and domestic benefits from US nuclear weapons were not declining.

Support was found for increasing funding for nuclear weapons safety, training, and maintenance, but most respondents favored decreasing funding for developing and testing new nuclear weapons. Strong support was evident for programs and funding to prevent nuclear proliferation and terrorism.

Though skeptical that nuclear weapons can be eliminated, most respondents supported reducing the US nuclear arsenal, banning nuclear test explosions, and ending production of fissile materials to make nuclear weapons.

Statistically significant relationships were found between perceptions of nuclear weapons risks and benefits and policy and spending preferences. Demographic variables and basic social and political beliefs were systematically related both to risk and benefit perceptions and policy and spending options.

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Executive Summary

Chapter One: Introduction and Overview

This report presents findings from a survey of 2,490 randomly selected members of the US public conducted between September 30, and November 14, 1995. The objectives were as follows: (1) measure US public perceptions of national and international security issues; (2) identify evolving trends in public opinion about US nuclear weapons policies; (3) investigate public perceptions of nuclear surety and interaction between US and Russian scientists; (4) measure selected dimensions of personal security.

Eight focus groups in four cities were conducted to help frame the issues and assist in the design of four survey instruments. We presented 73 questions from our previous study, "National Security Survey: Perceptions and Policy Concerns, 1993–1994," to the full sample of 2,490 respondents to provide a comparison of evolving attitudes over time. The sample population was randomly divided into three subgroups, each of which received a discreet set of additional questions. One subgroup of 844 participants received an additional 39 questions about nuclear proliferation and terrorism. A separate subgroup of 834 participants was asked 33 additional questions about Russian nuclear issues and about cooperation between US and Russian nuclear scientists. We asked the third group of 812 respondents 29 additional questions about personal security and its relationship to technology.

Chapter Two: Evolving Perceptions of Nuclear Weapons Risks

Contrary to our expectations, public perceptions of external nuclear risks, measured as a function of change since the breakup of the Soviet Union, have not decreased thus far into the post-cold war era. Our findings indicate that public concern about nuclear security has increased, both in terms of external risks from others' nuclear capabilities and internal risks from our own nuclear arsenal. External risk

concerns seem to be driven less by fear that the US will be attacked by another nuclear power than by perceptions that chances for nuclear conflict among other states have increased since the breakup of the Soviet Union, and by growing fears about the security of nuclear materials and the potential for nuclear proliferation and terrorism.

Increases in perceptions of risks associated with our own nuclear assets are more difficult to explain. There have been no recent public reports of nuclear incidents or accidents, and the US stockpile is in the process of being substantially reduced. Dismantlement has apparently proceeded without incident, and there has been little public debate about nuclear surety. Nevertheless, public perceptions of the risks of manufacturing, transporting, storing, and disassembling nuclear weapons, and storing radioactive materials from disassembled weapons have all increased significantly since our 1993 survey. Similarly, public perceptions of the likelihood of an accidental nuclear explosion and of the likelihood of unauthorized nuclear use have also increased.

Chapter Three: Evolving Perceptions of the Benefits of US Nuclear Weapons

Respondents in 1995 continued to attribute substantial value to US nuclear weapons for purposes of international influence, leadership, and security. Instead of an expected decline in public perceptions of the benefits of US nuclear assets for achieving and insuring US security objectives, our respondents reflected a substantial increase in perceptions of the external benefits of US nuclear weapons. Participants also attached considerable utility to the concept of nuclear deterrence, indicating that they thought nuclear deterrence remained important today and for the foreseeable future.

As to domestic benefits, respondents thought that defense expenditures in general were important for jobs, the economy, and for technological transfers, but we were not able to isolate and differentiate those defense expenditures that were for nuclear capabilities from those that were only for conventional capabilities. Overall, we found that

participants considered US nuclear weapons to provide substantial benefits for national security and for the domestic economy that may offset some of the perceived risks documented in Chapter Two.

Chapter Four: Policy and Spending Implications

We found strong support for mutually negotiated arms control agreements, but little support for unilateral US nuclear force reductions. Participants were concerned about the security of Russian nuclear assets, and a majority favored cooperation between US and Russian nuclear scientists, but most did not think that the US should pay to secure Russian materials.

Respondents supported increasing investments for the following: enhancing the safety of existing US nuclear weapons; insuring the reliability of the US stockpile; training those who manage nuclear weapons; and preventing nuclear proliferation and terrorism. Participants thought that funding for developing and testing new types of nuclear weapons should be reduced. Opinion was almost equally divided about spending to maintain the ability to develop and improve nuclear weapons in the future. Perceptions of the risks and benefits of nuclear weapons were related in highly statistically significant ways to specific policy and spending choices.

We found widespread concern about the potential for nuclear proliferation and terrorism. Respondents supported using conventional military force to prevent states such as Iraq, Iran, and North Korea from gaining nuclear weapons. They seemed to appreciate that combating terrorism could encroach on individual prerogatives, but they were willing to consider such measures if necessary to stop terrorism.

Chapter Five: Measuring Demographics

As age increased, perceptions of nuclear weapons risks decreased, and perceptions of benefits increased, as did support for most policy options related to maintaining US nuclear weapons capabilities.

Females perceived the risks from our own nuclear weapons to be much higher than did males. Men thought it was more important to retain US nuclear weapons, and were more willing to use force to prevent proliferation.

As formal education increased, perceptions of nuclear weapons risks *and* benefits decreased. Respondents with higher levels of education were less supportive of retaining US nuclear weapons, developing and testing new nuclear weapons, sustaining the nuclear infrastructure, and using force to prevent proliferation. Field of professional study significantly influenced perceptions of risks and benefits.

As household income increased, perceptions of nuclear weapons risks decreased, but no relationship was found between income and perceptions of benefits. As income increased, support strengthened for arms control, maintaining existing nuclear weapons in reliable condition, and preventing proliferation and terrorism.

Respondents with military experience perceived domestic nuclear weapons risks to be lower and benefits to be higher than did those without military experience. Military veterans were more supportive of most policy and spending options related to maintaining US nuclear weapons capabilities.

Chapter Six: Measuring Belief Systems

As political conservatism increased, perceptions of nuclear weapons risks decreased, and perceptions of benefits increased. Support for retaining nuclear weapons, developing and testing new nuclear weapons, sustaining nuclear weapons research infrastructure, and maintaining the US stockpile increased with degree of conservatism. Support for reducing the stockpile below START II limits and participating in comprehensive test ban and fissile material cutoff agreements increased as conservatism decreased.

Political culture (world view) was systematically related to perceptions of nuclear weapons risks and benefits. Hierarchists and individualists perceived the lowest risks and highest benefits. Egalitarians and fatalists perceived the highest risks and lowest benefits. Hierarchists and individualists were more supportive of retaining US nuclear weapons and related infrastructure. Egalitarians were more supportive of reducing below START II limits and participating in comprehensive test ban and fissile material cutoff treaties. Policy preferences of fatalists were less predictable, but they tended in the same direction as egalitarian preferences. All four cultural types were supportive of increasing funding to prevent nuclear proliferation and terrorism and using force to prevent some countries from acquiring nuclear weapons.

Chapter Seven: Personal Security and Technology

Contrary to evidence of decreasing rates of some crimes, most participants considered crime to be an increasing concern. Among six categories of crime, respondents rated the risks of unauthorized access to personal information, such as health and financial records, highest, followed by robbery or burglary, assault or mugging, credit card fraud, car-jacking, and being shot.

Women, members of racial minorities, participants with annual household incomes below $30,000, those with less than a college education, and respondents over the age of 50 perceived most types of crime to pose higher risks than did those in opposite categories.

When asked to rate the risks of crime in various settings, personal vulnerability was judged to be highest while using public transportation and lowest while in the workplace. Women, members of racial minorities, those with lower incomes, and those without a college education rated the risks of crime higher in each of the six settings we tested than did their counterparts. Participants from the Midwest rated all locations lower in mean risk of crime than did those residing elsewhere.

Participants were receptive to the potential of technology to reduce crime and enhance personal security, and they supported the pursuit of technological applications to reduce crime in every category about which we inquired. They clearly preferred that new personal security technologies be developed cooperatively by the government and private industry, rather than by either one acting independently. They demonstrated sophisticated capabilities for assessing responsibilities for technologies that fail to prevent crime or enhance personal safety as intended. In hypothetical scenarios they held the national laboratory that developed such technologies partially responsible for the consequences of subsequent failures, but the assessed level of responsibility was in the range of eight to ten percent.

Participants were receptive to the concept of applying surety principles to the development and production of high consequence technologies whose failures could endanger the public.

Chapter One

Introduction and Overview

This is the second report in our ongoing study of US public attitudes about post-cold war security. It examines perceptions of physical security at three levels of analysis. The systemic level includes perceptions of international factors that are not readily controlled by any single state, such as nuclear proliferation and terrorism. The state level involves public views of US national security policies and investments. At the individual level of analysis, perceptions of factors influencing personal security are primary. We report findings from a national survey of the US public about their views of security at all three levels of analysis. Emphasis is placed on nuclear security, but we also examine perceptions regarding the influence of crime on personal security. The purpose of our continuing study is to measure evolving relationships that are interacting to shape the post-cold war security environment.

Section 1.1: Objectives

Our first report analyzed results of a national survey conducted in late 1993 and early 1994 that included members of the general public and key US scientific communities.[1] This second report presents the findings of a nationwide survey of 2,490 members of the US public. Our goals were to determine how public opinion of nuclear security issues is evolving in the post-cold war environment and to identify parameters that may influence national debate about security policies. Specific objectives were as follows:

- Measure US public perceptions of national and international security issues, with special emphasis on nuclear security.

- Identify evolving trends in public opinion about US nuclear weapons policies and associated research, development, and investments. Key comparative dimensions include perceptions of external and domestic risks and external and domestic benefits of nuclear weapons.

- Investigate public perceptions and preferences concerning nuclear weapons safety, security, and control. Emphasis is placed on public views about interaction between US and Russian scientists to enhance the security of Russian nuclear assets.

- Measure selected dimensions of personal security in the US, and investigate public preferences for private and government sponsored investments in security-related technologies.

Section 1.2: Conceptual Approach

PUBLIC ATTITUDES ABOUT SECURITY REFLECT COMPLEX INTERACTIONS of related variables at three distinct levels of analysis: individual, national, and global. At the most basic level, personal security involves the physical, socioeconomic, and psychological security of individuals. At the national level, security concerns are integrated into broader, more complex social and cultural contexts affecting spending priorities, domestic politics, and national identity. Even wider security concerns at the global or systemic level include collective and shared behaviors and risks, such as international conflict, world health, and global environmental problems.

Nuclear weapons affect the security of individuals and publics at all three levels, and so much of our investigation focuses on nuclear security issues. How some states restructure their nuclear weapons establishments, the degree to which nuclear weapons capabilities proliferate to other states, the management of materials used in nuclear weapons, and the likelihood of nuclear conflict and nuclear terrorism all have the potential to exert important influence on security at each level.

Results of our national security survey in 1993–94 indicate that public attitudes about nuclear weapons are partially a function of risk-benefit assessments. Publics must integrate broad, imprecise perceptions and often superficial understandings of the external risks posed by others' nuclear assets to their personal security and that of their families, nations, and the world at large. Additionally, those publics that live in nuclear states and those most affected by the actions of nuclear states must weigh the risks to themselves and loved ones derived from the ways that nuclear assets are managed and used. But publics must also decide if nuclear weapons and materials provide certain utilities and benefits and the degree to which they may or may not counterbalance perceived nuclear risks.

Few individuals, or even governments, have sufficient information, training, experience, and resources to perform comprehensive risk-benefit calculations of such complex sets of variables. Yet in the US and other representative political systems, public perceptions, attitudes, and preferences must be factored into nuclear security policies. The end of the cold war and the disintegration of one of the world's two military superpowers changed many of the security relationships that evolved during the first half-century of the nuclear age. These events have also changed many of the assumptions with which publics and their governments have previously rationalized nuclear strategies and policies. The ways that individuals and publics are assimilating these profound changes and how they are influencing risk-benefit judgments have important consequences for shaping future security policies.

Evolving Public Judgment

In *Coming to Public Judgment,* Daniel Yankelovich identified three stages in the process of evolving public judgment about complex policy issues.[2] In stage one, which he termed "consciousness raising," the public becomes aware of an issue or set of issues and associated implications. In stage two, "working through," members of the public confront the need for change and wrestle with competing policy options and choices in a process of approximating and weighing pros and

cons, risks and benefits, moral constraints and political compromises. The process requires individual influences and inclinations to be integrated within larger social, national, and (for some issues) global contexts. It is usually the longest and most difficult stage in evolving informed public judgment, and it is usually characterized by relatively high opinion volatility. In the third stage, "resolution," individuals become more confident that they understand enough about the relevant issues and their contexts to hold an informed opinion, and they reach policy positions for which they are willing to be accountable. It is at this point that indistinct mass public opinions coalesce and aggregate into more stable public judgments. During the cold war years, widespread public judgments (not necessarily consensus) were reached about the dangers and values of nuclear weapons, the Soviet Union, communism, and a host of cold war security issues.

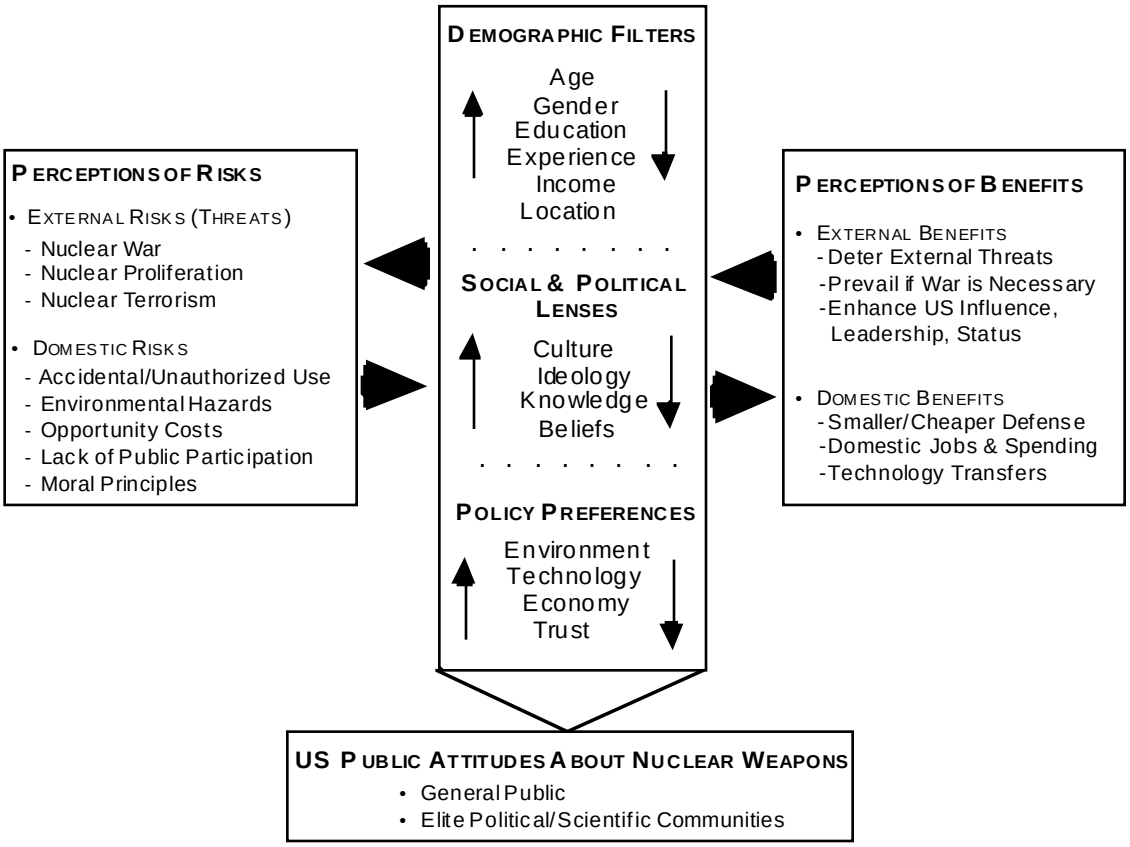
Coming to Public Judgment

Yankelovich credited the profound changes accompanying the end of the cold war with creating a new international context in which the security interests of the US and other states must be reevaluated and restructured in terms of security policies, investment strategies, and national priorities. If Yankelovich is right, the process of coming to public judgment about security in the post-cold war era will likely require a lengthy period of "working through" a staggering array of variables whose relationships and contexts have fundamentally changed.

Analytic Model

Our study attempts to measure key variables and processes that may help illuminate how public attitudes about post-cold war nuclear security are evolving in what is probably a transition from public "consciousness raising" to the "working through" stage. We do not understand the precise nature of each relationship and every process involved in public assessment and evaluation of nuclear security issues, but we have hypothesized, and our previous research indicates, that key variables may be related as shown in Figure 1.1.

Figure 1.1 **Analytic Model**



Weighing Risks and Benefits

Our model hypothesizes that individual and public evaluation of nuclear security is an interactive process of weighing perceptions of risks and benefits. External risks posed by others' nuclear weapons and domestic risks of our own nuclear weapons are weighed against external benefits of nuclear arms for achieving national security objectives, and domestic benefits associated with nuclear technologies and defense expenditures. The model suggests that this public weighing of nuclear risks and benefits occurs within the context of a number of factors specific to each individual. Among them are the following variables:

- Demographic factors such as age, gender, education, income, training, experience, and place of residence.

- Social and political lenses shaped by political culture (world view), ideology, subject knowledge, and general belief systems.

- Preferences about related public policy issues such as the environment, the role of technology in society, economic considerations, and trust in public institutions and processes.

We believe these to be among influences at the individual level of analysis that affect the understanding and interpretation of information used in "working through" to public judgments about nuclear weapons.

Section 1.3: Research Design

We pursued four related lines of inquiry by dividing the sample population into three groups. We posed 73 base line questions to all respondents to provide comparative data with our 1993 study and to more clearly illuminate additional areas, such as nuclear deterrence and arms control. We presented additional questions about other aspects of security to three separate subgroups. This technique provided the opportunity to pursue related lines of inquiry in more depth than would have been possible if each respondent had been asked the full battery of questions, since the total number of questions that could have been answered would have been smaller. All questions used in each variation of the survey are in Appendix 1, with frequency distributions and mean responses shown for each question. We include comparative descriptive statistics for those questions that were common to both the 1993 and 1995 surveys.

Base Line Population: Primary Variables

Key relationships originally identified in our 1993 survey were measured using the full 1995 sample population of 2,490 individuals. This provides over time analysis of evolving attitudes about the key indices

of nuclear risks and benefits, as well as selected nuclear security policy options and spending preferences. Together, our 1993 and 1995 surveys provide two of the most extensively linked sets of data about evolving public perceptions of nuclear security in the post-cold war era. We also asked all respondents a series of questions to identify demographics and core belief systems. These data provide the basis for examining the interaction of demographic filters and social and political lenses with major indices of attitudes about nuclear security.

Subgroup 1: Nuclear Proliferation and Terrorism

We inquired further into public perceptions of nuclear proliferation and terrorism among a subgroup of 844 participants that we asked to evaluate the degree of threat that selected states might pose if they had nuclear weapons. We also asked these respondents about the kinds of general policies and actions they would support for preventing and combating proliferation and terrorism, and about whether the US should use military force to prevent selected states from developing nuclear weapons. Finally, we included questions to this group about the perceived accuracy of publicly released information about the environmental effects of US nuclear weapons development, and about levels of public trust in government agencies responsible for managing the US nuclear infrastructure.

Subgroup 2: US and Russian Scientific Cooperation

In addition to questions about the safety, security, and control of US nuclear weapons, we asked a different subgroup of 834 participants about their perceptions of the security of nuclear materials and weapons in Russia. We also examined options for scientific cooperation between US and Russian nuclear scientists, to include the possibility of US investments to improve the security of Russian nuclear assets. We included questions about the degree to which respondents thought various elements of Russian society should be trusted, and about how current US relations with Russia, China, Japan, and Germany are perceived, and how they are projected to change in the next ten years.

Subgroup 3: Personal Security and Technology

In addition to questions about national and international security, we asked the participants in a third subgroup of 812 respondents a series of questions about personal domestic security and its relationship to technology. Some questions investigated respondent perceptions of crime in the US and priorities for reducing it, while others inquired about public attitudes concerning the role of technology in fighting crime. We asked respondents about preferred relationships between government and industry for developing technologies to enhance personal security, and about how they apportioned responsibility when security technologies failed in specific scenarios. Finally, we asked them about applying principles of surety (safety, security, and control) developed by the US nuclear establishment to nonnuclear technologies and processes whose failures pose extreme risks to public safety.

Section 1.4: Methodology

THE OPINION SURVEY RESEARCH METHODS WE USED IN THIS STUDY differ substantially from methods employed in many media surveys. Media polling generally seeks to measure immediate levels of public support for a specific policy option or a specific political personality. Such polls must be highly responsive to changing political conditions, because they are most often used to provide barometric indications of public mood. The need for timeliness, newsworthy results, and relatively simple explanation means that findings from media polls often are more impressionistic and ephemeral than that needed for systematic study of underlying relationships.

The rigorous academic opinion survey research methods we employed are used in many other systematic investigations of complex issues. They are based on scientific processes incorporating a theoretical framework from which hypotheses about key relationships can be tested. When the focus is on understanding basic relationships,

findings are more enduring. Our methods were designed to be scientifically replicable, and comparisons with results from our study done in 1993, using similar methods, support the likelihood that we have identified and measured some of the persistent relationships affecting public attitudes about nuclear security. We approached most key variables from more than one direction, using several related questions. Results were then combined into robust indices having substantial predictive power about preferences for security policies. Our emphasis throughout was on finding connections between groups of factors that help identify and explain how attitudes about security issues are shaped, and how those attitudes relate to public policy and spending preferences.

Academically Rigorous Methodology

Focus Groups

To assist in developing survey instruments, we conducted eight focus groups in four cities. These discussions provided valuable impressions of current public attitudes about US national security issues, perceptions of US-Russian relations, and concerns about personal security. We conducted two issue discussion groups in each of three cities during June 1995: New Orleans, Louisiana; Seattle, Washington; and San Diego, California. In July we held two additional groups in Albuquerque, New Mexico to test verbal protocols and refine and verify our survey instruments. We selected the members for one group in each city to meet lower socioeconomic status (SES) indices, and we chose members of the other group at each location to meet higher SES requirements. Participants in the lower SES groups did not have an educational degree beyond high school, and each had an annual household income of $25,000 or less. Each participant in the higher SES groups held a Bachelor's degree or higher, and had a household income of $40,000 or more per year. Participants in all groups were between 25 and 65 years of age, and were recruited from the general public at each locale. Approximately equal numbers of male and female participants were selected, and attempts were made to achieve minority representations approximating local population distributions. We describe participants and summarize our observations about their views in Appendix 2.

Sampling

A sample frame of 13,000 randomly selected and randomly ordered households having one or more telephones was obtained from Survey Sampling, Incorporated, of Fairfield, Connecticut. Each household had an equal chance of being called.

Table 1.1 compares key demographics of survey participants to 1990 US census parameters to illustrate the representativeness of survey respondents compared to the US population as a whole.

Table 1.1 Demographics of Respondents vs. Demographics of US Population

Demographic Category	US Census 1990 (%) [3]	National Security Survey 1995 (%)
Gender		
Males	49	46
Females	51	54
Age		
18–24	11	13
25–54	43	64 [4]
> 54	21	22
Education [5]		
H.S. Graduate or Higher	80	94
College Grad. or Higher	20	35
Race / Ethnicity		
White, non Hispanic	80	79
Black	12	7
Hispanic	9	4
American Indian	1	2
Asian	3	2
Other	N/A	6
Household Income [6]		
$0–50,000	65	69
> $50,000	35	32

Figure 1.2 shows the geographical distribution of participants, and Figure 1.3 compares regional representation to regional populations.

Figure 1

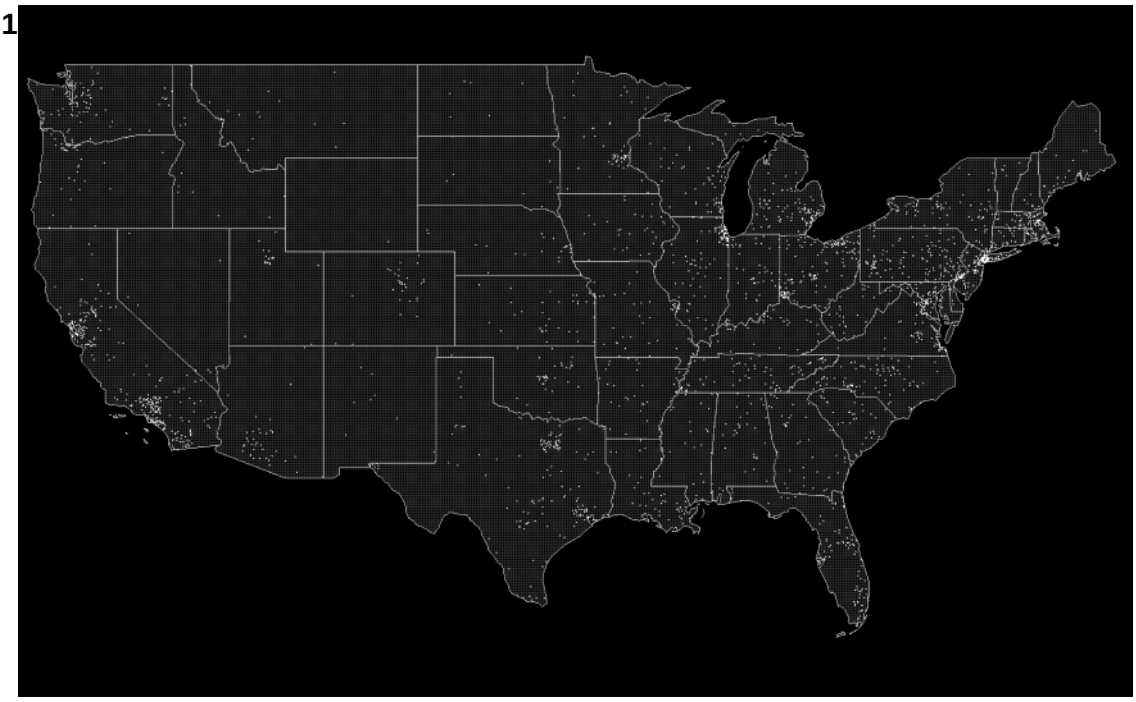
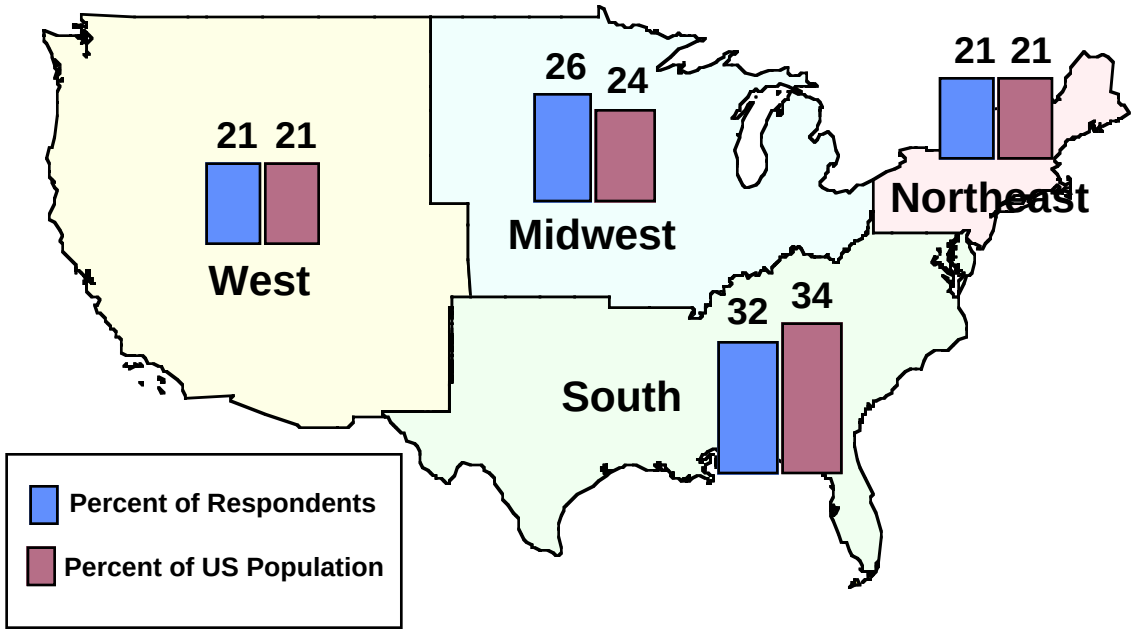


Figure 1.3 Regional Distribution of Respondents vs. US Population



Survey Instruments

Our base line instrument of 73 questions was used in the nation-wide telephone survey of 2,490 respondents randomly selected from separate US households and interviewed between September 30 and November 14, 1995. We supplemented the base line survey with three sets of additional inquiries:

- We asked 844 randomly chosen participants 39 additional questions pertaining to nuclear proliferation and terrorism.

- We asked a different randomly selected group of 834 respondents 33 additional questions pertaining to US/Russian scientific cooperation.

- We asked the remaining 812 participants 29 additional questions pertaining to individual security and technology.

Each participant who completed the survey was asked all base line questions and one set of supplemental questions; no participants were asked questions from more than one of the three sets of supplemental questions.

We included key questions from our 1993 research in this survey for purposes of over time analysis. In some cases we made minor wording changes to streamline and simplify questions. To insure comparability of questions used for the over time analyses, we asked identically worded questions from our 1993 survey to 1,249 randomly selected respondents, and we asked 1,241 randomly chosen participants to answer questions from the 1993 survey that had been streamlined. We then analyzed variations in mean responses to both forms of each question, and found only seven cases where differences in means were statistically significant. For those questions, we have included only the respondents receiving originally worded versions in the comparative analyses.

Data Collection

We conducted the survey at the University of New Mexico's Institute for Public Policy, using its Computer Assisted Telephone Interviewing System. We employed stringent quality control measures throughout the data collection process. The overall cooperation rate was 55.7 percent.

The sample size and random selection procedures provide plus or minus one percent sampling error for base line questions and plus or minus four percent error for supplemental questions asked of the three separate subgroups.

Data Analysis

We used the following four types of analyses:

- *Descriptive* analysis, to include frequency distributions and means, for all questions in this survey and for those questions from the 1993 survey that were used for comparisons over time.

- *Relational* analysis employing standard statistical techniques such as analysis of variance, correlations, and ordinary least squares regressions to show relationships between individual variables and combinations of variables (indices). We placed special emphasis on the relationship of key indices to policy and spending options.

- *Spatial* analysis of selected variables to show geographical relationships, and in some cases to portray nongeographical spatial relationships between major indices and specific policy options.

- *Over time* analyses to show evolutionary changes in public perceptions and attitudes between 1993 and 1995.

Section 1.5: Organization

Chapter Two

In Chapter Two, "Evolving Perceptions of Nuclear Weapons Risks," we examine questions about public perceptions of nuclear conflict, nuclear proliferation, and nuclear terrorism, and construct a composite index of external risk (threat) perceptions. We also examine perceptions of risks associated with managing and controlling our own nuclear weapons, and construct a nuclear weapons domestic risk index. To show how risk perceptions are changing, we compare responses to the questions used in both indices, and the indices themselves, with responses to the same questions and indices we measured in 1993. We also examine public perceptions of the persistence of nuclear weapons in the international system.

Chapter Three

In Chapter Three, "Evolving Perceptions of the Benefits of US Nuclear Weapons," we analyze results of questions about public perceptions of the external benefits and utilities of US nuclear weapons for achieving national security objectives, and perceptions of domestic benefits that may be associated with US nuclear assets. We combine related questions into a nuclear weapons external benefits index and a domestic benefits index. We then compare the component questions and indices with those measured in 1993. We also present new data about public perceptions of the value of nuclear deterrence during the cold war, in the current period, and the degree to which the public has confidence that nuclear deterrence will hold if more countries gain nuclear weapons in the future.

Chapter Four

Chapter Four, "Policy and Spending Implications," examines public preferences about nuclear weapons research, arms control, and combating nuclear proliferation and terrorism. We also examine spending preferences related to investments in nuclear weapons infrastructure, and investment strategies for preventing the spread of nuclear weapons and reducing the risks of nuclear terrorism. Additionally, we examine public attitudes about nuclear security in Russia, US/Russian scientist-to-scientist cooperation, and perceptions of current and future relations with key foreign states.

Chapter Five

In Chapter Five, "Measuring Demographics," we examine demographic characteristics such as age, gender, education, income, military experience, and geographic location and how they are related to individual views. We relate demographic attributes to public perceptions of risks and benefits associated with nuclear capabilities, and we relate them to individual policy and spending preferences.

Chapter Six

Chapter Six, "Measuring Belief Systems," analyzes how political orientation (ideology) and political culture (world view) are related to perceptions of nuclear weapons risks and benefits. We also examine the ways in which these belief systems interact with risk and benefit perceptions to affect nuclear security policy preferences.

Chapter Seven

Finally, in Chapter Seven, "Personal Security and Technology," we examine public perceptions of vulnerability to crime and the potential for technologies to fight crime. We also report public preferences regarding investment strategies for national laboratories and private industry to reduce crime, and related questions of potential liability for technologies that fail to prevent crime as intended. Additionally, we inquire about the applicability of principles of nuclear surety for reducing the risks of other technologies whose failures have high negative consequences for the public.

End Notes

[1] Hank C. Jenkins-Smith, Richard P. Barke, and Kerry G. Herron, 1994, *Public Perspectives of Nuclear Weapons in the Post-Cold War Environment: Findings and Analysis of the National Security Survey: Perceptions and Policy Concerns 1993–1994,* document ID: SAND 94-1265, Albuquerque, NM: Sandia National Laboratories.

[2] Daniel Yankelovich, 1991, *Coming to Public Judgment: Making Democracy Work in a Complex World,* Syracuse, NY: Syracuse University Press.

[3] "United States Department of Commerce News," Public Information Office 301-763-4040, Economic and Statistics Administration, Bureau of the Census, United States Department of Commerce, Washington, DC, June 11, 1991.

[4] No persons below the age of 18 were allowed to participate in our survey, therefore the percentage of the survey population between 25 and 54 years of age is higher than the percentage of the US population between those ages.

[5] Digest of Educational Statistics: 1994 (NCES 94-115), National Center for Education Statistics, U.S. Department of Education. These data represent percent of total population 18 years of age and over. They are based on a sample, and are subject to sampling variability.

[6] Census data about household incomes are based on a sample, and they are subject to sampling variability.

Chapter Two

Evolving Perceptions of Nuclear Weapons Risks

Section 2.1: Perceptions of the Post-Cold War Security Environment

The profound changes in Europe that accompanied the liberalization of Eastern Europe, the reunification of Germany, and the dissolution of the Soviet Union are still being assimilated and evaluated by the American public. They are being weighed within the context of aggression by Iraq in the Persian Gulf, enduring ethnic enmities in the Balkan states, and fears of "loose nukes" in Russia and other former Soviet states. At home, the US public has witnessed instances of large-scale domestic terrorism, apparently committed by both external and internal terrorists, and even though some national crime statistics show a decline in certain types of crime, many Americans believe that their society is becoming more rather than less threatening.[1]

The US political process is also sending complex messages. While the US nuclear arsenal is being significantly reduced and restructured, and the US government has halted the development and testing of nuclear weapons, US forces have been sent to fight a war in the Persian Gulf, relieve starvation in Somalia, participate in nation-building in Haiti, and to enforce a fragile peace treaty in the former Yugoslavia. Elsewhere, as the US tries to negotiate an international ban on testing nuclear weapons and the production of fissile materials for making nuclear devices, a few rogue states seem intent on gaining nuclear weapons capabilities. Attempts to smuggle nuclear materials and

components that might be used to build nuclear weapons appear to be higher than during most of the cold war period.

How does the public evaluate these contradictory indications? How are these and other developments influencing the rationale for nuclear weapons that most Americans understood during the East-West competition? Do Americans perceive the post-cold war world to be more or less threatening than the nuclear standoff of its preceding decades?

Understanding how US public perceptions of post-cold war security are evolving is essential for policy choices about denuclearization, nuclear stockpile and infrastructure maintenance, and national strategy for the 21st century. If the first few years after the end of the cold war are indicative of the future, the process by which post-cold war security evolves is likely to be a confusing sequence of sometimes contradictory developments, and the evolution of US public opinions about what these changes mean for national and international security is also likely to be complex and variable.

Perceptions vs. Empiricism

To understand how public perceptions and attitudes about security evolve, we need to identify measures and relationships that are sufficiently robust and enduring to provide comparative insight about change. One of the most important dynamics to understand is how public *perceptions* of security evolve. The degree that public perceptions reflect expert analysis of the empirical nature of post-cold war security may not be as important to the policy process as understanding the perceptions themselves, for it is public perceptions of security that will influence public support or opposition to a wide variety of security policy options and investment strategies.

Focus Group Indications

In 1993 we conducted three guided focus group discussions, and we held another eight focus groups in 1995.[2] These discussions provided

informal but valuable insight into evolving attitudes about security issues. Most participants expressed the view that the international environment had changed importantly since the end of the cold war, though there were different interpretations of the implications for US national security. Many participants perceived a reduced strategic nuclear threat, and that view seemed to grow between 1993 and 1995, but others remained uneasy about the prospects for conflict and war in various regions around the world. Some participants did not perceive post-cold war US military interventions to be necessary for US national security, and they complained that US relationships with other countries have changed so drastically and so rapidly that they are no longer understandable.

Focus group members from lower socioeconomic status (SES) groups were generally more worried about domestic economic conditions and social violence than they were about military threats from other countries, but they were concerned that the US has become the world's policeman, intervening in civil and regional conflicts that do not threaten US national interests. Focus group members from higher SES groups held more balanced concerns between domestic and foreign issues, but some members from these groups also expressed confusion and lack of understanding of US involvement in Somalia, Haiti, and Bosnia.

Different Threats

Most participants in the 1995 focus groups thought that the current threat of a nuclear attack against the US was lower than it was in the cold war years, but most also were more fearful of nuclear weapons and nuclear materials falling into the wrong hands. Nuclear proliferation and the potential for nuclear terrorism were broadly perceived to be important threats to US security and international stability. The possibility that terrorist attacks like those against the World Trade Center in New York and the federal building in Oklahoma City might involve nuclear material was raised by more than one group. Participants were aware of apparent increases in international attempts to smuggle nuclear materials, and they were concerned by the possibility that Russian nuclear weapons or materials might be sold on the international black market.

Focus groups evidenced little concern about the safety and security of US nuclear assets or the possibility that they might be used without authorization. A majority of participants in all the groups was generally confident about the safety, security, and control of US nuclear weapons and nuclear materials, though some noted that the US is not immune to potential nuclear smuggling. However, a larger majority of discussants was concerned that Russian nuclear assets might be illegally transferred to rogue states or nuclear terrorists. Focus groups were also asked whether they thought North Korea, Iran, and Iraq were actively seeking nuclear weapons capabilities, and most thought those countries were indeed attempting to acquire nuclear weapons. A potentially nuclear Iran was considered particularly threatening.

Feeling Less Secure

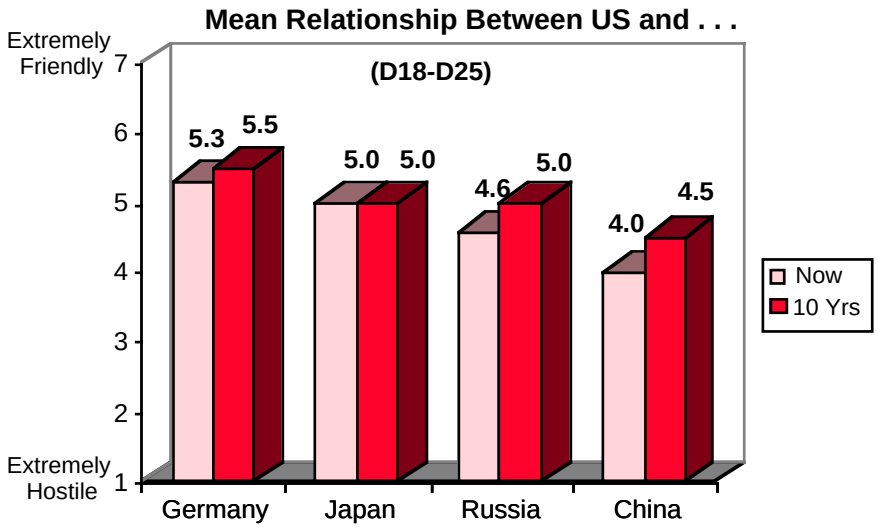
When asked whether the US is more or less secure than it was five years ago, most discussants in both 1993 and 1995 agreed that the country is *less* secure, though their rationales varied considerably. Some cited worries about nuclear proliferation and terrorism; others were concerned about US willingness to intervene in foreign conflicts. Many identified crime and social violence as a key threat to personal security, and some considered societal violence to be a threat to US national security. At all socioeconomic levels, there appeared to be overlap between perceptions of internal and external threats to national security. Participants perceived that American society is challenged by a wide range of threats that is becoming increasingly complex. Most thought that these threats were more confusing and worrisome than the threats of the latter years of the cold war. There were a few optimistic assessments about the country's security, but most focus group perceptions of security ranged from doubtful to deeply concerned.

Section 2.2: Measuring Evolving Perceptions of External Nuclear Risks

To help define the international context in which perceptions of post-cold war risks from others' nuclear weapons can be interpreted, we asked two questions about relative perceptions of US relations with four important states. Two of them, Russia and China, are states that can threaten US

security with nuclear weapons. The other two, Germany and Japan, do not now have nuclear weapons, but are major economic competitors with the US, and both are widely recognized as having the capability to develop nuclear weapons if they should choose to do so. In our first question, we asked respondents to rate the current relationship between the US and each of the other states using a scale where one meant *extremely hostile,* and seven meant *extremely friendly.* Using the same scale, our second question asked them how they thought the relationship between the US and each of the other states would be ten years from now. Figure 2.1 compares mean responses to both inquiries.

Figure 2.1



Three points are notable. First, respondents rated current and future relations between the US and each of the four other states at mid-scale or higher. Second, respondents rated future prospects higher than current relations for all of the states but Japan. And third, Russia was rated higher than China, and US relations with Russia were forecast to be on a par with US/Japanese relations in ten years. This picture implies that participants were generally positive about current and future relations with the state that was the principle US antagonist throughout most of the cold war years.

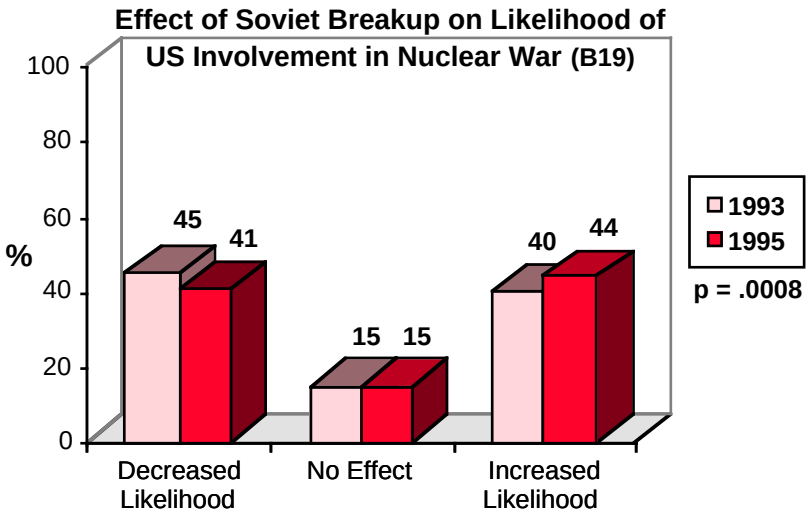
To pursue the implications of these perspectives about the post-cold war security environment, we employed the method used in our 1993

survey to measure perceptions of external nuclear risks along three dimensions: the likelihood of nuclear war, nuclear proliferation, and nuclear terrorism .[3]

Nuclear Conflict

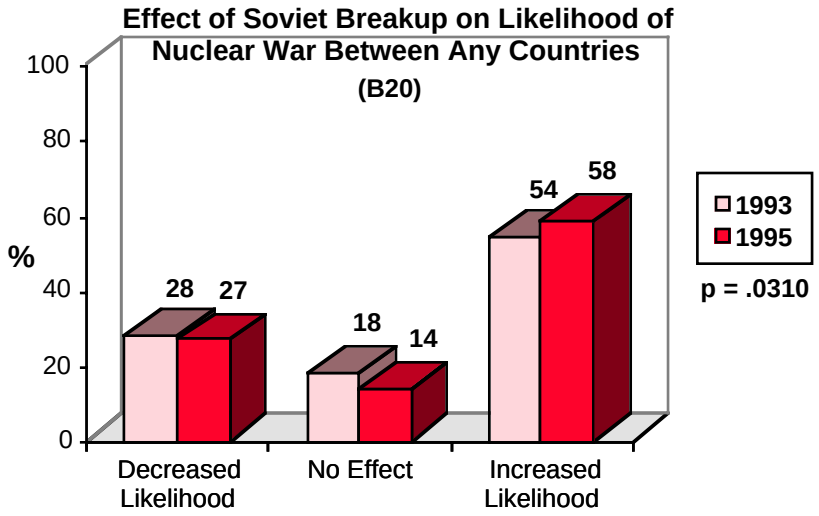
First, we asked respondents how they thought the breakup of the Soviet Union affected the chances that the US might become involved in a war with any country in which nuclear weapons are used. Figure 2.2 compares aggregated responses among the public in 1993 and 1995. Note that public perceptions of the likelihood of the US becoming involved in nuclear war have increased since 1993, but they still reflect a relatively equal division of opinion. The more salient point is that despite the generally optimistic view about current and future US and Russian relations, risk perceptions have not *decreased* (contrary to our expectations) thus far into the post-cold war era.

Figure 2.2



Next, we asked how the demise of the Soviet Union affected the chances that nuclear weapons might be used by *any* country against *any* other country. Figure 2.3 compares responses in 1993 with those in 1995. In both surveys, a majority of respondents judged the likelihood of nuclear conflict to be higher than before the Soviet collapse.

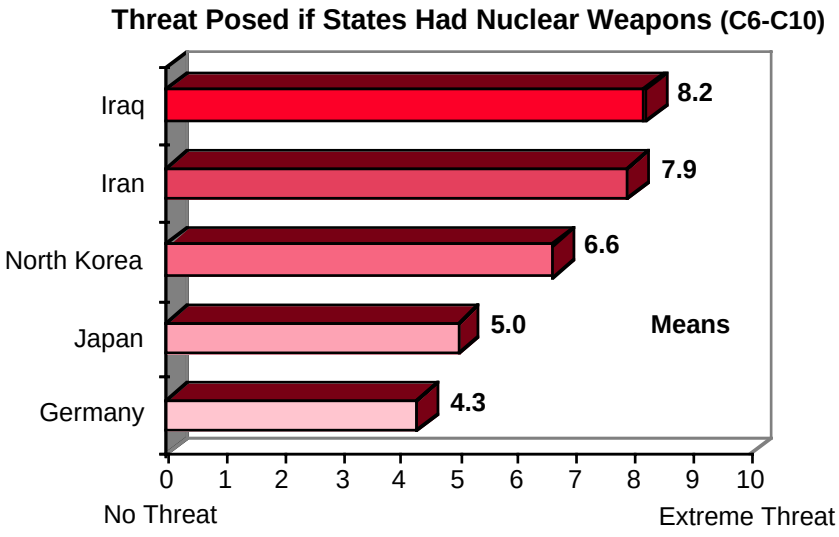
Figure 2.3



This is contrary to our expectations of a gradual decline in public perceptions of the danger of nuclear conflict in the post-cold war period.

To gauge how participants differentiated degrees of threat associated with the potential for specific states to have nuclear weapons, we read a list of countries to a subset of 844 respondents, and using a scale where zero meant *no threat* and 10 meant *extreme threat*, we asked them to rate how much threat each of the five countries would pose if they had nuclear weapons. Figure 2.4 compares mean risk perceptions.

Figure 2.4

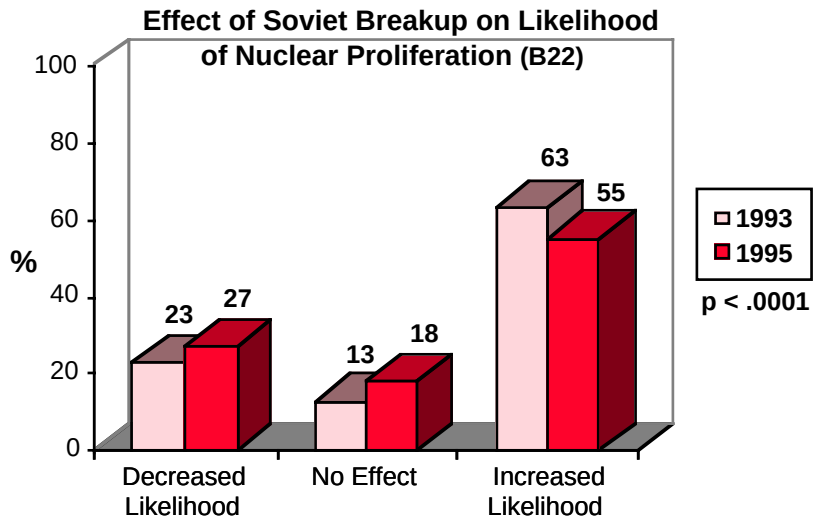


While perceptions of threat from a potentially nuclear North Korea, Iran, and Iraq were expected to be high, respondents also rated two US allies near mid-scale, indicating that they perceived substantial potential threat to be associated with the acquisition of nuclear weapons, even among current allies Japan and Germany.

Nuclear Proliferation

Turning to the influence of the Soviet breakup on the likelihood of further nuclear proliferation, we asked respondents how they thought the threat of nuclear weapons spreading to other countries has changed since the Soviet devolution. As Figure 2.5 shows, although opinion remained high that the disintegration of the Soviet Union may contribute to further nuclear proliferation (55 percent thought the likelihood of proliferation has increased), that concern seemed to have lessened somewhat, with the percentage of those perceiving an increased likelihood dropping from 63 percent in 1993 to 55 percent in 1995. This seems consistent with the fact that although there have been reports of attempts at nuclear smuggling from the former Soviet republics, no instances of nuclear proliferation have yet been shown to derive from such actions.

Figure 2.5



Considerable evidence exists as to the concern with which the American public views the prospect of further nuclear proliferation. A series of polls between 1990 and 1994 asked similar questions about the importance to US security of preventing the spread of nuclear weapons. Respondents were read a list of possible foreign policy goals for the US and asked to rate each as to its importance or priority. One of those goals was to prevent the spread of nuclear weapons. Grouped responses to that question are shown in Table 2.1.

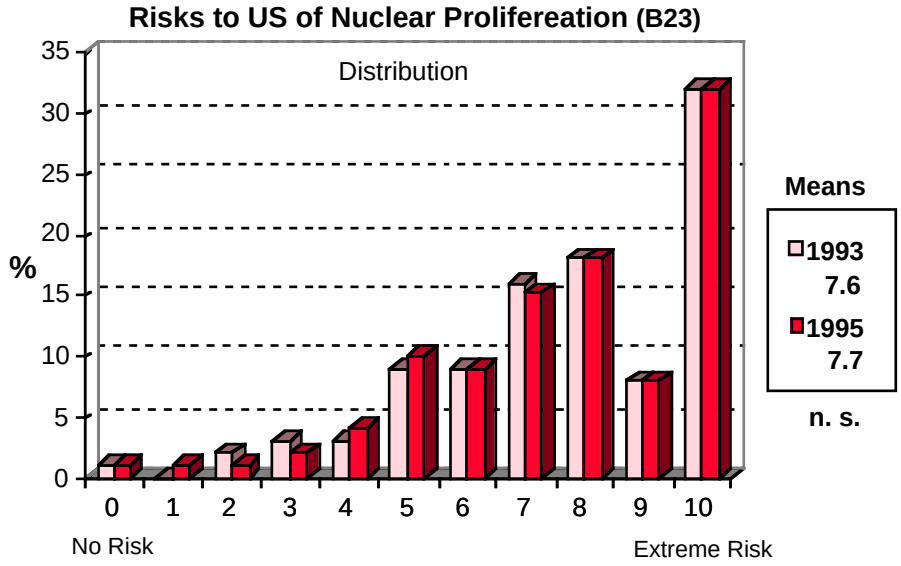
Table 2.1 Preventing Nuclear Proliferation as a Goal of US Foreign Policy

Date	Org.	Response Categories (%)			
November 1990 [4]	Gallup	Very Important	Somewhat Important	Not at all Important	Don't Know
		59	32	5	4
December 1991 [5]	Market Strategies	Extremely Important	Very Important	Somewhat Important	Not Very Important
		56	35	7	2
March 1993 [6]	Gallup	Top Priority	Among Most Important	Important, But Not a Priority	Don't Know / Refused
		42	33	22	0
October 1994 [7]	Gallup	Very Important	Somewhat Important	Not Important	Not Sure
		82	14	2	2

In these four surveys, conducted over a period of four years, the percentage of respondents who thought that preventing nuclear proliferation should be an important goal of US foreign policy ranged from 75 to 96 percent.

When we asked about the implications of nuclear proliferation in our 1993 and 1995 surveys, respondents indicated similar levels of concern. Using a scale where one meant *no risk* and ten meant *extreme risk*, we asked participants to assess the risks to the US if more countries have nuclear weapons. In Figure 2.6 we compare the distributions and mean responses to the same question asked in 1993 and 1995.

Figure 2.6



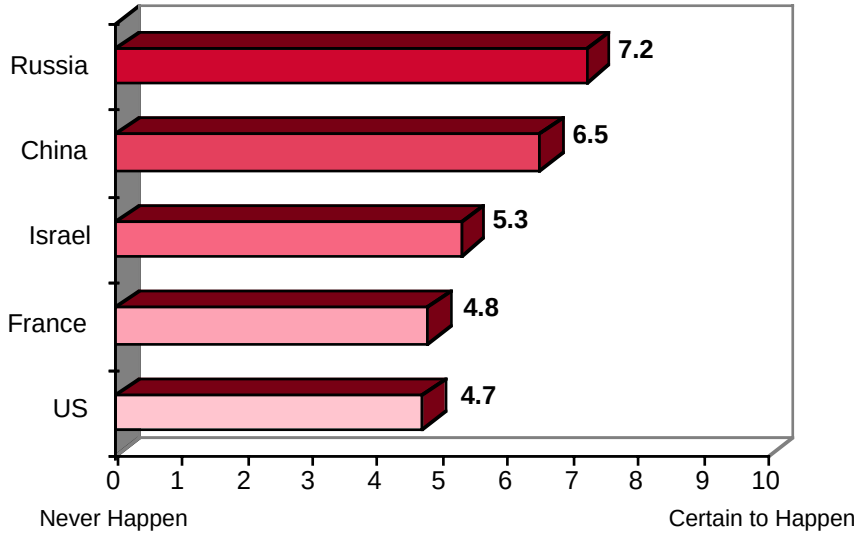
The similarity not only of the means, but also of the response patterns, in combination with results from the surveys by other organizations in Table 2.1, indicates both high levels of risk perceptions and a high degree of stability in the concerns with which Americans view the potential of further nuclear proliferation.

Nuclear Terrorism

Another aspect of nuclear risk is posed by the possibility of nuclear terrorism. Such forms of terrorism might not only involve acts that yield nuclear explosions, but they could also involve the dispersion of radioactive materials by conventional explosives, or the use of nuclear materials for coercion. To help gauge the degree to which participants discriminated between more and less likely sources of nuclear

materials that might be transferred to potential proliferants or terrorists, we asked a subset of 844 respondents in 1995 to rate their perceptions of the likelihood of nuclear materials from a variety of different countries being smuggled into the "wrong hands." Responses were provided on a scale where zero meant such a transfer would *never happen* and ten meant it was *certain to happen*. Figure 2.7 compares results.

Figure 2.7 **Likely Sources of Nuclear Materials Falling Into Wrong Hands (C16-20)**

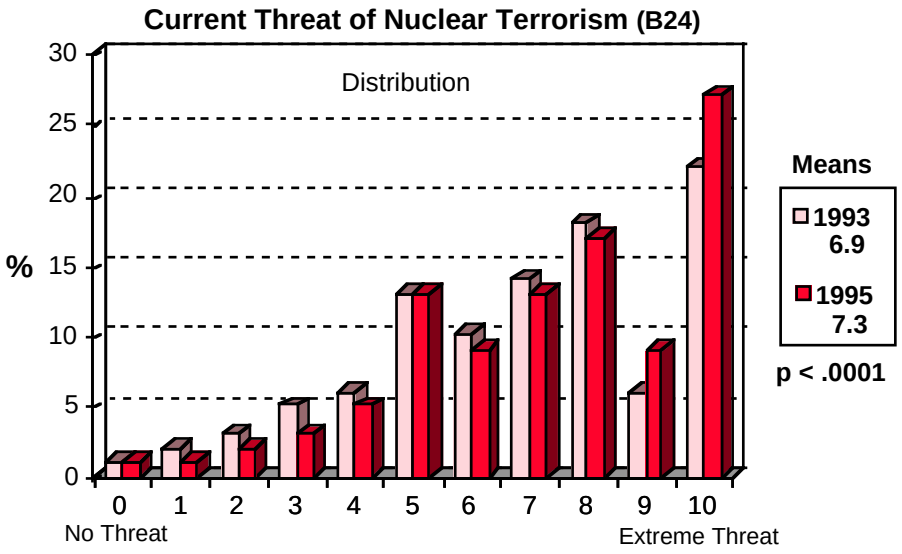


Results indicate discrimination among potential proliferation sources ranging from a low of 4.7 for the US to a high of 7.2 for Russia. They also indicate substantial levels of overall concern about the security of nuclear materials, even within our own country, which respondents rated just below mid-scale.

Turning to the overall risk of nuclear terrorism, Figure 2.8 shows a notable increase in perceived threat of nuclear terrorism between 1993 and 1995. On a scale where zero meant *no threat,* and ten meant *extreme threat,* more than one-fourth of respondents in 1995 considered nuclear terrorism to pose an extreme threat, and the mean value of concern increased from 6.9 in 1993 to 7.3 in 1995. That increase is highly

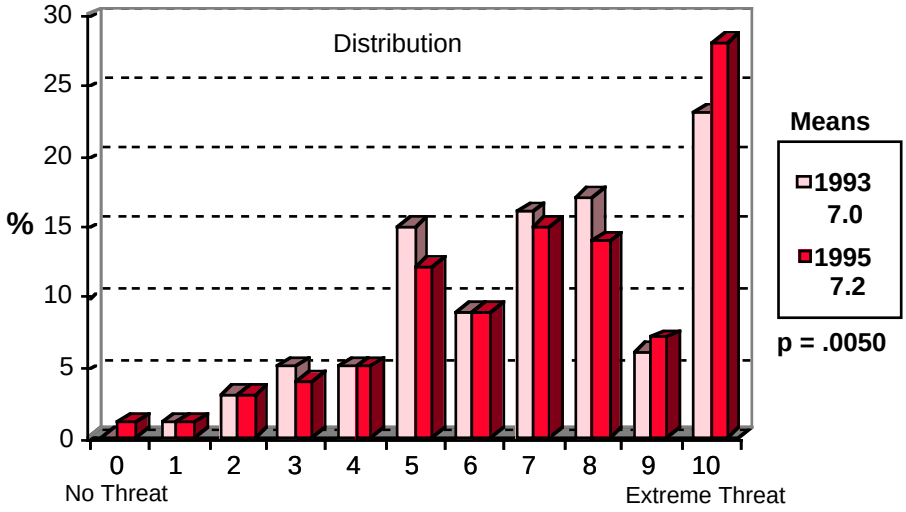
statistically significant ($p < .0001$), and it reflects what appears to be growing concern about the potential for nuclear weapons capabilities to be acquired by terrorist groups.

Figure 2.8



Perceptions of the risk of nuclear terrorism in the next ten years reflect similar levels of concern. Again participants did not appear to see a lessening of threat from nuclear terrorism. Instead, they reflected perceptions of growing risk, as shown in Figure 2.9.

Figure 2.9 **Threat of Nuclear Terrorism in Next 10 Years (B25)**



The wording of each question about the threat of nuclear terrorism required our respondents to consider both the likelihood and the potential consequences of such acts, and their answers mirror both the pessimism and concern that we found in focus group discussions. Our findings indicate that the US public takes the threat of nuclear terrorism very seriously.

Constructing an Index of External Nuclear Risk Perceptions

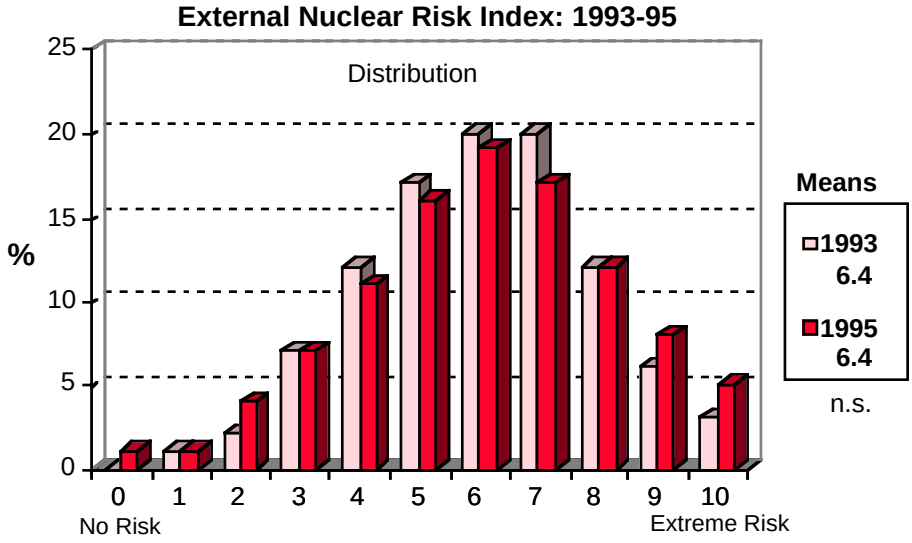
By combining perceptions of multiple risk dimensions, we can construct a composite index of respondent perceptions about external nuclear risks. The index combines results from inquiries into the following issues:

- The threat of the US becoming involved in nuclear conflict (B19).
- The threat of nuclear war occurring between any two or more states in the international system (B20).
- The threat of the spread of nuclear weapons (B22).
- The implications for the US of further nuclear proliferation (B23).

- The current threat of nuclear terrorism (B24)
- The threat of nuclear terrorism in the next ten years (B25)

In Figure 2.10 we provide a comparison of combined responses to the same questions in 1993 and 1995.

Figure 2.10



Contrary to expectations of a gradual post-cold war decrease in perceptions of external nuclear risks, public views of the threat posed by others' nuclear weapons, have remained high.

Section 2.3: Persistence of Nuclear Weapons

In addition to the nature and degree of perceived nuclear threats, another aspect of public perceptions in this area relates to expectations about threat persistence. Do members of the public think nuclear weapons are a permanent attribute of the international system? Has the end of the cold war changed the likelihood that such weapons eventually can be eliminated?

Evidence indicates that questions about eliminating nuclear weapons have two related but separate dimensions. One has to do with the *desirability* of eliminating nuclear weapons. Questions that investigate this dimension are inquiring about ideological or philosophical preferences. The other dimension relates to the *feasibility* of eliminating nuclear weapons. Questions that investigate this dimension are inquiring about the perceived practicality of a particular policy outcome. Analysts should carefully distinguish the differences involved in comparing public responses about different dimensions of the same issue.

The *Desirability* of Eliminating Nuclear Weapons

Several polls conducted by other research organizations provide evidence that when asked about the desirability of eliminating nuclear weapons worldwide, a majority of respondents will favor that objective. The following results from several national surveys illustrate the point:

- In 1988 and 1991 Market Opinion Research asked:

"... as a general goal, which of these two do you think is more desirable?"

	1988 [9]	1991 [10]
– "The elimination of all nuclear arms in the world"	53%	60%
– "For a few major countries including the US to have enough nuclear arms so no country would dare attack them"	43%	38%
– Did not know or refused to answer	3%	2%

- In 1990 Market Strategies asked:
"... Do you approve of a treaty that would lead to the elimination of all nuclear weapons?"[11]

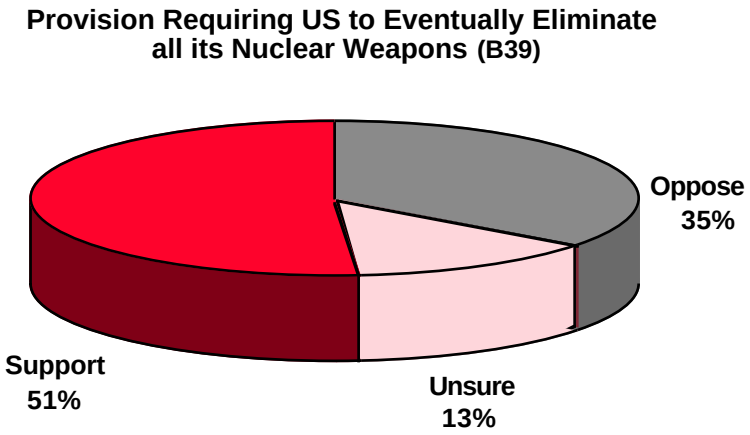
– Strongly approve	69%
– Somewhat approve	13%

- Somewhat disapprove 8%
- Strongly disapprove 7%
- Don't know 2%

- A 1991 CBS News/New York Times poll asked:
  "Suppose the United States and the Soviet Union could agree to eliminate all nuclear weapons—and get other nations that have them to do the same. Would you approve or disapprove of the elimination of all nuclear weapons?"[12]
  - Approve 87%
  - Disapprove 11%
  - Don't know/no answer 2%

In 1995 we asked how respondents felt about the US agreeing to a treaty provision that requires us to eventually eliminate all of our nuclear weapons. Respondents answered using a scale where zero meant that they would *strongly oppose* such a provision, and ten meant they would *strongly support* it. No mention was made of Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons, to which the US is a signatory.[13] Figure 2.11 summarizes responses.

Figure 2.11



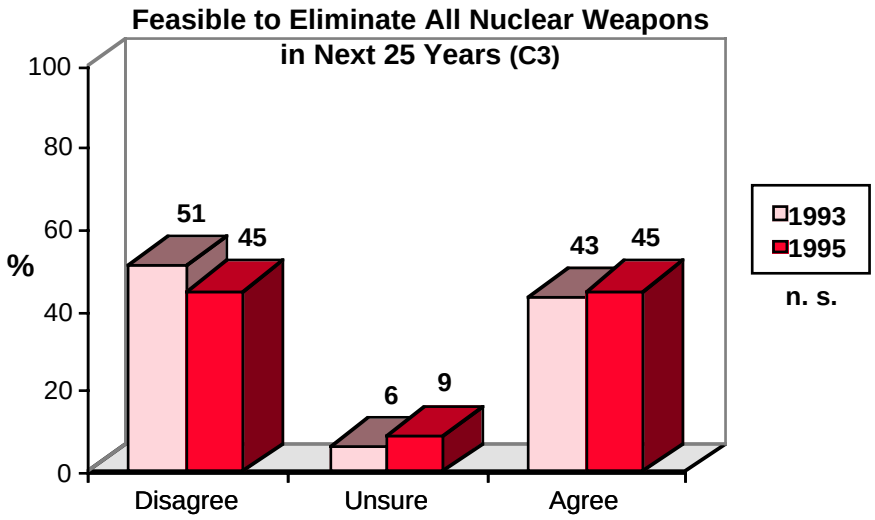
Results from all these surveys support the contention that Americans would prefer the worldwide elimination of all nuclear weapons if that was a viable option.

The *Feasibility* of Eliminating Nuclear Weapons

The same 1991 CBS News/*New York Times* poll (noted above), also asked the following question: "Do you think it is possible in the foreseeable future to eliminate all nuclear weapons, or is that not a realistic possibility?" Results provide a useful benchmark of public attitudes about the possibility of eliminating nuclear weapons that coincides with the breakup of the Soviet Union. At that time, fully 70 percent of respondents considered the elimination of all nuclear weapons *not* to be a realistic possibility; 25 percent thought such an eventuality was possible; and five percent did not know or chose not to answer.[14]

A second benchmark is provided by our 1993 survey which asked participants to respond to the following statement on a scale where one meant *strongly disagree*, and seven meant *strongly agree*: "It is feasible to eliminate all nuclear weapons worldwide within the next 25 years." A third reference was provided when that format was repeated in 1995. We show the grouped distributions of responses from both surveys in Figure 2.12.

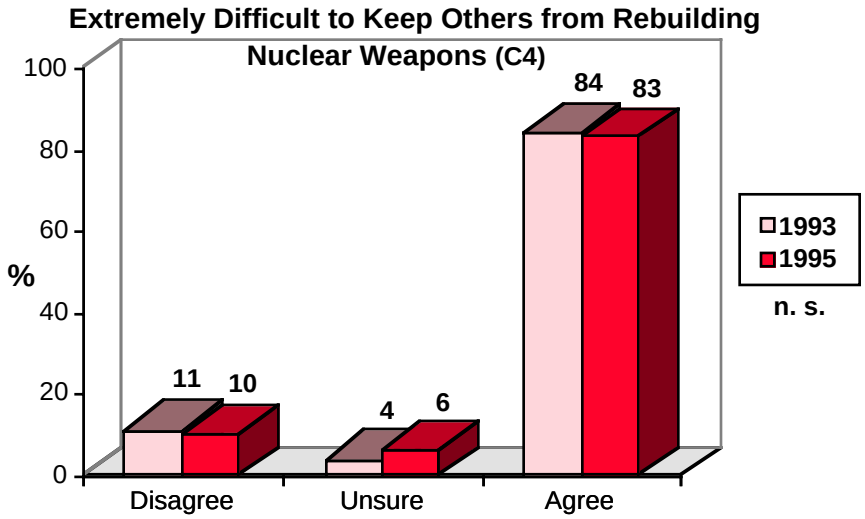
Figure 2.12



Note the split in public opinion; in both our surveys, about half of the respondents considered the eventual elimination of nuclear weapons to be feasible, while about half considered their elimination not to be feasible. Some differences in responses between the CBS News/*New York* Times poll and our surveys should be expected because of differences in question structure. Nevertheless, movement from 70 percent in 1991, indicating that the elimination of nuclear weapons was not feasible in the foreseeable future, to a roughly even distribution in 1993 and 1995 may mean that public optimism about the elimination of nuclear weapons shifted substantially following the breakup of the Soviet Union in 1991. The differences in public views between 1993 and 1995 indicate that change may be continuing to occur, though more gradually.

Further perspective about this issue is provided by responses to a related inquiry in both 1993 and 1995. Using the same scale, we asked participants to respond to the following statement: "Even if all the nuclear weapons could somehow be eliminated worldwide, it would be extremely difficult to keep other countries from building them again." Figure 2.13 compares responses from both surveys.

Figure 2.13



Note the consistency in views between our 1993 and 1995 surveys. When these findings are combined with those in Figure 2.11, it seems apparent that the public recognizes the difficulties in eliminating nuclear weapons, and is of the opinion that they are likely to be a persistent attribute of the post-cold war security environment.

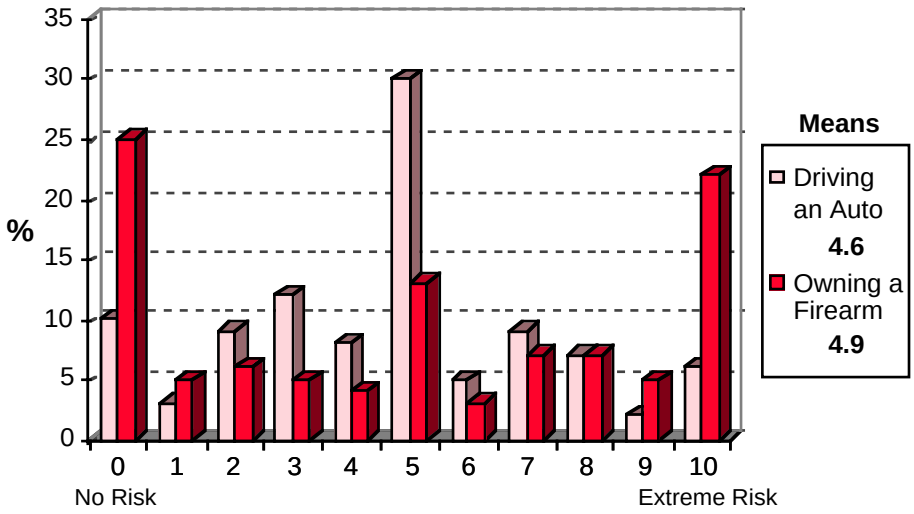
Section 2.4: Perceptions of Domestic Risks of Nuclear Weapons

Base Line Risk Sensitivities

In order to provide a base line of respondent risk perceptions against which to gauge comparative domestic risks related to nuclear weapons and other security issues, we asked survey participants to express their perceptions of the risks associated with two activities about which there has been much social discussion—driving automobiles and owning firearms. Both are voluntary activities; both are within the personal experience of many Americans; and both are widely perceived to have associated risks. Using a scale where zero meant *no risk,* and ten meant *extreme risk,* we asked respondents to rate the personal risks to them from driving an automobile and

owning a personal firearm. Figure 2.14 shows the distribution of their answers and mean responses to both questions.

Figure 2.14 **Base Line Risks: Driving an Auto; Owning a Firearm (B1-B2)**



This normative measure indicates two interesting aspects of public risk perceptions. First, note that both are rated near mid-scale on average. This means that our respondents perceived substantial risks to be associated with both driving an automobile and owning a firearm, yet it is a virtual certainty that an overwhelming majority of participants drive motor vehicles, and a significant number of them probably own firearms. The fact that survey respondents recognize risks associated with a particular activity does not imply that they think the activity is not worthwhile or that the associated risks are not worth taking.

The second point to note is how very different response patterns can yield similar means. Note the bimodal nature of responses to the question about owning a firearm. Fully 25 percent of respondents attributed *no risk* to owning a firearm, while nearly as many participants considered gun ownership to pose *extreme risk.* Many other controversial issues or activities can yield risk perceptions that are diametrically opposed. When we examined the distribution of answers to the question

about driving an automobile, we found a much more even distribution, with the modal response being precisely at mid-scale. Obviously driving an automobile does not produce the polarizing results that the gun ownership question did, yet the mean value of responses to both questions was within 0.3 points. Issues or activities about which respondents are assessing risks can produce similar mean values, yet have very different implications, based on the distribution of answers. Both points are worth remembering as we examine perceptions of domestic risks associated with US nuclear weapons.

Risks of Managing Nuclear Weapons

We asked a series of questions in 1993 and 1995 about the risks participants perceived to be associated with managing the US nuclear arsenal. Using the same scale used in the base line risk questions above, where zero meant *no risk* and ten meant *extreme risk,* we asked respondents to rate the risks to American society of manufacturing, transporting, storing, and disassembling nuclear weapons in the US and storing radioactive materials in the US from disassembled weapons. Figures 2.15–2.19 display responses to each question.

Figure 2.15 **Risks of Manufacturing Nuclear Weapons in the US (B3)**

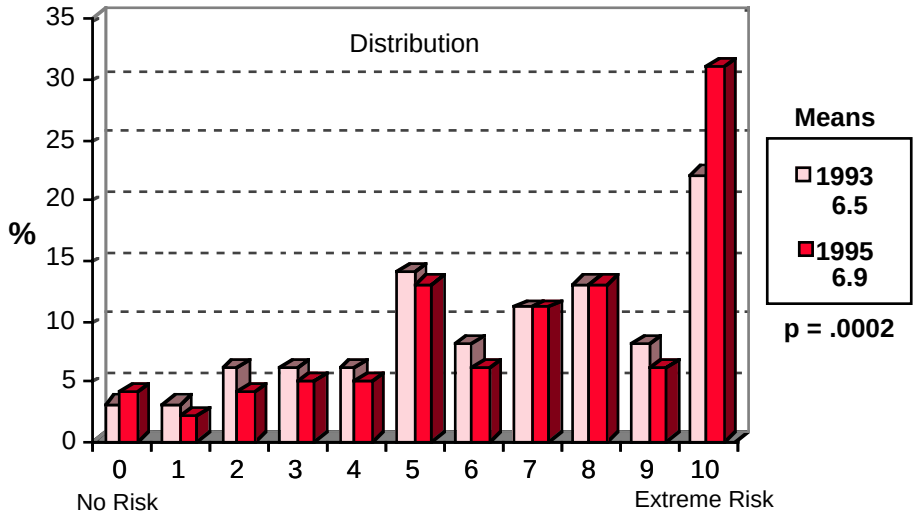


Figure 2.16

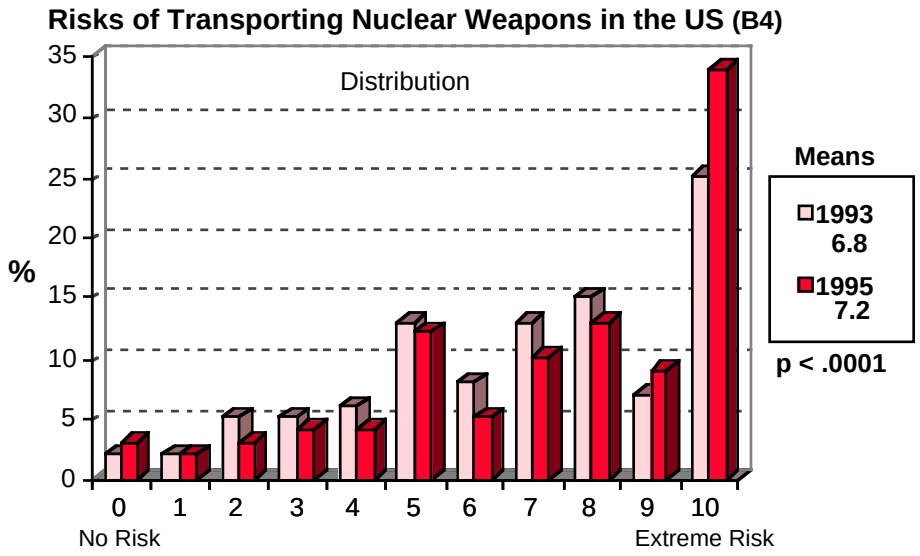


Figure 2.17

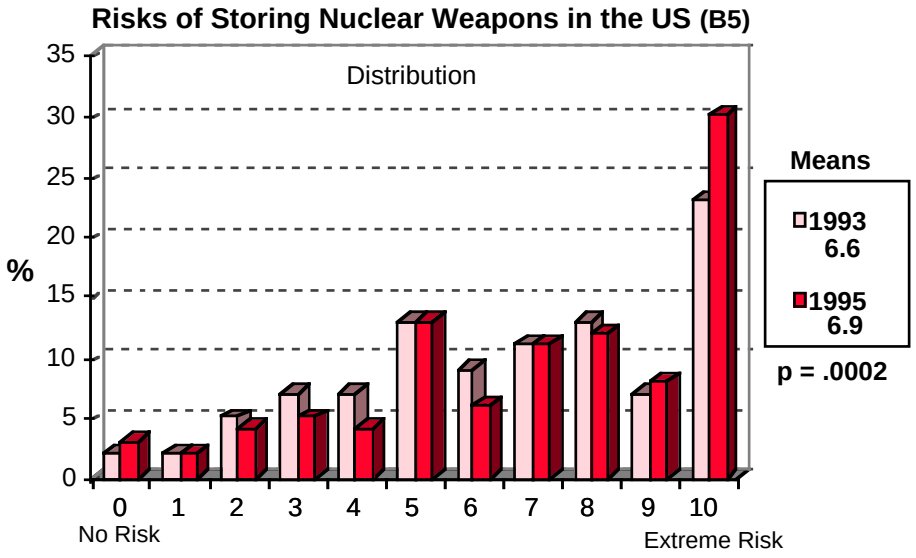


Figure 2.18

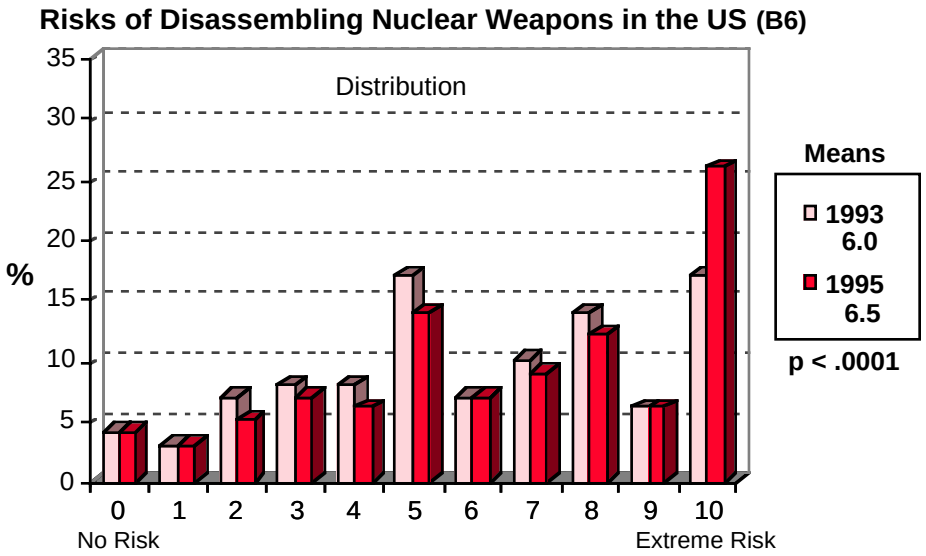
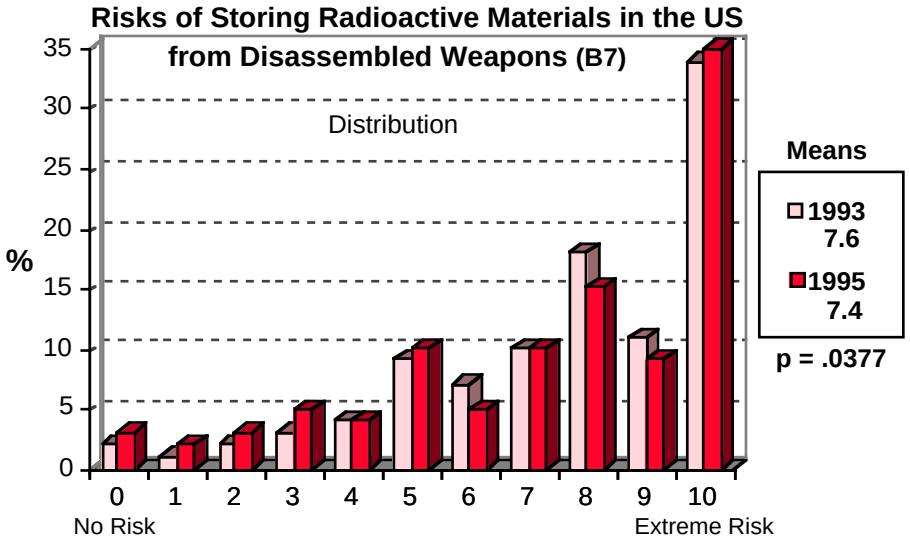


Figure 2.19



Three points seem to be important. First, the distributions of answers to the same questions in 1993 and 1995 exhibit quite similar patterns of responses. The modal response to each question in both surveys was ten, indicating that more participants perceived the management of nuclear weapons to pose extreme risks than any other level of risk from which they could choose. Second, mean perceptions of the risks associated with the different aspects of nuclear weapons management increased between 1993 and 1995 for all management issues except storing radioactive materials from disassembled weapons, and all of the changes were statistically significant ($p < .05$). Third, no serious nuclear incidents or accidents associated with US management of nuclear weapons were publicly reported during the period under study.

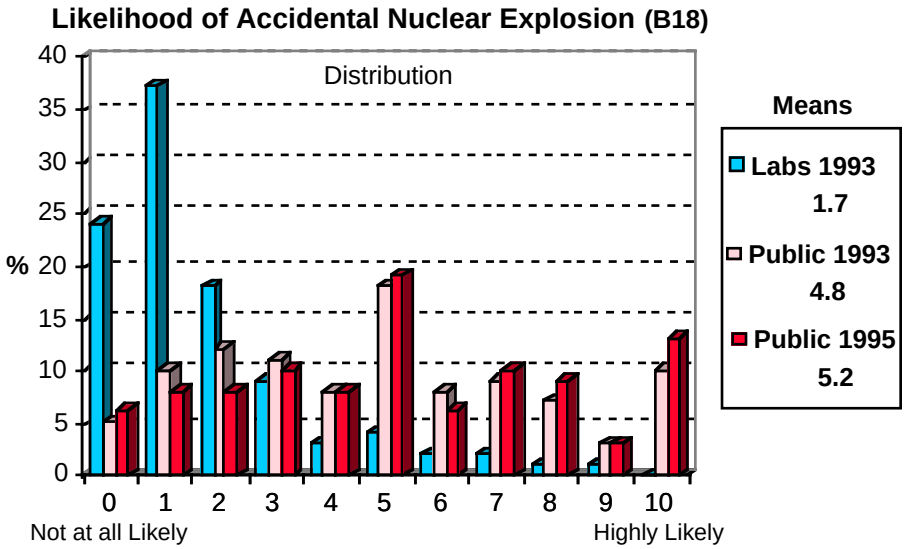
The implications for the nuclear establishment seem to be that the US public considers the activities associated with managing nuclear weapons and maintaining the strategic stockpile to pose substantial risks to society, and those risks are perceived to be increasing. That is not to imply that the public considers those risks to be unacceptable, as responses to policy questions in Chapter Four will show, but it may indicate that public tolerance of nuclear weapons could be significantly influenced by perceived increases in domestic nuclear risks, such as an incident or accident involving nuclear assets.

Risks of Accidental or Unauthorized Use of Nuclear Weapons

Other dimensions of potential risks associated with our own nuclear weapons relate to the possibility that a US nuclear device might be involved in an unintended nuclear explosion or might be used without presidential authorization. Scientists who are knowledgeable about nuclear weapons design, safety features, and system redundancy might consider the likelihood of an accidental explosion of a nuclear weapon to be "vanishingly small," but members of the public who are not as well informed about nuclear surety may not be so confident. When considering public perceptions of risk, it is useful to remember that perceptions can sometimes be more policy-relevant than facts. Figure 2.20 contrasts responses of members randomly selected from the

technical staffs of four national laboratories in 1993 with those of the general public in 1993 and 1995. All answers are in response to the following question: “How would you rate the likelihood of an accident involving a *US* nuclear weapon causing an unintended nuclear explosion?” Answers were provided on a scale where one meant *not at all likely,* and seven meant *highly likely.*

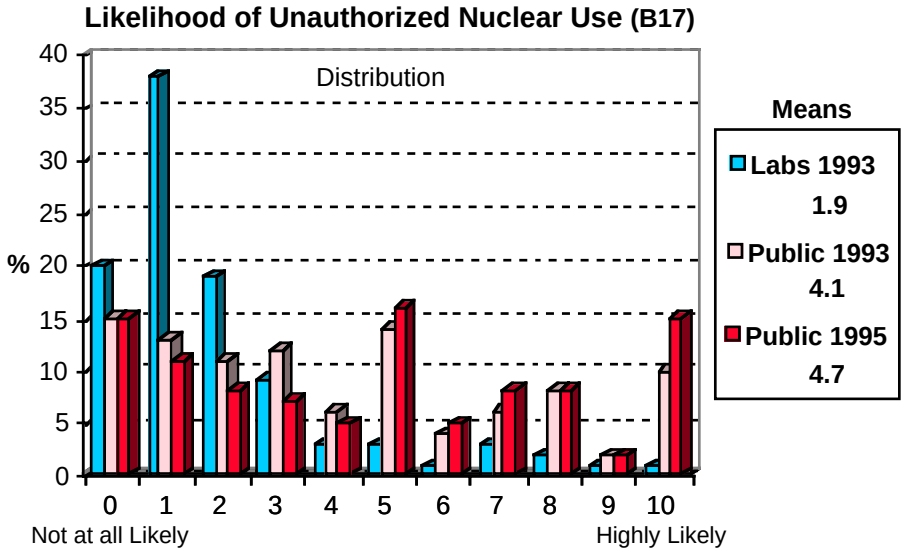
Figure 2.20



Obvious differences in the distributions between the perspectives of members of the technical staffs of national laboratories and the general public illustrate how technical information and popular perceptions are often at odds. The differences in means are striking. There is also a statistically significant *increase* since 1993 in public perceptions of the likelihood of a nuclear accident ($p = .0012$).

Similar distinctions between public and technical perspectives are evident regarding the issue of unauthorized nuclear use. We asked survey participants in 1993 and 1995 to rate the likelihood of a US nuclear weapon being used within the next 25 years without presidential authorization. We compare answers given by members of the national labs with those from the public in Figure 2.21.

Figure 2.21



Again, the difference in perspectives between technically trained members of national laboratories and members of the general public are dramatic. Additionally, the increase in public assessment since 1993 is highly statistically significant ($p < .0001$), and it is consistent with other trends in risk perceptions we previously noted.

Constructing an Index of Domestic Nuclear Risk Perceptions

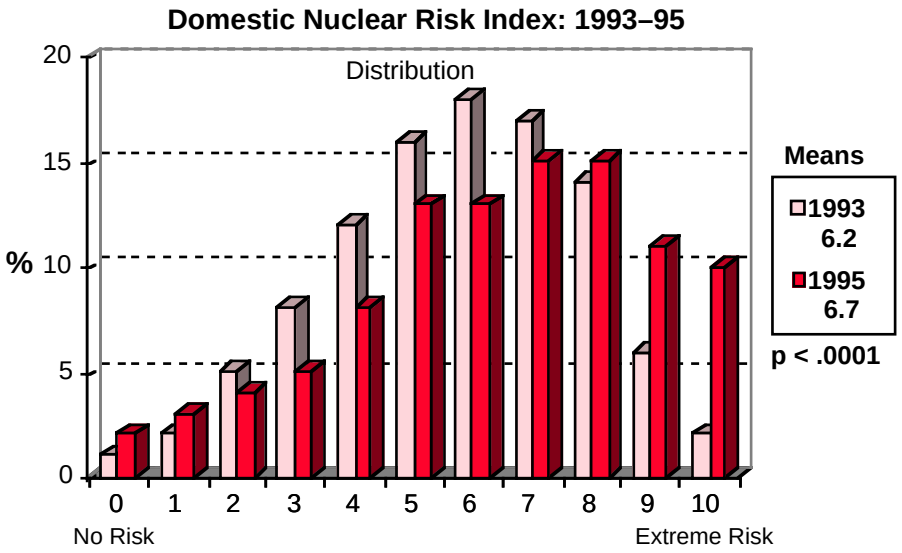
By combining responses to questions about risks associated with selected aspects of managing nuclear weapons and questions about risks of accidental or unauthorized use, we can construct a composite nuclear weapons domestic risk index. Our index combines responses to inquiries about the following seven issues:

- The risks of manufacturing nuclear weapons in the US (B3).
- The risks of transporting nuclear weapons in the US (B4).
- The risks of storing existing nuclear weapons in the US (B5).
- The risks of disassembling nuclear weapons in the US (B6).

- The risks of storing radioactive materials in the US from disassembled weapons (B7).
- The likelihood of an accident involving a US nuclear weapon causing an unintended nuclear explosion (B18).
- The likelihood of a US nuclear weapon being used within the next 25 years without presidential authorization (B19).

Figure 2.22 shows the distribution and mean results contrasted with responses to the same combination of questions asked in 1993.

Figure 2.22



Analysis of variance between mean risk perceptions in 1993 and 1995, as measured by the domestic nuclear risk index, shows the increase in perceived risk to be highly statistically significant ($p < .0001$).

Section 2.5: Summarizing Perceptions of External and Domestic Nuclear Risks

Our expectations in 1993 were that we would find that public perceptions of external nuclear risks, measured as a function of change since the breakup of the Soviet Union, would reflect reduced concern. Our expectations about domestic nuclear risks were less clear, but we expected that after nearly a half-century of living with nuclear weapons, and after having survived the nuclear arms race with the Soviet Union, the US public would probably not consider their own nuclear arsenal to pose substantial risks to society.

Instead, in 1993 we found a public that considered the risk of nuclear conflict occurring somewhere in the world, the risk of nuclear proliferation, and the risk of nuclear terrorism all to have *increased* since the end of the cold war. And we found that even after decades of possessing nuclear weapons without catastrophic accidents or unauthorized use, our respondents still attributed substantial risks to the management and maintenance of a nuclear arsenal.

Our expectations in 1995 were that we would find a gradual lessening of concern about external nuclear risks as the public absorbed and became more accustomed to changes associated with the newly evolving security environment, and that we would find little if any change in perceptions of nuclear risks from managing our own nuclear arsenal. Instead, our findings indicate that public concern about external nuclear security has remained high, and perceptions of domestic risks have *increased* in the period from 1993 to 1995. The external risk concerns seem to be driven less by fear that the US will be attacked by another nuclear power than by perceptions that the chances for nuclear conflict among other states have increased since the breakup of the Soviet empire, and by growing concerns about nuclear proliferation and terrorism.

Increases in perceptions of risks associated with our own nuclear assets are more difficult to understand. There have been no public reports of nuclear incidents or accidents since 1993, and the US stockpile is in the process of being substantially reduced. Dismantlement has apparently proceeded without incident, and there has been little if any public debate about nuclear surety. The continuing debate about long-term storage of nuclear materials, the return of spent nuclear reactor fuel from Europe to the US, and the removal of nuclear materials from Kazakhstan for storage in the US has generated some public interest, but reasons why public perceptions of risks of nuclear weapons management appear to have increased remain elusive.[15]

Having found that public perceptions of external risks of nuclear weapons have not declined and that perceptions of domestic nuclear risks have *increased* significantly since 1993, is it also the case that perceived benefits of these weapons have *declined*? We might reasonably anticipate that the collapse of the former Soviet Union may have reduced the perceived necessity for nuclear deterrence, and perhaps nuclear weapons are not seen as appropriate tools for dealing with post-cold war security challenges. In the next chapter we will answer that question by examining public perceptions of external and domestic benefits associated with nuclear weapons that may act to counterbalance perceived nuclear risks described above.

End Notes

[1] See Chapter Seven for survey results regarding societal violence and personal security.

[2] See Appendix 2 for a more detailed report of 1995 focus groups. A discussion of 1993 focus groups can be found in Appendix 2 of Hank C. Jenkins-Smith, Richard P. Barke, and Kerry G. Herron, 1994, *Public Perspectives of Nuclear Weapons in the Post-Cold War Environment: Findings and Analysis of the National Security Survey: Perceptions and Policy Concerns 1993–1994,* document ID: SAND 94-1265, Albuquerque, NM: Sandia National Laboratories.

[3] In the 1993 study, external nuclear risks were referred to as nuclear *threats*.

[4] A US national telephone survey of 1,662 adults conducted by the Gallup Organization for the Chicago Council on Foreign Relations from October 23 to November 15, 1990.

[5] A US national telephone survey of 1,000 adults conducted by Market Strategies for the Americans Talk Issues Foundation during December 1991.

[6] A US national telephone survey of 1,000 adults conducted by the Gallup Organization for Cable News Network and *U.S.A. Today*, March 29–31, 1993.

[7] A US national telephone survey of 1,492 adults conducted by the Gallup Organization for the Chicago Council on Foreign Relations, October 7–25, 1994.

[8] The same composite index in the 1993 study was termed the "Nuclear Threat Index."

[9] A US national telephone survey of 1,000 adults conducted by Market Opinion Research for Americans Talk Security, January 7–14, 1988.

[10] A US national telephone survey of 1,000 adults conducted by Market Opinion Research for the Americans Talk Issues Foundation between June 23 and July 1, 1991.

[11] A US national telephone survey of 1,000 adults conducted by Market Strategies for Americans Talk Security between February 19 and March 2, 1990.

[12] A US national telephone survey of 1,000 adults conducted by CBS News/*New York Times*, October 5–7, 1991.

[13] Article VI of the Treaty on the Non-Proliferation on Nuclear Weapons states: "Each of the parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."

[14] A US national telephone survey of 1,000 adults conducted by CBS News/*New York Times*, October 5–7, 1991.

[15] For survey findings about public attitudes concerning the foreign spent nuclear fuels program and nuclear materials transportation issues see: (1) Amy Fromer, Hank Jenkins-Smith, Carol L. Silva, and John Gastil, 1995, *Understanding Public Reaction to the Foreign Spent Nuclear Fuel Return Program: 1994–1995*, Albuquerque, NM: UNM Institute for Public Policy, and (2) Hank Jenkins-Smith, Amy Fromer, and Carol L. Silva, 1995, *Transporting Radioactive Materials: Risks, Issues, and Public Perspectives*, Albuquerque, NM: UNM Institute for Public Policy.

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Chapter Three

Evolving Perceptions of the Benefits of US Nuclear Weapons

Section 3.1: The Historical Role of US Nuclear Weapons

After the first half-century of the nuclear age, and after prevailing in the military, political, and economic competition with the Soviet bloc, how do Americans feel about nuclear arms? On the whole, has nuclear weaponry been a blessing or a scourge? To what degree were nuclear weapons relevant to US security and influence during the cold war, and more importantly, how is their value changing in the post-cold war era? Did nuclear deterrence matter in the past, and does it matter to US security today? Will it be needed in the future, and if so, for how long? Does the public perceive economic and technical benefits to be associated with defense spending on nuclear and other military arms?

Focus Group Indications

To gain impressions of public perceptions about external benefits of US nuclear weapons for national security, prestige, and influence, as well as perceived domestic benefits, we asked focus groups to discuss the pros and cons of nuclear weapons and how they might be changing since the end of the cold war. When asked about the past role of nuclear deterrence, there was widespread agreement that deterrence worked during the cold war. Most members felt that it was instrumental in preventing open conflict between the US and the Soviet Union. When asked whether the US continues to need nuclear weapons, there was even stronger agreement that nuclear weapons remain important to US security. When asked why nuclear weapons remain important now that the cold war is over, most discussants were of the opinion that as long as other countries have nuclear weapons, the US must also have

them for deterrence purposes. Focus groups seemed confident of our ability to deter an overt nuclear attack on the US. But when asked whether US nuclear weapons can deter nuclear proliferation or terrorism, focus group members were divided, with some suggesting that nuclear deterrence is much more problematic in these regards, since nuclear retaliation against unknown terrorists might be so difficult as to make deterrence ineffective.

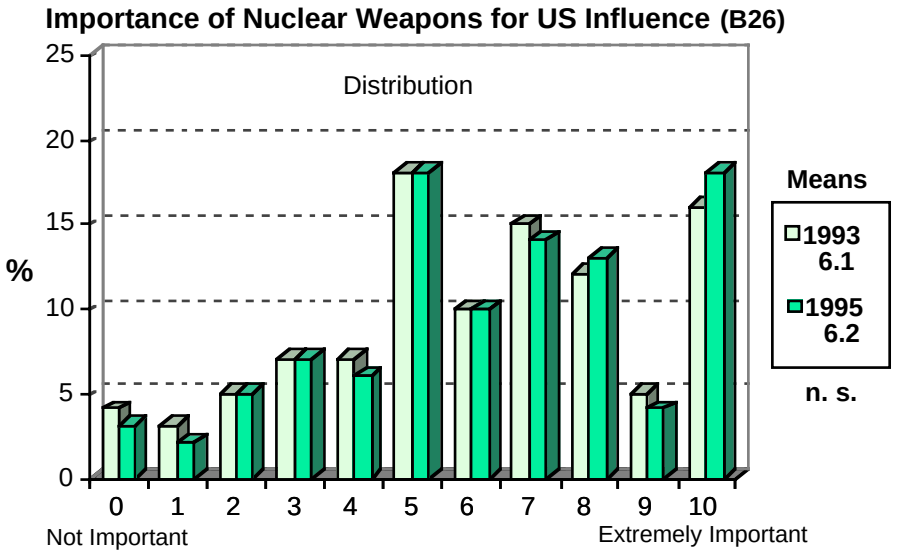
Potential benefits of nuclear weapons for domestic jobs, the economy, and technology transfers were unclear to some focus groups, and opinion was divided about whether and to what degree such influences might be considered beneficial. One limitation derives from the difficulty of knowing the extent of investments that are made in nuclear weapons related categories, as opposed to other categories of defense spending, and the economic and technical consequences of those expenditures. There was little consensus about the nature of domestic benefits associated with nuclear weapons capabilities. Focus group members could relate to military base closures and the economic effects of reduced spending and lost jobs in those communities where military facilities are affected. However, expenditures for ships, planes, tanks, and artillery designed to perform both conventional and nuclear roles cannot easily be categorized into either nuclear or nonnuclear investments. As a result, focus group members were not able to relate specific investments in nuclear capabilities to economic outcomes.

Section 3.2: Measuring Perceived Benefits of US Nuclear Weapons for National Security

Importance of Nuclear Weapons to US Influence and Status

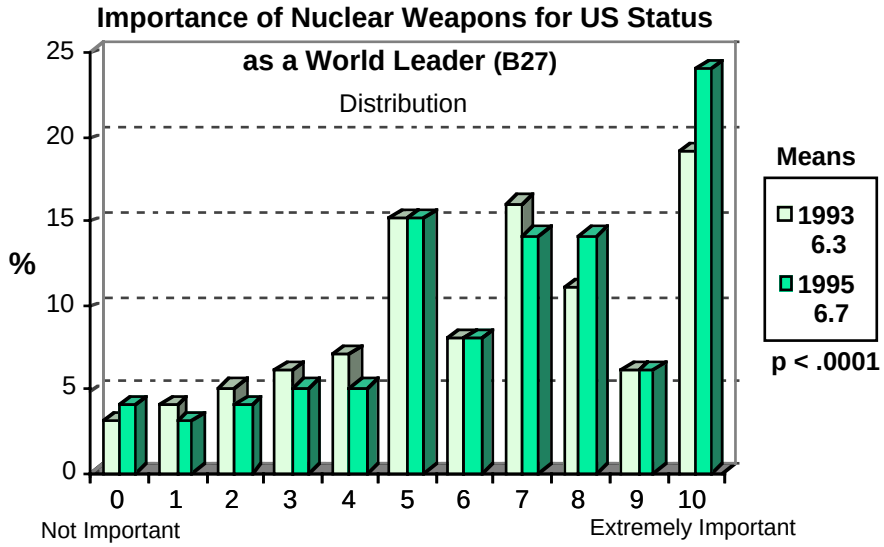
We asked three questions about perceptions of the relationship between US nuclear weapons and national interests. First, respondents were asked the following question: "How important are US nuclear weapons for US influence over International events?" We compare responses from our 1993 and 1995 surveys in Figure 3.1.

Figure 3.1



The high degree of consistency in distributions and mean responses indicates that little has changed in the substantial importance the public continues to place in nuclear weapons as an element of US international influence. Values were even higher when respondents were asked to judge the importance of nuclear weapons for maintaining US status as a world leader, as shown in Figure 3.2.

Figure 3.2

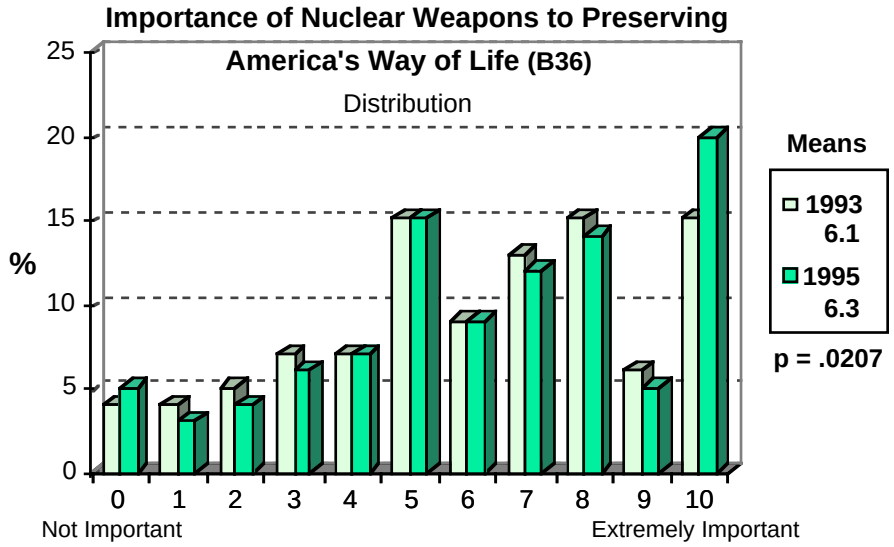


It is interesting that four years into the post-cold war era, and two years after our last measurement, the modal response not only remained at the highest value (ten), but the portion of respondents selecting that value increased by five percentage points. The difference in means from 1993 to 1995 is highly statistically significant ($p < .0001$). From their answers to these two related questions, our respondents appeared to perceive an important relationship between nuclear weapons capabilities and US international influence and leadership. Rather than declining since the end of the cold war, their valuation of that relationship increased in the period from 1993 to 1995.

Importance of Nuclear Weapons to the American Way of Life

Our third question in this series inquired about the historical relevance of US nuclear capabilities by asking respondents how important they thought nuclear weapons have been to preserving America's way of life. We made no attempt to define or characterize America's way of life. Our objective was to determine how each participant related nuclear weapons to his or her individual concept of the American way of life, regardless of personal value judgments about the nature of US society. Figure 3.3 compares results of the 1993 and 1995 surveys.

Figure 3.3

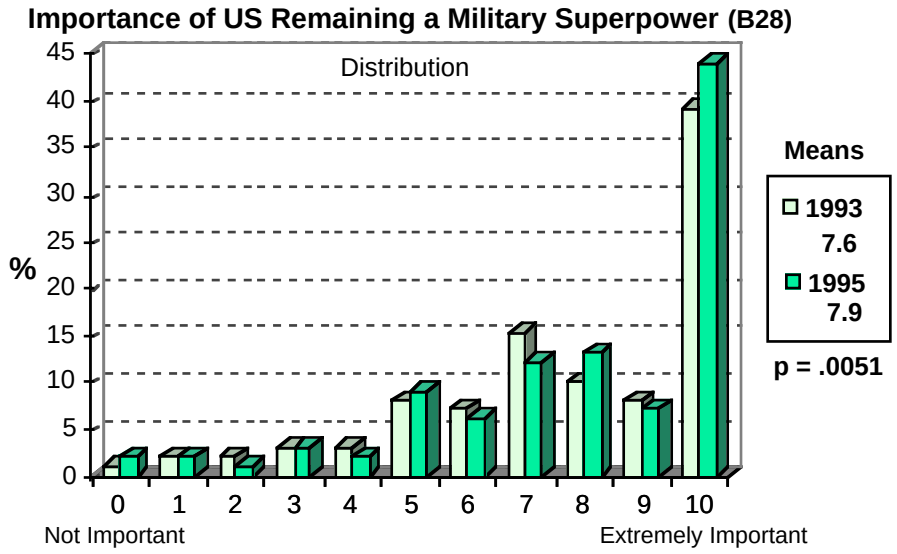


Results indicate that respondents in 1995 continued to attribute great importance to the role of nuclear weapons in preserving American independence and security. In fact they rated the importance of nuclear weapons statistically significantly higher on average than in 1993.

Importance of Remaining a Military Superpower

Our final question in this series asked respondents to make a judgment about the future by rating the importance of the US remaining a military superpower. Responses are shown in Figure 3.4.

Figure 3.4



Note the increase in the maximum value of the vertical scale compared to the previous charts. There seems to be little doubt that the American public attaches great importance to the US retaining its position as a military superpower. Fully 82 percent of all respondents rated the value of remaining a military superpower above mid-scale, and nearly half of all respondents rated it at the highest end of the scale. Again, the increase in mean rating in the period from 1993 to 1995 is statistically significant ($p = .0051$).

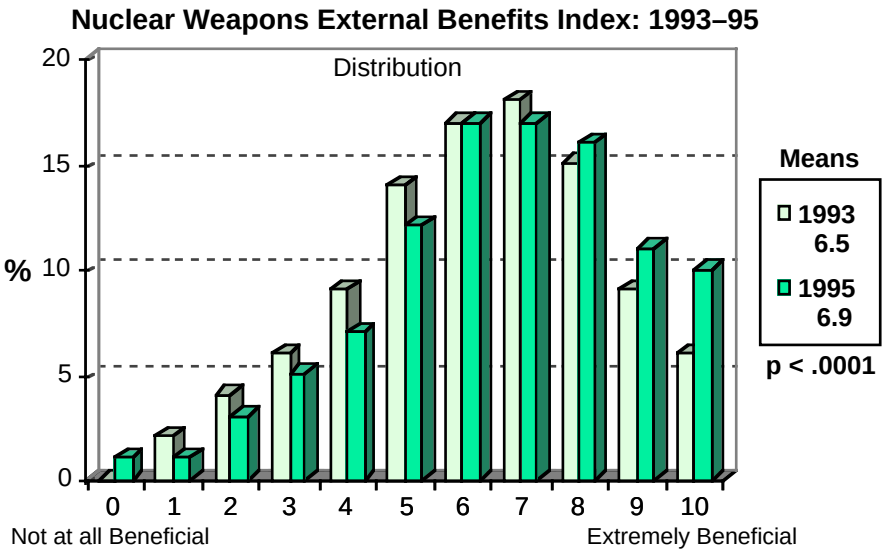
Constructing an Index of Perceived External Benefits

By combining these results, we can create an index of perceived benefits of nuclear weapons for achieving US national security interests. The index includes responses to questions about the following issues:

- The importance of nuclear weapons for US influence over international events (B26).
- The importance of nuclear weapons for maintaining US status as a world leader (B27).
- The importance of nuclear weapons for preserving America's way of life (B36).
- The importance of the US remaining a military superpower (B27).

Because we asked the same questions in 1993, a comparison of combined views can be made, as shown in Figure 3.5.[1]

Figure 3.5



Contrary to our expectations of a gradual decline in perceived value of US nuclear weapons for achieving national security objectives in the post-cold war security environment, our respondents placed a higher value on the US nuclear arsenal in 1995 than did our respondents in 1993. This increase in mean perceptions of external benefits is highly statistically significant ($p < .0001$).

The Perceived Role of Nuclear Deterrence

One of the most often mentioned (and most often argued) aspects relating to the perceived utility of nuclear weapons is their role as a deterrent to aggression or attack. Perceptions about nuclear deterrence were formed during the ideological and philosophical struggles of the cold war, and arguments about the viability of deterrence were never empirically resolved because of the impossibility of proving why nuclear war between two nuclear weapons states has *not* occurred.[2] However, for many US policy makers and for large segments of the US population, nuclear deterrence was the most persuasive (perhaps the only) rationale for developing and maintaining a nuclear arsenal. To better understand how perceptions of nuclear deterrence might be evolving after the cold war, we included three questions designed to reflect how our respondents perceived nuclear deterrence today, how they thought about deterrence in retrospect, and how they viewed it prospectively.

Before reporting the results, it would be useful to look at data relating to public perceptions of nuclear deterrence during the latter years of the cold war and during the transition that accompanied its demise. Two surveys provide useful snapshots. Changes in the Soviet system were on the horizon in 1988, but the East-West standoff was still intact. The Soviet Union was fighting in Afghanistan, but in April of that year it agreed to withdraw its forces. President Reagan visited Moscow in late May, but little was accomplished. Mikhail Gorbachev was named President of the Soviet Union in October. A national survey in December 1988 by Market Opinion Research asked the following question: "Which do you think is most likely: that our nuclear deterrence will fail and we will have a nuclear war sometime in the future, or that

nuclear deterrence will succeed and we will never be in a nuclear war?[3] Almost two out of three respondents (62 percent) felt that deterrence would succeed, with 27 percent answering that deterrence would eventually fail. The remaining 11 percent did not know or chose not to venture an opinion. Assuming this sample population was representative, these findings indicate that in the latter stages of the cold war, the American public placed considerable confidence in US nuclear capabilities for deterring nuclear war for the foreseeable future.

Another snapshot was taken in early 1990. In the preceding year Eastern Europe had shaken off the political grip of the Soviet Union; Poland had ended 40 years of communist rule; the Baltic states of Lithuania, Latvia, and Estonia had demanded autonomy; and the USSR was coming unraveled. A survey in February 1990 by Market Strategies asked the following question: "Do you agree or disagree that our nuclear weapons have been essential in preventing a world war since the end of World War II?[4] Again, 68 percent agreed, 26 percent disagreed, and six percent did not know or chose not to answer.

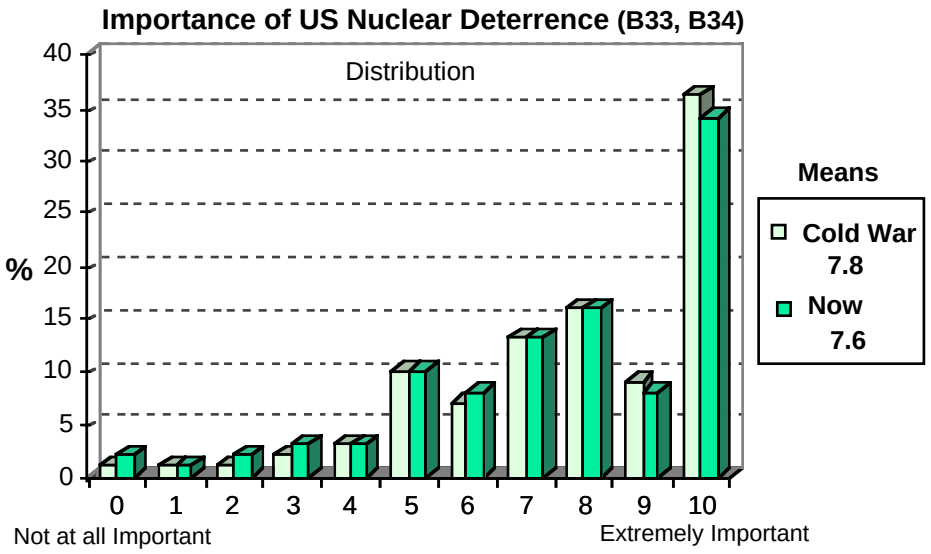
In 1995, four years after the disintegration of the Soviet Union—the event that became the popular benchmark for the end of the cold war—we asked our respondents to judge the importance of nuclear deterrence. Our first two questions used a scale where zero meant *not at all important,* and ten meant *extremely important,* and they related perceptions of the utility of nuclear deterrence for preventing nuclear conflict during and after the cold war. Respondents were asked the following questions:

- "How important was nuclear deterrence in preventing nuclear conflict during the cold war?" (B33)

- "How important are our nuclear weapons for preventing other countries from using nuclear weapons against us today?" (B34)

Results are compared in Figure 3.6.

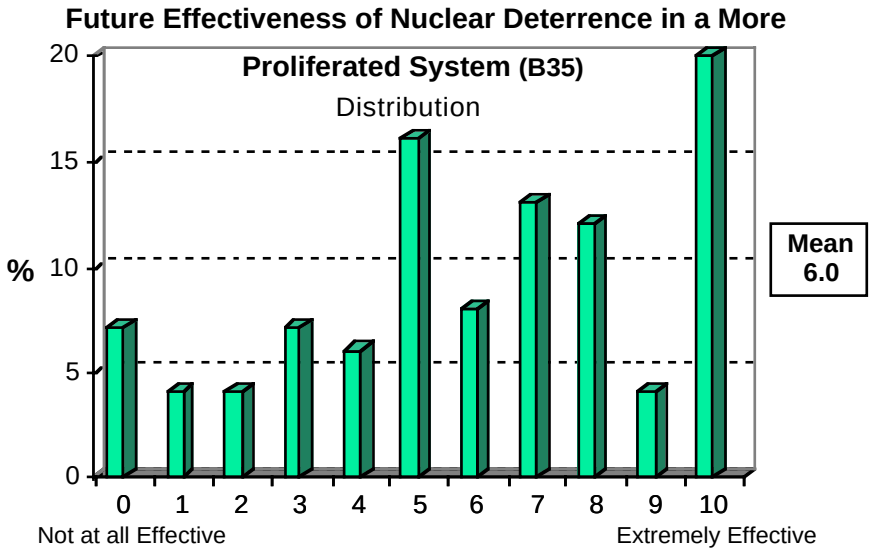
Figure 3.6



Respondents credited nuclear deterrence as being a very important reason that nuclear conflict did not occur during the cold war, and they continued to attribute a similar level of importance to the role of nuclear deterrence in preventing nuclear conflict in 1995. About one-third of all respondents rated the importance of nuclear deterrence in preventing open nuclear conflict—both during and after the cold-war—at the maximum value of ten.

Our third inquiry about nuclear deterrence addressed the potential of a more proliferated future. Using a scale where zero meant *not at all effective,* and ten meant *extremely effective,* we asked participants the following question: "If more countries acquire nuclear weapons in the future, how effective will nuclear deterrence be in preventing nuclear wars from occurring anywhere in the world?" Figure 3.7 shows results.

Figure 3.7

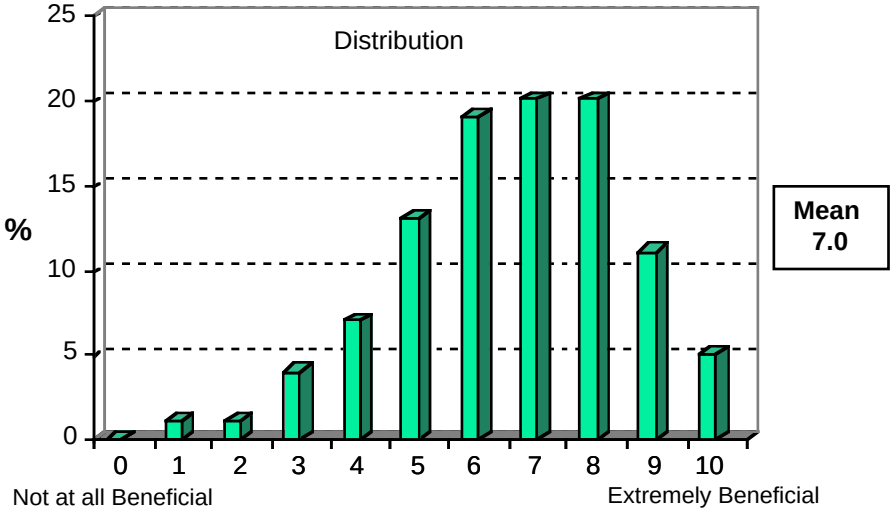


While somewhat less sure that nuclear deterrence will hold in a more proliferated international system, most respondents still considered nuclear deterrence to have considerable potential for preventing future nuclear conflict.

Expanding the Nuclear Weapons External Benefits Index

These new questions about the past, current, and future value of nuclear deterrence provide an opportunity for expanding and making more robust our nuclear weapons external benefits index discussed above. Combining the results of the three deterrence questions with results from the four questions displayed in Figure 3.5 yields the expanded index of external nuclear benefits shown in Figure 3.8.

Figure 3.8 **Expanded Index of Nuclear Weapons External Benefits: 1995**



Adding the three questions about nuclear deterrence increased the mean expanded benefits index value for the 1995 survey from 6.9 to 7.0, but the expanded index is not directly comparable to results compiled in 1993. However, both variations of measuring the perceived external benefits of nuclear weapons will be available for time-series analysis of data collected in future surveys.

Section 3.3: Measuring Other Nuclear Weapons Benefits

Nuclear vs. Nonnuclear Trade-offs

THE END OF THE COLD WAR BROUGHT SUBSTANTIAL RESTRUCTURING of military forces both in the US and in the Soviet successor states. Debate about the levels and composition of military forces is still ongoing, and one of the issues being debated is the appropriate mix of strategic nuclear capabilities and conventional forces. It is a continuation of debate and discussion about the most effective mix of nuclear and nonnuclear capabilities that has been underway since the end of World War II. One aspect of that discussion

relates to the degree that having nuclear capabilities affects requirements for other types of military forces. Informed security analysts have long understood that nuclear forces and conventional forces provide conceptually and qualitatively different capabilities that can be complementary but are rarely exchangeable. We wanted to know how members of the general public viewed trade-offs in nuclear and nonnuclear military investments, and how those perspectives might be evolving.

Two surveys during the latter years of the cold war provide useful insight about related aspects of this particular issue. In a 1988 national survey, Market Opinion Research asked the following question: "Have you ever read or heard that a conventional defense is more expensive than a nuclear defense: that is, having enough nonnuclear weapons to discourage an attack costs more than having the nuclear weapons needed to discourage an attack?"[5] More than half of the respondents (52 percent) indicated that they had not heard or read of such an assertion. Only 38 percent indicated they had heard that argument, and ten percent did not know or refused to answer. These results imply that the issue of cost-effectiveness of nuclear weapons is not one with which most of the general public was familiar.

A second insight is provided by a somewhat slanted question asked by Market Strategies in February 1990. This inquiry asked the following: "Because nuclear weapons provide more defense for less money, our armed forces rely heavily on nuclear weapons. Some people say we should eliminate nuclear weapons even if it costs more. Which one of these three choices on nuclear weapons do you favor?"[6] (Response choices were randomized.)

- "Do not reduce the number of nuclear weapons in our armed forces" 21 %

- "Reduce the number of nuclear weapons in our armed forces and replace them with nonnuclear weapons even if this means paying more to maintain the same level of military strength" 45%

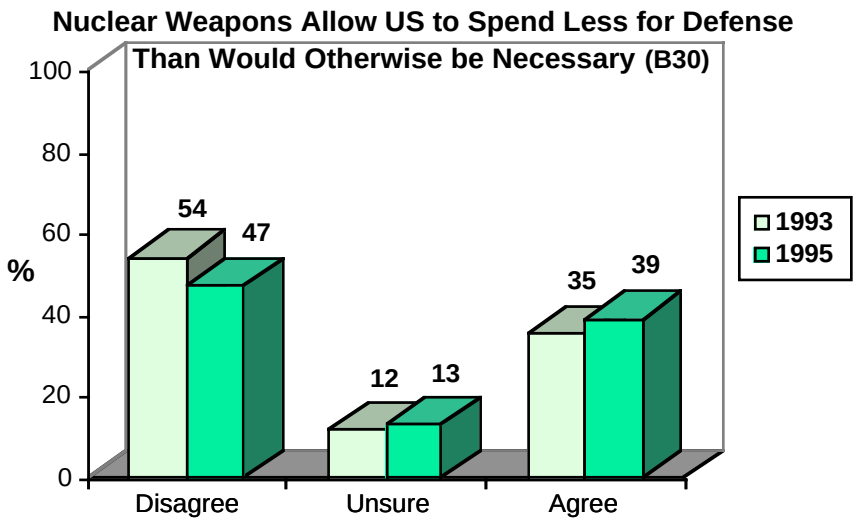
- "Reduce the number of nuclear weapons and do not replace them with nonnuclear weapons, even if this means reducing our current level of military strength" 31%

- Don't know. 4%

These results suggest a preference among respondents for reducing the numbers of nuclear weapons, even if such actions result in higher defense costs. We should note that this question did not employ contingency valuation techniques that would have forced respondents to more carefully consider their willingness to spend more for defense, nevertheless it did provide some information about the ways that the public might perceive nuclear vs. nonnuclear trade-offs.

We attempted to get at this issue more directly in both 1993 and 1995 by asking participants to respond to the following statement: "Having a nuclear arsenal means the US can spend less for national defense than would be necessary without nuclear weapons." The scale of responses ranged from one, which meant *strongly disagree* to seven, which meant *strongly agree.* We compare grouped responses from both surveys in Figure 3.9.

Figure 3.9

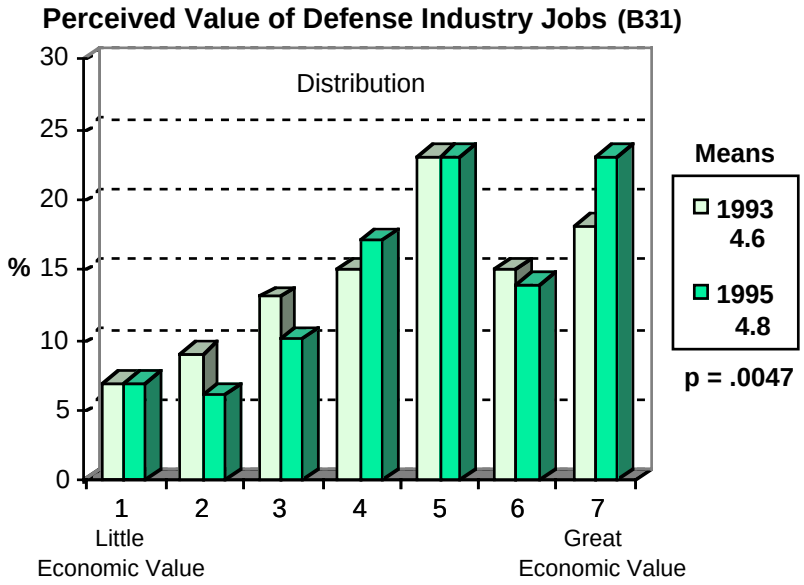


In each survey, most respondents did not perceive a trade-off in costs between nuclear and nonnuclear security investment strategies, although there was some movement in opinion in that direction between 1993 and 1995. Results should not be interpreted as suggesting that respondents could not differentiate between nuclear and conventional capabilities and investments. Our findings indicate only that they did not perceive a strong trade-off between the two. Nuclear weapons did not appear to be associated with overall defense efficiencies in the view of most respondents.

Defense Industry Employment

The relationship between defense investments and associated economic impacts, such as jobs and consumer spending, is also a matter of debate. Some analysts argue that defense investments create jobs and infuse large numbers of defense dollars into local communities. They point to post-cold war military restructuring and the public debate over base closures and the redistribution of defense assets as evidence of the link between defense investments, jobs, and domestic economic benefits. Other analysts argue that defense related investments create jobs that are less productive for the economy than are investments in nondefense sectors.[7] To better understand public perceptions of the economic benefits of defense related employment, we asked respondents in 1993 and 1995 to rate the economic value of defense industry jobs in America on a scale where one meant *little economic value,* and seven meant *great economic value.* Figure 3.10 compares results.

Figure 3.10



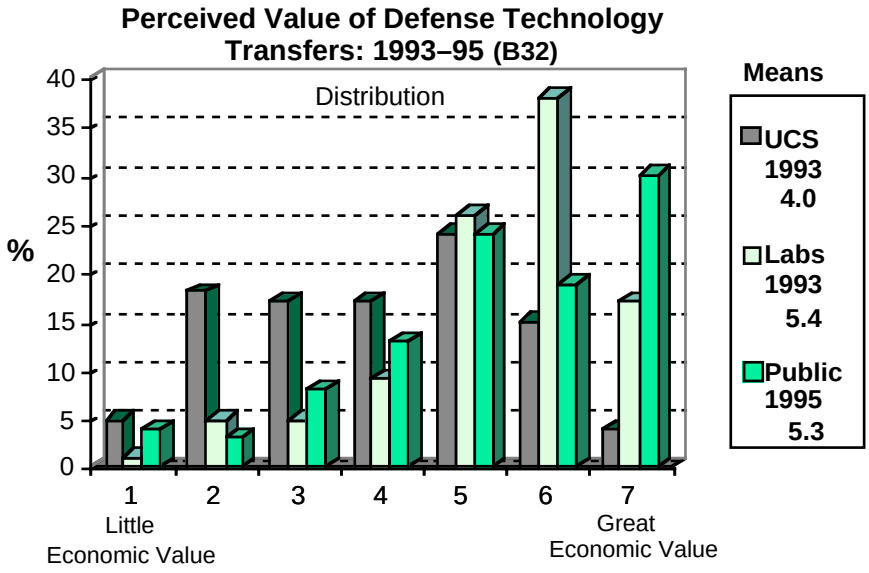
Defense-related jobs were perceived to provide important economic benefits, and those benefits were perceived to have increased significantly since 1993 (p = .0047). However, we should note that this question does not separate expenditures for nuclear weapons capabilities from the larger category of overall defense investments. That distinction is difficult for expert analysts, and it is probably too specific for most members of the general public to be able to differentiate.

Defense Technology Transfers

Our 1993 survey compared a number of views of the general public with those of two groups having higher levels of scientific expertise. To represent segments of the US scientific community that might hold a wide range of perspectives, in 1993-94 we sampled 1,155 randomly selected members of the Union of Concerned Scientists and 1,226 randomly selected members from the technical staffs of four US national laboratories. Because of the levels of specialized expertise resident in the two groups of scientists, we were particularly interested in their judgments about the value of technology transfers from defense industries to other applications. We did not ask respondents from the general public about this issue in 1993, but we did ask this question of

members of the general public in 1995. In both surveys we asked respondents to rate the economic value of technological advances in defense industries for other areas of the US economy, using a scale where one meant *little economic value,* and seven meant *great economic value.* Results from the two surveys are compared in Figure 3.11. Note that these data compare scientists' views in 1993-94 with public views in 1995.[8]

Figure 3.11



Respondents from the general public in 1995 viewed the value of defense industry technology transfers in ways similar to the views of scientists from the national laboratories nearly two years previously. Both are in considerable contrast to the views expressed in 1993 by participants from the Union of Concerned Scientists.

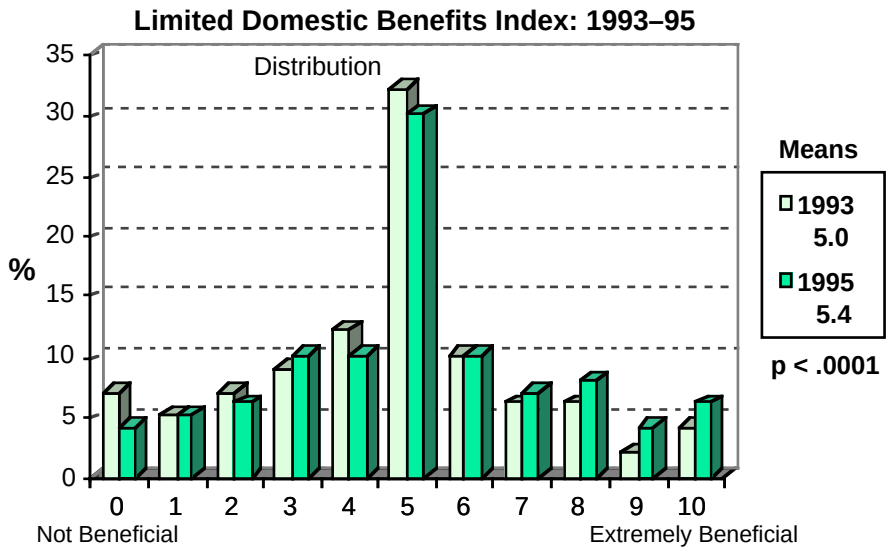
Constructing an Index of Perceived Domestic Benefits

By combining perceptions of the cost-effectiveness of nuclear weapons for national defense, the benefits of defense related employment, and the economic value of defense related technology transfers, we can create an index reflecting respondent perceptions of domestic benefits associated with defense investments. Although this index is not limited

exclusively to those expenditures associated with nuclear weapons, it still provides a useful tool both for comparative purposes and for combination with our measurements of the external benefits of nuclear weapons for achieving national security objectives.

The domestic benefits index for the public sample in 1993 was less robust. It consisted of only the two questions addressing the cost-effectiveness of nuclear weapons for national defense and the benefit of defense related employment. The question of the economic value of defense related technology transfers was not asked of the general public in 1993. A comparison of the domestic benefits index constructed in 1993 with the same two questions in 1995 is shown in Figure 3.12.

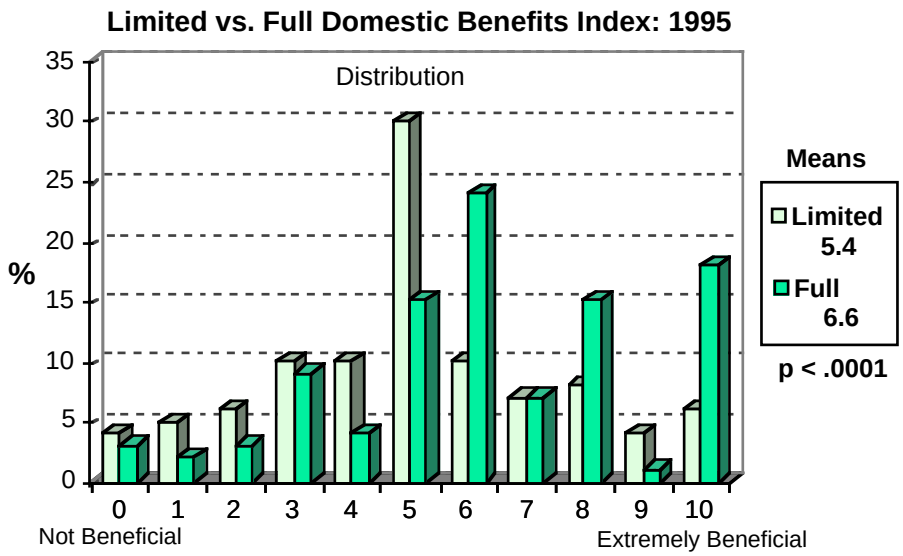
Figure 3.12



This comparison shows a significant increase since 1993 in the perceptions of the benefits associated with the cost-effectiveness of nuclear weapons and the benefits of defense related employment ($p < .0001$).

In 1995 we added the third question dealing with the perceived economic value of defense related technology transfers.[9] Figure 3.13 shows how adding the issue of technology transfers affected the 1995 domestic benefits index.

Figure 3.13



Note that by adding the question about the value of defense industry technology transfers to other areas of the US economy, the domestic benefit index increased by 1.2 points on a scale from zero to ten, indicating the relative weight respondents placed on technology transfers.

Section 3.4: Summarizing Perceptions of Nuclear Benefits

Participants in 1995 continued to attribute substantial value to US nuclear weapons for purposes of international influence, leadership, and security. Instead of an expected decline in public perceptions of the benefits of US nuclear assets for achieving and insuring US security objectives, our respondents reflected a substantial *increase* in perceptions of the external benefits of US nuclear weapons. When we asked respondents to evaluate nuclear deterrence specifically, they considered it to have been essential in preventing nuclear conflict during the cold war, and indicated that they thought nuclear deterrence remained important today and for the foreseeable future.

Opinion was divided about whether nuclear weapons reduce the need for other types of military forces. Participants seemed to understand that the two categories of military capabilities are applicable for different purposes, and they did not perceive important trade-offs to exist between nuclear and conventional forces.

Respondents were not able to render clear judgments about the domestic benefits that might be specifically associated with nuclear weapons, but that may have been because we were not able to measure the issue directly. Respondents did have strong impressions that defense expenditures in general were important for jobs, the economy, and for technological benefits. Respondents from the general public in 1995 evaluated those benefits in much the same way that scientists did from the national laboratories that participated in our 1993 study, and very differently than did respondents from the Union of Concerned Scientists that participated in that same study.

Overall, we found that participants considered US nuclear weapons to provide substantial benefits for national security and for the domestic economy that may offset some of the perceived risks that we documented in Chapter Two.

Next, in Chapter Four, we will examine related policy preferences and spending priorities, and analyze relationships between those issues and our four indices of perceived external and domestic risks and benefits.

End Notes

[1] The same index in the 1993 study was titled the "Nuclear Weapons Utility Index."

[2] For a discussion of alternative theories of nuclear deterrence see Chapter Four in Kerry G. Herron, 1994, *Full Spectrum Antiproliferation: Integrating Nuclear Proliferation Theory and Policy for the Future,* Ph.D. dissertation, Albuquerque, NM: University of New Mexico.

[3] A US national telephone survey of 1,000 adults conducted by Market Opinion Research for Americans Talk Security, December 10–13, 1988.

[4] A US national telephone survey of 1,000 adults conducted by Market Strategies for Americans Talk Security from February 19 to March 2, 1990.

[5] A US national telephone survey of 1,000 adults conducted by Market Opinion Research for Americans Talk Security, December 10–13, 1988.

[6] A US national telephone survey of 1,000 adults conducted by Market Strategies for American Talk Security, February 19–March 2, 1990.

[7] For contrasting views of the economic influences of defense expenditures see (1) Paul Kennedy, 1987, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000,* New York: Random House; (2) Aaron L. Friedberg, 1991, "The Political Economy of U.S. National Security Policy," in *U.S. National Security Strategy for the 1990s,* edited by Daniel J. Kaufman, David S. Clark, and Kevin P. Sheehan, Baltimore: Johns Hopkins University; (3 & 4) Bruce Russett, 1991, "Defense Expenditures and National Well-Being," and Stephen Gill and David Law, "Military-Industrial Rivalry in the Global Political Economy," both in *International Political Economy: A Reader,* edited by Kendall W. Stiles and Tsuneo Akaha, New York: HarperCollins.

[8] The printed survey of UCS scientists was conducted between August and December 1993; the printed survey of national laboratory scientists was conducted between October 1993 and March 1994. Both are documented in Hank C. Jenkins-Smith, Richard P. Barke, and Kerry G. Herron, *Public Perspectives of Nuclear Weapons in the Post-Cold War Environment: Findings and Analysis of the National Security Survey: Perceptions and Policy Concerns 1993–1994,* document ID: SAND 94-1265, Albuquerque, NM: Sandia National Laboratories.

[9] The question about technology transfers is the same that was asked only of scientists in 1993. The wording was: "How do you rate the economic value of technological advances in defense industries for other areas of the US economy?" (B32). Answers were provided on a scale where one meant *little economic value,* and seven meant *great economic value.*

Chapter Four

Policy and Spending Implications

WHAT ARE SOME OF THE MOST RELEVANT POLICY IMPLICATIONS of the perceptions about nuclear security that we reported in the preceding chapters? If Americans are concerned about further nuclear proliferation, the likelihood that nuclear conflict may occur somewhere in the world, and about the potential for nuclear terrorism, how do they think US nuclear security policy should change? If they perceive substantial risks to be associated with managing US nuclear assets, what kinds of investments would they like to make in nuclear surety? What about the security of Russian nuclear weapons and materials? Should US scientists work with their Russian counterparts to help secure Russian nuclear assets and decrease the risks of nuclear smuggling? If members of the public think that nuclear weapons are a persistent attribute of the international system, and if they think that US nuclear weapons are essential for deterring nuclear threats, how many nuclear weapons do they think we should have, and how willing are they to participate in agreements to limit those weapons?

To gain insight about these and other aspects of nuclear security policy, we asked a series of questions about specific policy choices and spending options. In this chapter we report those findings and examine relationships between expressed policy and spending preferences and the major indices previously measured.

Section 4.1: Preferences About the US Nuclear Arsenal

Focus Group Indications

Most focus group participants agreed that strategic changes accompanying the end of the cold war justified restructuring US strategic

forces, and most felt that the number of nuclear weapons could be safely reduced, but they did not favor completely eliminating US nuclear weapons. They were unsure what minimum levels were necessary, but when asked whether START II levels of 3,000 to 3,500 nuclear warheads seemed prudent, most thought those numbers were acceptable. A few persons argued for lower levels, but only one participant among the combined total of 76 focus group members in 1993 and 1995 argued for completely eliminating the US nuclear stockpile. Focus groups generally were not supportive of unilateral reductions, preferring instead that the US and Russia agree to reduce the numbers of nuclear weapons on both sides. Many group members thought it was still too early to know whether Russia will institute lasting reforms, and they were concerned that Russia might again become a threat to the US and other countries. Nevertheless, most were generally supportive of reductions in the number of US nuclear weapons, especially if such reductions were matched by Russia.

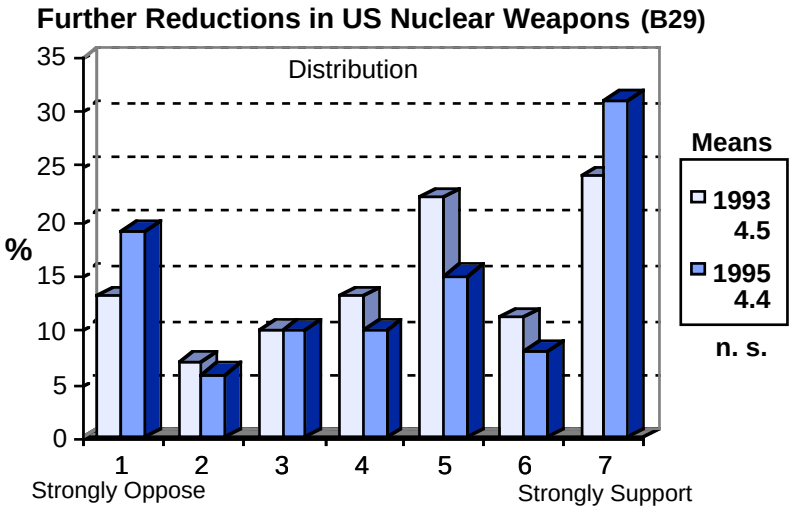
Reduce & Retain US Nuclear Arsenal

Measuring Public Support for Arms Control

Current public support for nuclear arms control is substantial. In April 1995, an Associated Press poll asked, "Should the United States and Russia agree to negotiate deep reductions in their nuclear weapons?" Fully 81 percent of respondents answered yes. In the same poll, respondents were also asked, "Should the United States Senate ratify the Second Strategic Arms Reduction Treaty that would require the United States to reduce the number of deployed nuclear weapons to 3,500 and Russia to reduce to 3,000?" Two out of three answered yes.[1]

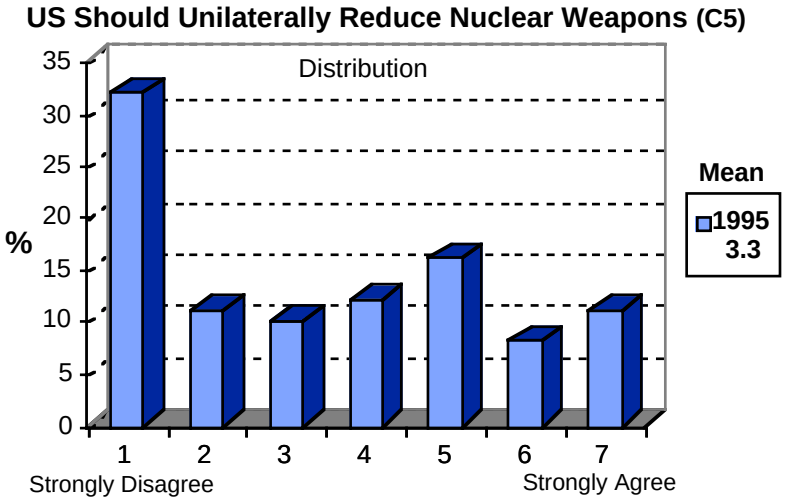
In our 1993 and 1995 surveys we asked respondents if they favored reducing nuclear weapons below the levels of current agreements. Although we posed the questions in different ways in the two surveys, mean responses were quite similar. We asked participants in 1995 to use a scale where one meant *strongly oppose,* and seven meant *strongly support,* to indicate their preference for reducing US nuclear weapons below the 3,000-3,500 currently contained in the START II agreement. Their responses are charted in Figure 4.1, along with public responses to a similar, but differently worded, inquiry in 1993. [2]

Figure 4.1



More than half of respondents in both 1993 and 1995 supported further reducing the US nuclear arsenal below currently negotiated levels. We should note that since the questions were asked in the context of negotiated agreements, expressed support for further reductions should also be understood within the context of mutually agreed reductions rather than unilateral cuts. However, in 1995 we asked a subset of participants to respond to the following statement: "The US should set the example by dismantling most of its nuclear weapons, even if some other countries do not reduce their nuclear weapons." Figure 4.2 charts those responses.

Figure 4.2



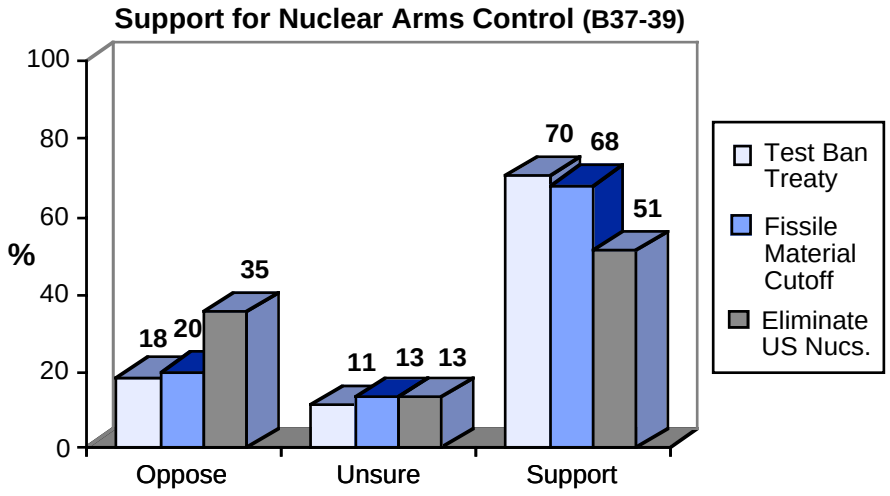
Fifty-three percent of respondents disagreed with the suggestion that the US should reduce its nuclear weapons even if others do not, and the modal response showed strong opposition to that suggestion. Our evidence indicates that the US public supports nuclear arms reductions, but only in the context of mutual agreements for others to reduce their nuclear forces as well.

In a series of additional questions in 1995 that related to options for controlling nuclear weapons, we asked participants how they felt about the US participating in three different kinds of treaties:

- A treaty that bans all nuclear test explosions (B37).
- A treaty that bans production of nuclear materials that could be used to make nuclear weapons (B38).
- A provision that requires the US to eventually eliminate all of our nuclear weapons (B39).

Answers to each question were given on a scale where zero meant *strongly oppose,* and ten meant *strongly support.* Figure 4.3 presents responses to all three questions.

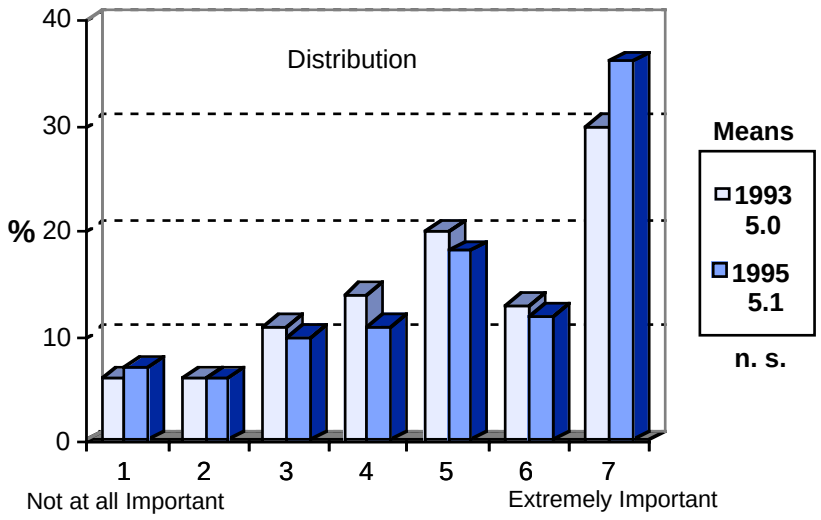
Figure 4.3



We found very strong support for a treaty to ban nuclear tests and an agreement to stop the production of fissile materials used for building nuclear weapons. Results also indicated majority support for a treaty to eliminate all nuclear weapons, but opinion was obviously more divided about that issue. As we noted in Chapter Two, evidence indicates that Americans are generally supportive of the idea of eliminating all nuclear weapons in the world, but most do not think such an option is feasible in the foreseeable future, and many members of the public are strongly opposed to eliminating all US nuclear weapons under any circumstances.

To gauge the degree to which respondents thought nuclear weapons remained important to US security, we asked the following question in both 1993 and 1995: "On a scale from one to seven, where one is *not at all important,* and seven is *extremely important,* how important is it for the US to retain nuclear weapons today?" Figure 4.4 compares distributions and means.

Figure 4.4 **Importance of Retaining US Nuclear Weapons (B21)**



Over 60 percent of participants in both 1993 and 1995 indicated that they considered retaining US nuclear weapons to be important, with the modal response for both surveys being seven, the highest value

respondents could choose. The slight increase in the mean rating in 1995 was not statistically significant.

US Nuclear Weapons Research and Infrastructure

If Americans think US nuclear assets should be reduced in accordance with mutual agreements, but that nuclear weapons are not likely to be eliminated in the foreseeable future, how do they feel about investing in the maintenance of the US nuclear arsenal, and how do they regard options for nuclear weapons research? We asked a series of questions in 1993 and 1995 designed to inquire more specifically about policy and spending preferences regarding US nuclear capabilities.

First, we inquired about research priorities. Using a scale where one meant *strongly disagree,* and seven meant *strongly agree,* we asked participants to respond to the following statements:

- "US national laboratories should pursue new technologies that might be used to make existing nuclear weapons more safe." (B8)

- "US national laboratories should pursue new technologies that might lead to new types of nuclear weapons." (B9)

Figure 4.5 compares 1993 responses to the first statement with reactions to the same statement in 1995, and Figure 4.6 makes the same comparison for the second statement.

Figure 4.5

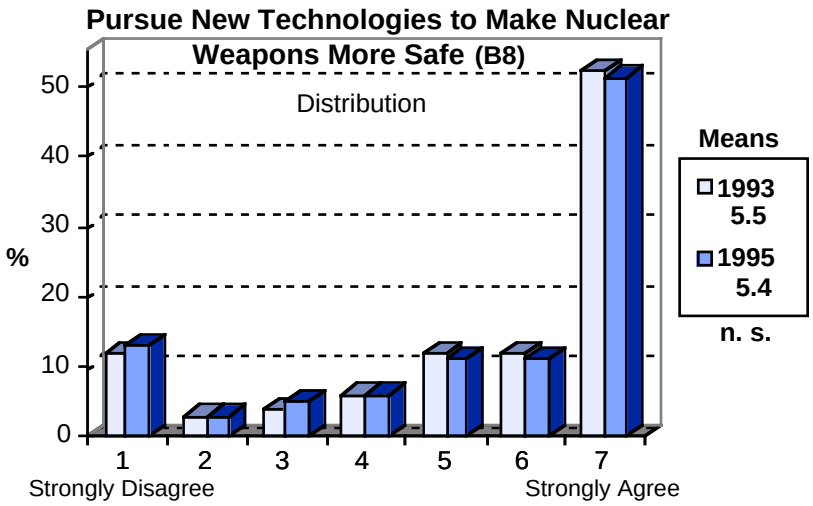
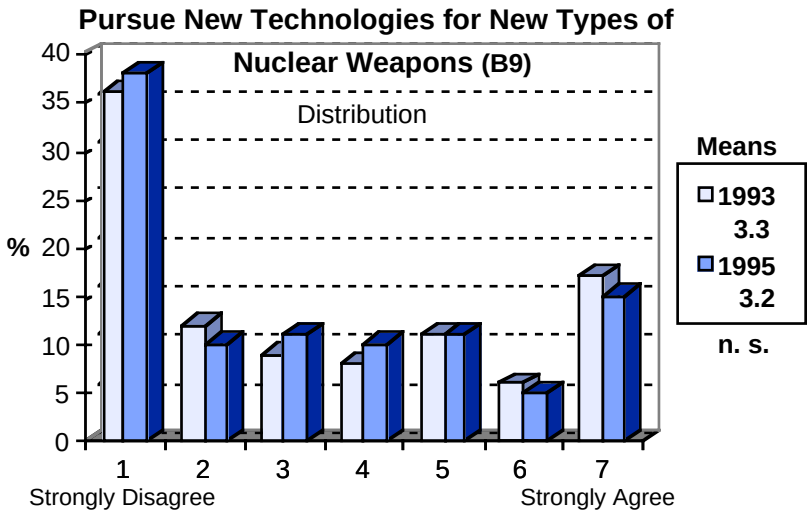


Figure 4.6



Responses to each statement were very stable, and the slight changes in means were not statistically significant. Our findings indicate substantial support for research by the national laboratories to insure nuclear safety, but not for developing new types of nuclear weapons.

Next we asked about investments in the nuclear infrastructure. Using a scale where one meant spending should *substantially decrease,* and seven meant it should *substantially increase,* we asked respondents how they thought spending should change for the following activities:

- Research to increase the safety of existing nuclear weapons (B12).

- Developing and testing new nuclear weapons (B10).

- Maintaining existing nuclear weapons in reliable condition (B11).

- Training to assure competence of those who manage US nuclear weapons (B13).

- Maintaining the ability to develop and improve US nuclear weapons in the future (B14).

We compare 1993 and 1995 grouped responses to the first two questions in Figures 4.7 and 4.8.

Figure 4.7

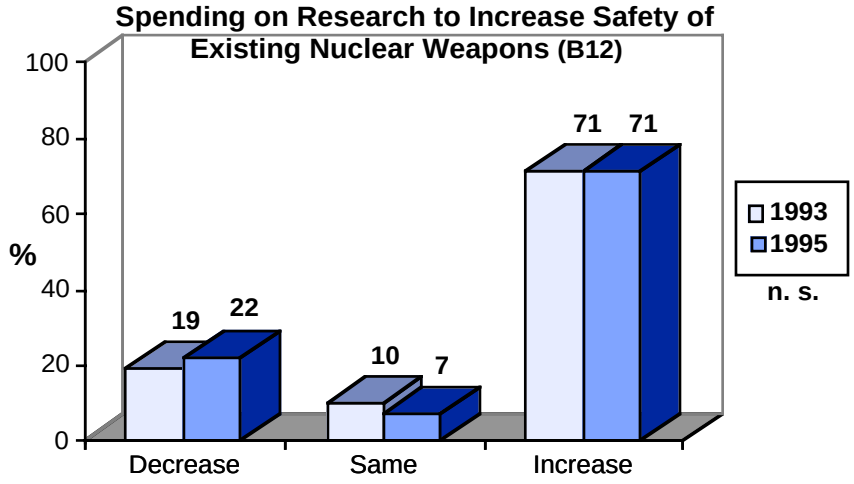
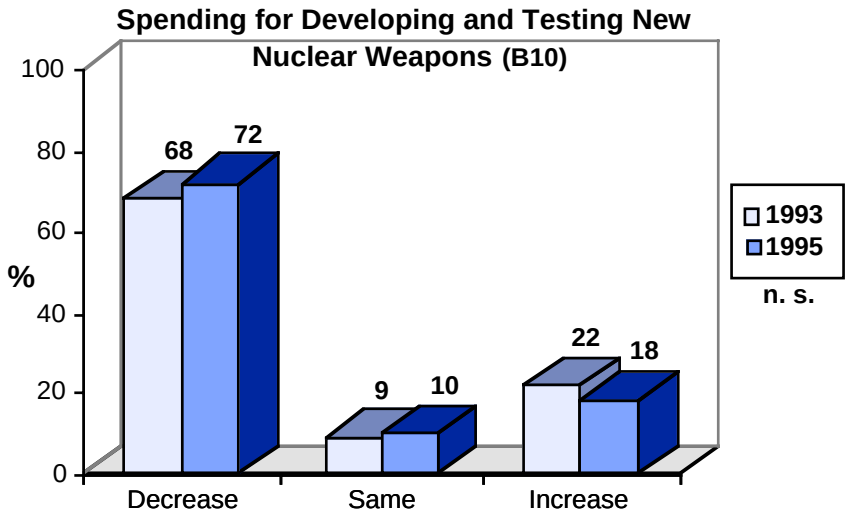


Figure 4.8



Note that responses to questions about spending are consistent with those previously given to questions about research priorities (Figures 4.6 and 4.7). Respondents were consistent in supporting research efforts to improve the safety of existing nuclear weapons and in their preference for increasing funding associated with those efforts. Similarly, they remained consistent in their opposition to research for developing and testing new nuclear weapons by indicating a preference for reducing associated funding. The consistency of views about policy and spending and the numerical stability with which they were expressed over a two year period indicates reliability of findings.

The remaining three questions in this series dealt with investments in nuclear infrastructure. Figure 4.9 shows spending preferences for maintaining the stockpile; Figure 4.10 shows spending support for training; and Figure 4.11 indicates respondents' willingness to pay to preserve the ability to develop and improve nuclear weapons in the future. Each compares responses given in 1993 with those given in 1995.

Figure 4.9

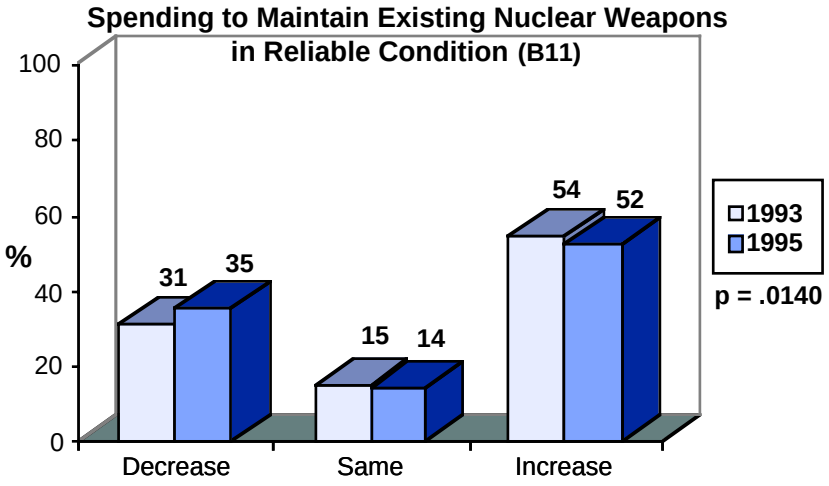


Figure 4.10

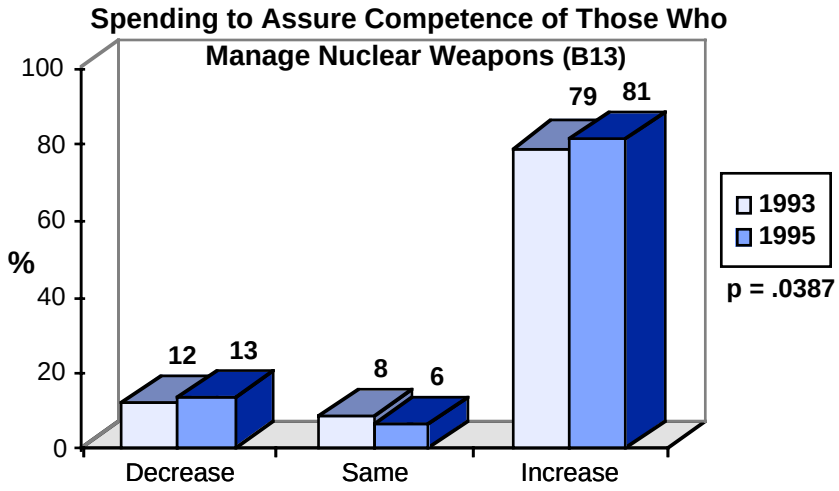
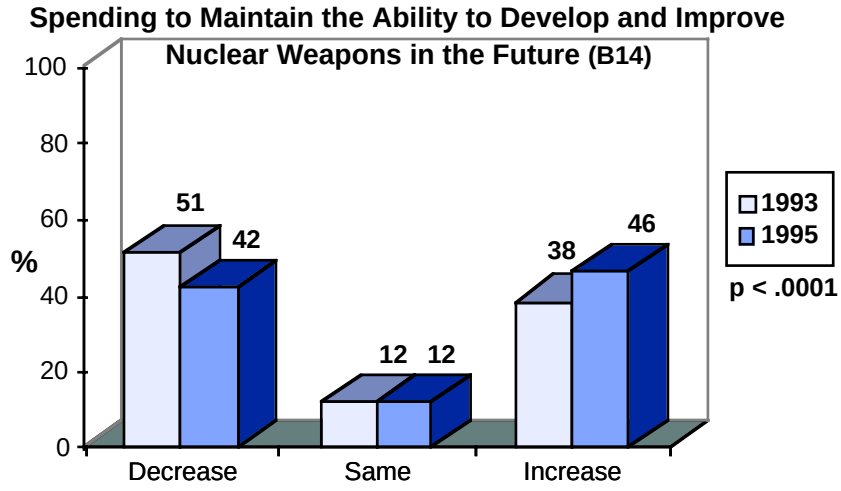


Figure 4.11



Preserve Research Infrastructure

We found consistent support from 1993 to 1995 for spending to maintain the stockpile and train those charged with stewardship responsibilities. A majority of participants preferred to increase spending for stockpile maintenance in each survey, and a very large majority in 1993 and 1995 favored increasing training investments. But views about spending to maintain the ability to develop and improve nuclear weapons in the future shifted noticeably. As Figure 4.11 illustrates, although opinion was split, respondents in 1995 were significantly more willing to increase such investments than were participants two years earlier ($p < .0001$).

Judgments About the US Nuclear Establishment

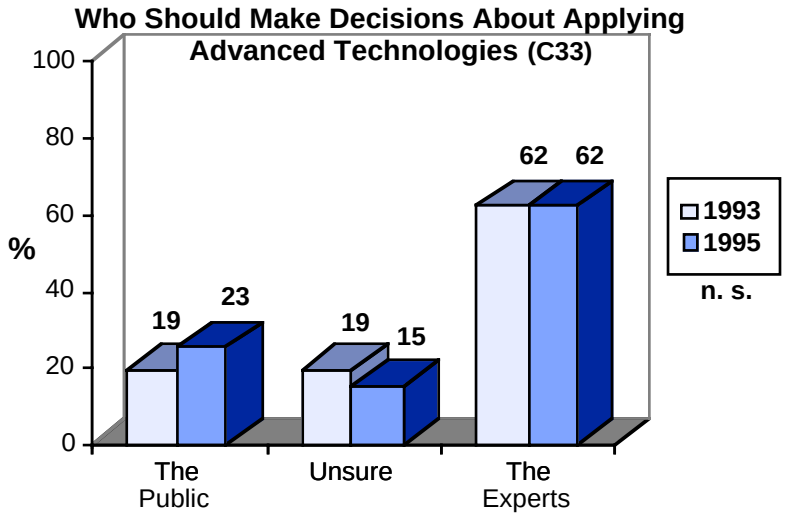
To gain some appreciation for public perceptions about those government agencies responsible for managing, safeguarding, and employing US nuclear weapons, we asked a subgroup of 844 respondents a series of questions about trust in the nuclear establishment.

Our first inquiry posed a philosophical question about who should make decisions about advanced technologies. We asked the following:

> "Some people think that decisions about the applications of advanced technologies, such as genetic engineering or nuclear energy, should be made primarily by the public. Others think that these decisions should be made primarily by technically trained experts. On a scale where one means that such decisions should be made mostly by the *public,* and seven means that such decisions should be made mostly by *experts,* what is your opinion?" (C33)

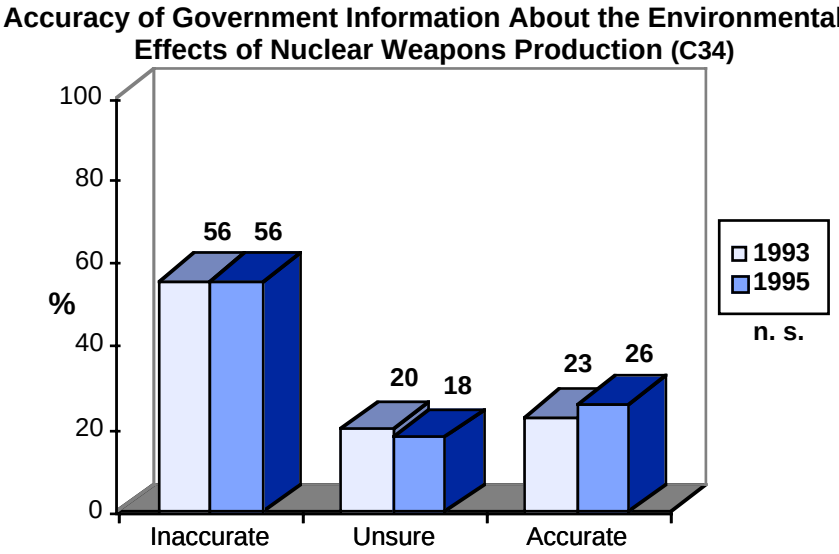
Figure 4.12 compares responses in 1993 and 1995.

Figure 4.12



Almost two out of three respondents in 1993 and 1995 thought that technical experts should make decisions about advanced technologies. Even so, the public does not always trust those decisions. We asked the same subgroup to rate the accuracy of official government information to the public about environmental effects of US nuclear weapons production. Figure 4.13 compares 1993 and 1995 responses.

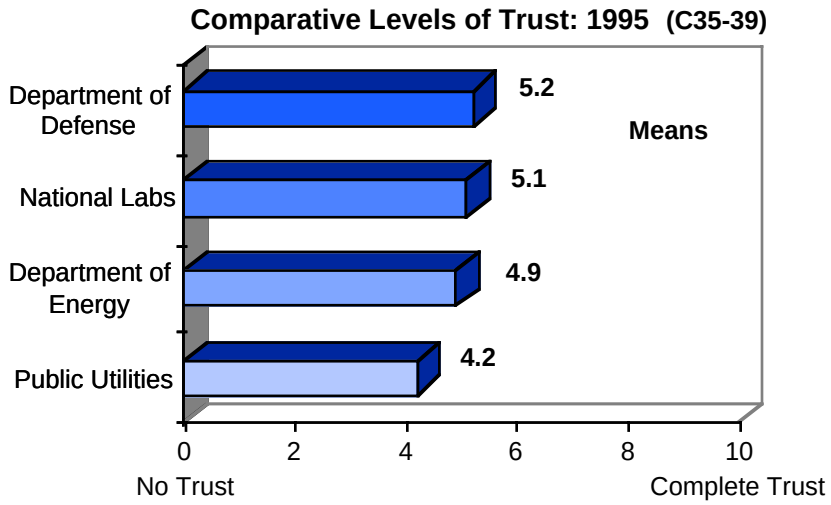
Figure 4.13



Distrust of "Official" Information

A majority of respondents in both surveys considered government information about the environmental implications of nuclear weapons production to be unreliable. The consistency with which that view is held indicates substantial doubt among the public about official information concerning nuclear issues. To further gauge levels of public trust, we asked a subgroup of respondents in 1995 to rate various government agencies regarding their responsibilities for the management of US nuclear resources on a scale where zero meant *no trust,* and ten meant *complete trust.* Figure 4.14 compares mean ratings for the four agencies.

Figure 4.14



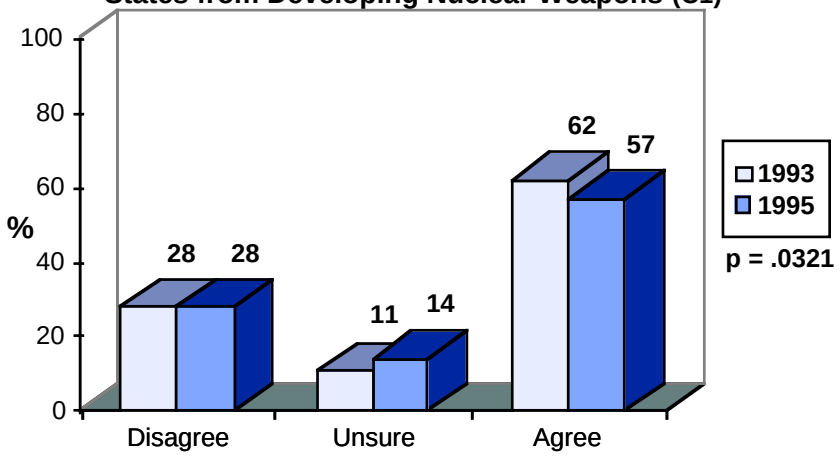
These ratings show relative trust in each of the four agencies to safely manage nuclear resources such as nuclear weapons or radioactive materials. All are rated above mid-scale, with the Department of Defense and the National Laboratories receiving the highest levels of public trust, and public utilities being rated the lowest.

Section 4.2: Nuclear Proliferation

In Chapter Two we documented our findings about respondent perceptions that the likelihood of nuclear proliferation has increased since the breakup of the Soviet Union, and that further proliferation poses important threats to the US. We also cited evidence from other surveys conducted between 1990 and 1994 indicating that the American public consistently placed the prevention of further nuclear proliferation among the highest priorities of US foreign policy. Do these concerns mean that the public would support guarantees of US military support to prevent some countries from developing nuclear weapons? In other cases, would the public support using US military force to prevent some states from doing so? How does the public think funding should change for programs to prevent nuclear proliferation?

To better understand the nature of public preferences for US actions designed to prevent nuclear proliferation, we asked a series of questions about related policy and spending options. In both 1993 and 1995 we asked participants to respond to the following statement: "The US should consider providing guarantees of military support to other countries if necessary to prevent them from developing nuclear weapons of their own." Respondents answered on a scale from one to seven, where one meant *strongly disagree,* and seven meant *strongly agree.* Figure 4.15 compares their grouped responses.

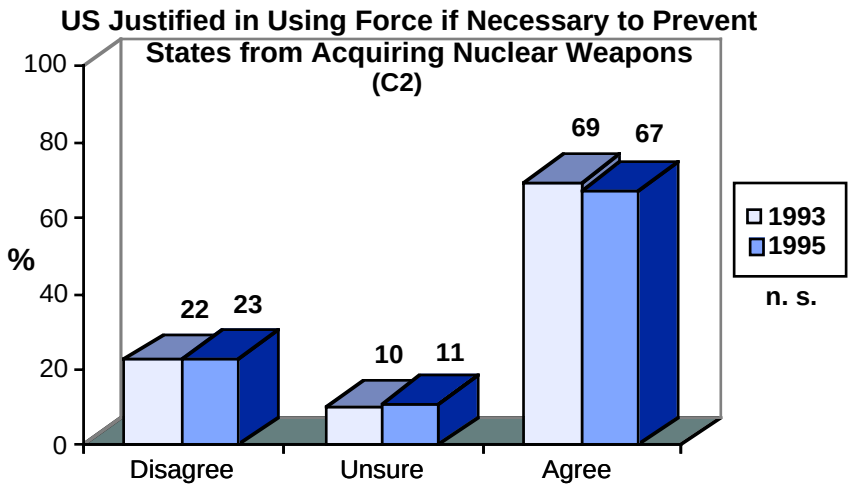
Figure 4.15 **Guarantee US Military Support if Necessary to Prevent States from Developing Nuclear Weapons (C1)**



A sizable majority of respondents in both surveys agreed that the US should consider extending military guarantees if necessary to prevent some countries from developing their own nuclear weapons, although that support declined somewhat between 1993 and 1995.

What about states that are antagonistic to the US, or those for whom US military guarantees are not politically feasible? A second inquiry asked participants to respond to the following statement, using the same scale from one to seven: "In some cases, the US would be justified in using force to prevent other countries from acquiring nuclear weapons." Figure 4.16 summarizes 1993 and 1995 responses.

Figure 4.16



Using Force to Prevent Proliferation

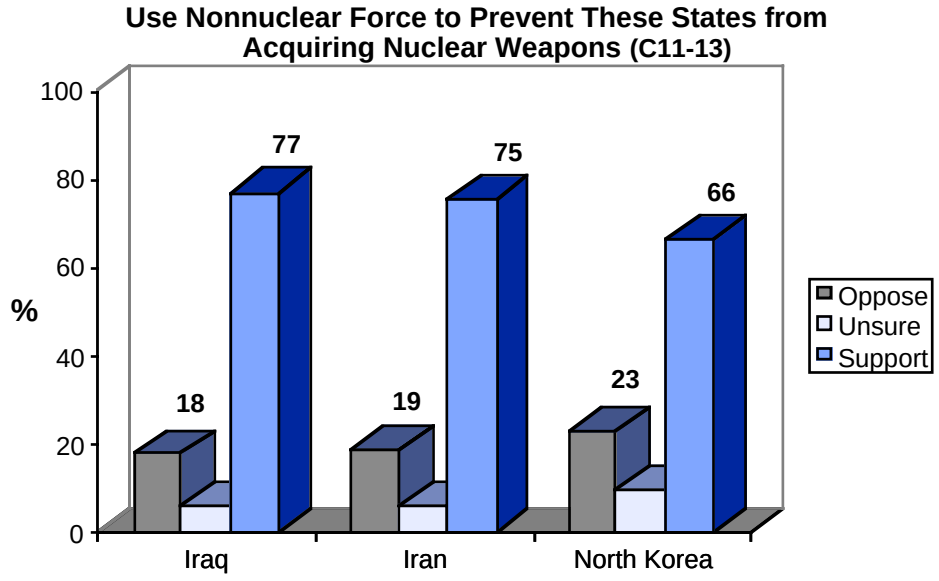
Large majorities in both years agreed that in some circumstances the US should use force if necessary to prevent some states from acquiring nuclear weapons. To understand more about the implications of such preferences, we asked additional questions in 1995 that required respondents to be specific about using force against particular states that might be considered to be potential nuclear proliferants. Using a scale where one meant *strongly oppose,* and seven meant *strongly support,* we asked participants to express their feelings about using *nonnuclear* US military force to stop each of three countries from acquiring their own nuclear weapons—Iraq, Iran, and North Korea.

Table 4.1 provides distributions and mean responses for each, and Figure 4.17 graphically shows grouped responses to these three questions.

Table 4.1 Using Force to Prevent Some States from Acquiring Nuclear Weapons

		Strongly Oppose						Strongly Support	
1995		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Mean**
Iraq	%	11	3	4	6	14	12	51	5.5
Iran	%	10	4	5	6	15	15	45	5.4
N. Korea	%	11	5	7	10	18	14	34	5.0

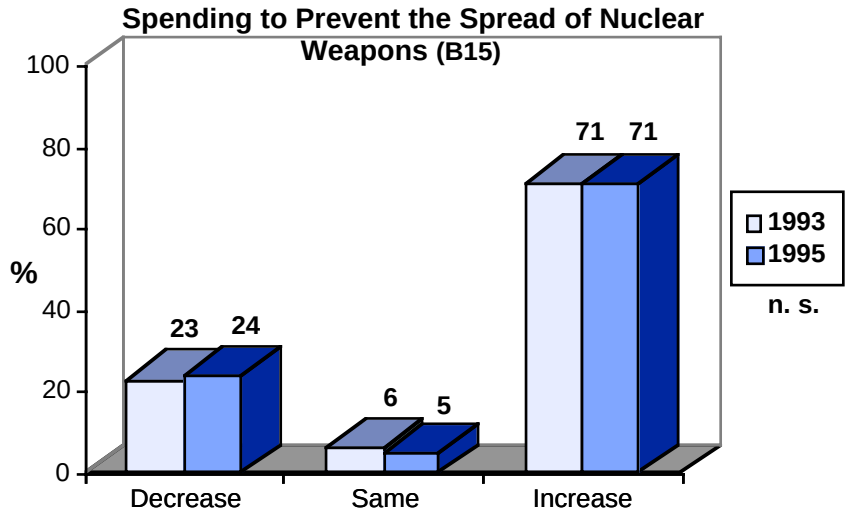
Figure 4.17



Results illustrate the depth of concern with which respondents viewed the potential spread of nuclear weapons. Support was very strong for using conventional force to prevent nuclear proliferation by Iraq, Iran, and North Korea. From two-thirds to three-fourths of respondents indicated that they would support using US military force if necessary to prevent these three states from gaining their own nuclear weapons.

The final question we present in this series was asked of respondents in both 1993 and 1995. We asked them how they thought spending to prevent nuclear proliferation should change. Figure 4.18 groups results from both surveys.

Figure 4.18



Spending to Prevent Proliferation

Very large, consistent majorities of respondents favored increasing spending to prevent nuclear proliferation. These preferences are consistent with respondents' perceptions of the risk of further proliferation and its implications for US security, reported in Chapter Two. They are also consistent with expressed willingness to extend military guarantees or to use military force to prevent further spread of nuclear weapons, reported above. Whether we measure perceived risk, policy options, or spending, the results are clear; the American public views

nuclear proliferation as a serious issue in the post-cold war security environment and the public supports strong preventive measures.

Section 4.3: Terrorism

TERRORISM WAS THE ONLY OTHER INTERNATIONAL SECURITY ISSUE we found that compared to nuclear proliferation in terms of the level of public concern and support for preventive action. As noted in Chapter Two, respondents in 1993 and 1995 indicated that they perceived the risk of nuclear terrorism to have increased since the breakup of the Soviet Union, and that they thought the threats posed by terrorism are likely to increase in the next decade. What are the implications for US policy and spending of these concerns? Do members of the public think terrorism can be prevented, and if so, to what degree are citizens willing to accept preventive measures that might encroach on individual liberties? Would the US public support using nuclear weapons to retaliate against a country that used or supported the use of nuclear terrorism against the US? How should funding change for programs designed to prevent terrorism? To gain insight about policy and spending implications of terrorism, we asked a subset of respondents in 1995 about what should be done to reduce the threat of terrorism.

Philosophical Considerations

First we inquired about each respondent's philosophical approach to the problem of dealing with terrorism. Were they fatalistic? Did they perceive that protections against terrorism can also cause reductions in their own prerogatives, and if so, did they still want government to consider such actions? To appreciate respondents' conceptual preferences for dealing with issues of terrorism, we asked them to respond to the following three statements:

- "There is nothing the government can do to stop determined terrorists." (C21)

- "The government could stop terrorists, but only with unacceptable intrusions on people's rights and privacy." (C22)

- "The government must try to stop terrorists, even if it intrudes on some people's rights and privacy." (C23)

They responded to each statement on a scale where one meant *strongly oppose,* and seven meant *strongly support.* Figures 4.19–4.21 show grouped responses to each of the three statements.

Figure 4.19

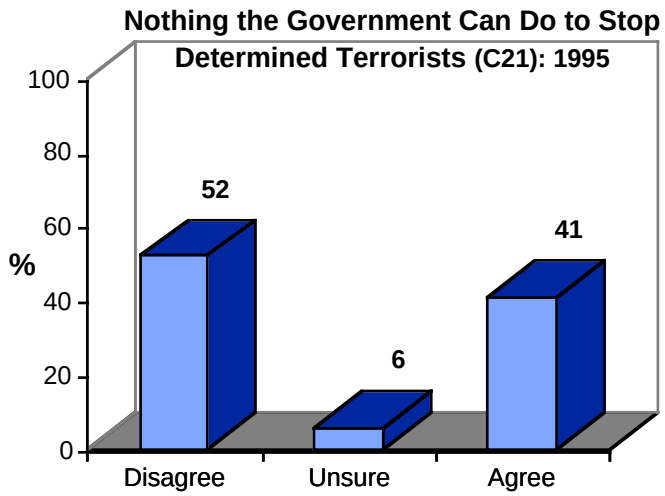


Figure 4.20

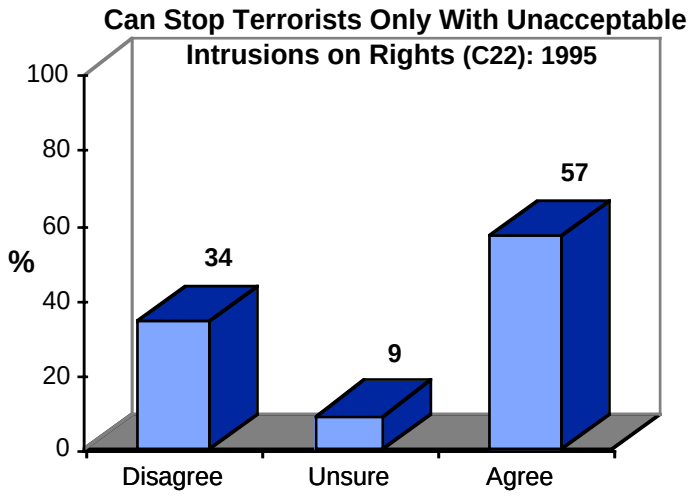
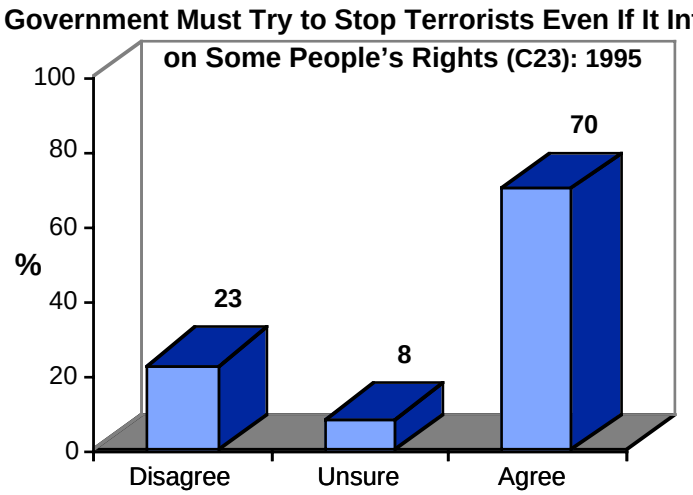


Figure 4.21



Each presents a point worth noting. First, though opinion was divided, a majority of respondents felt that it *is* possible for the government to stop terrorism. Second, most felt that doing so might come at the price of unacceptable intrusions on people's rights and privacy. Third, fully 70 percent of respondents thought the government must try to stop terrorism, even if it *does* intrude on some people's rights and privacy.

Restricting Rights to Prevent Terrorism

But how did the respondents visualize such intrusions? To understand more about what levels of individual prerogatives participants might be willing to surrender to prevent terrorism, we asked them, on a scale where one meant *strongly oppose,* and seven meant *strongly support,* how they would feel about giving the federal government specific additional powers to fight terrorism. Table 4.2 summarizes responses to all six questions.

Table 4.2 Giving the Federal Government Powers to Fight Terrorism

Policy Option	% Oppose	% Unsure	% Support	Mean*
Power to ban information about bomb-making from computer networks? (C29)	19	6	75	5.5
Power to quickly expel from the US any citizen of another country who is suspected of planning a terrorist act, even if the person has not been convicted of any crime? (C24)	23	8	70	5.1
Power to search for and seize weapons from groups that are suspected of planning terrorist acts, even if they have not been convicted of any crime? (C26)	26	10	64	4.9
Power to infiltrate and spy on groups in US that the government suspects of planning terrorist acts, even if they have not been convicted of any crime? (C25)	27	10	62	4.8
Power to require national identification cards for all US citizens? (C27)	40	8	52	4.2
Power to ban people from speaking on radio or television if they advocate anti-government violence? (C28)	49	7	44	3.8

*Scale: 1 = strongly oppose; 7 = strongly support

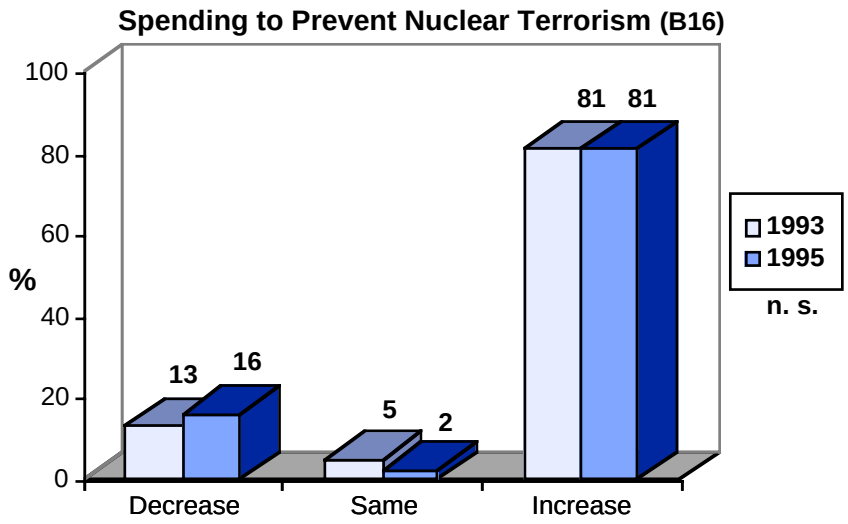
Powers to Fight Terrorism

These results indicate that a majority of our respondents were willing to grant substantial additional powers to the federal government to fight terrorism. Except for the power to ban people from advocating antigovernment violence on radio or television, more than half of our respondents supported each measure. All the mean values were above mid-scale, except for the last issue. While these are theoretical questions, and if actual powers were being debated we would expect strong legal opposition to be made to any such measures, public willingness to support them in the abstract is still significant. Should an act of terrorism involving weapons of mass destruction occur, public support for increased government security measures could be expected to increase dramatically. The most salient point made by these data is to illustrate the kinds of threats to individual rights and privacy that might be publicly justifiable in the wake of serious terrorist acts in this country.

Spending to Prevent Terrorism

As we did with the issue of preventing nuclear proliferation, we also asked respondents in both 1993 and 1995 about how they thought spending for preventing nuclear terrorism should change. Figure 4.22 compares grouped results from both surveys.

Figure 4.22

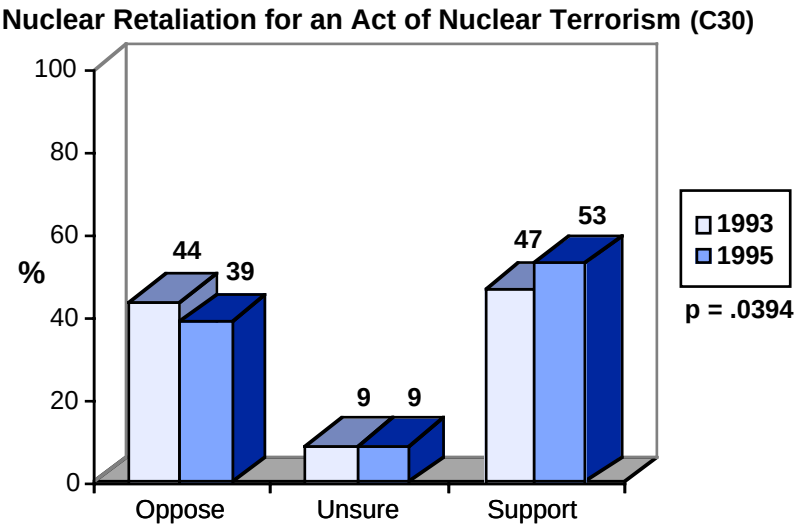


The same overwhelming majority of respondents in 1993 and 1995 supported increasing funding to prevent nuclear terrorism. These levels of consensus and policy support are rarely found in public policy research. There is unmistakable and consistent evidence that the American public is deeply concerned about terrorism and is willing to invest in its prevention.

Retaliating for Nuclear Terrorism

Our final inquiry about terrorism-related policies asked respondents how they would feel about using nuclear weapons to retaliate against a country that supported nuclear terrorism against the US. Participants answered on a scale where one meant *strongly oppose,* and seven meant *strongly support.* Figure 4.23 reports responses from 1993 and 1995.

Figure 4.23



While a majority of our 1995 respondents indicated they would support using nuclear weapons to retaliate against a country that supported nuclear terrorism against the US, opinion was obviously divided, and most members of the public would probably need to know much more about the specifics of such a situation before they would condone the use of nuclear weapons by the US.

Other Weapons of Mass Destruction

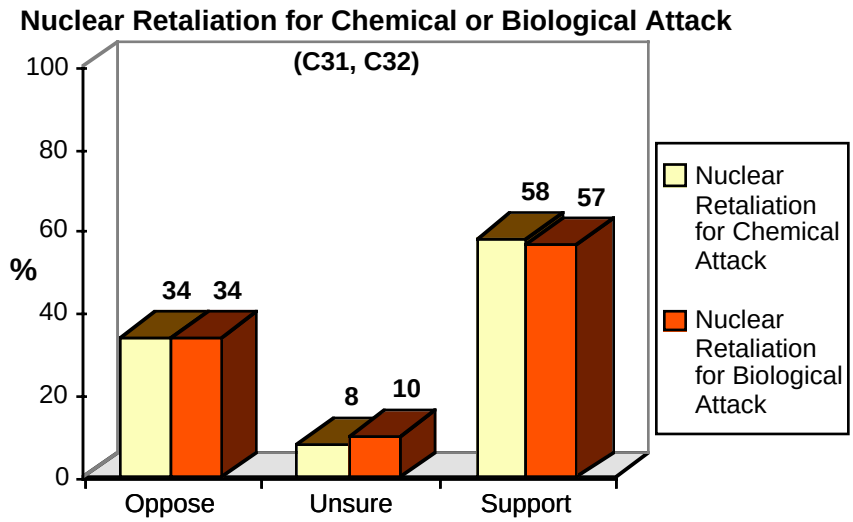
We made two other inquiries about using US nuclear weapons that did not relate directly to terrorism. We wanted to know how members of the public would react if US military forces were attacked with chemical or biological weapons, so we asked the following two questions of a subgroup of respondents in 1995:

- "The US has stopped making chemical weapons and is destroying its remaining stocks. If another country used chemical weapons, such as poisonous gases or nerve agents, against our military forces, how would you feel about using nuclear weapons to retaliate?" (C31)

- "The US has no biological weapons today. If another country used biological weapons, such as germs or viruses, against our military forces, how would you feel about using nuclear weapons to retaliate?" (C32)

Responses were given on the same one-to-seven scale as above, and are charted in Figure 4.24.

Figure 4.24



In each case, a majority of respondents indicated that they could support nuclear retaliation against a country that employed chemical or biological weapons against US forces.

In 1993 we asked respondents to evaluate the morality of the US using nuclear weapons to retaliate against another country that had attacked the US with nuclear weapons.[3] Sixty-one percent of respondents from the general public agreed that if the US was the subject of a nuclear attack by another country, it would be morally justified in retaliating with nuclear weapons; 28 percent thought nuclear retaliation would be morally wrong, and 12 percent were unsure. From both surveys in 1993 and 1995, our indications are that the public can rationalize the use of nuclear weapons for either of two purposes: nuclear deterrence or nuclear retaliation for the use of weapons of mass destruction against the US or its forces.

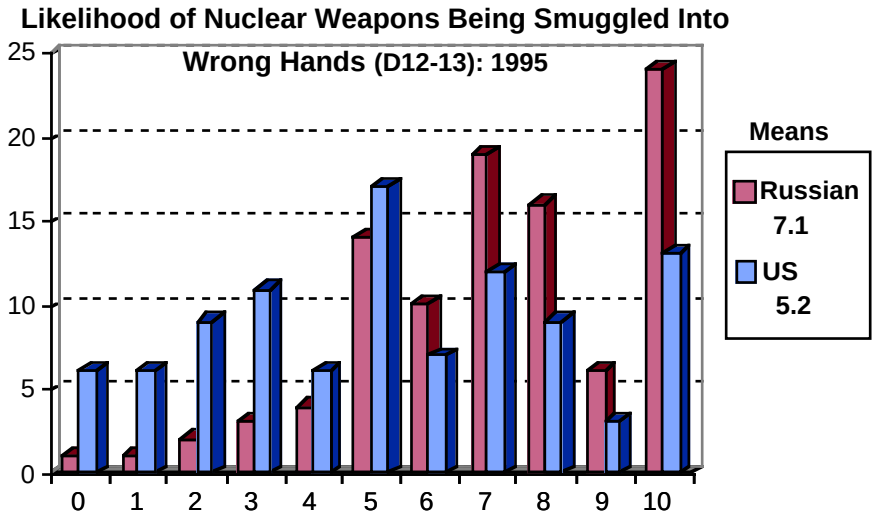
Section 4.4: US and Russian Scientific Cooperation

Given the optimism about future relations with Russia and the concerns about the security of Russian nuclear materials that were reported in Chapter Two, how does the public think the US should proceed in its new relationship with the most powerful successor state to the Soviet Union? What can be done to lessen the risks of nuclear smuggling from Russia? Should US nuclear scientists cooperate with their Russian counterparts to help secure Russian nuclear weapons? Should the US consider helping to fund measures to enhance the safety and security of Russian nuclear materials? In 1995 we asked a subset of 834 respondents about US and Russian scientific cooperation in nuclear matters.

To gauge the level of concern about nuclear weapons being inadequately protected, we asked respondents' perceptions of the likelihood of Russian nuclear weapons being smuggled into the "wrong hands." Responses were given on a scale where zero meant *never happen,* and

ten meant *certain to happen.* For a comparative benchmark, we asked the same question about the likelihood of US nuclear weapons being smuggled to unauthorized recipients. Figure 4.25 compares responses to both questions.

Figure 4.25



On average, respondents rated the likelihood of Russian nuclear weapons being illegally transferred at 7.1, while the mean likelihood of US nuclear weapons smuggling was rated much lower at 5.2. However, the mid-scale rating for the US indicated a substantial base of concern about the security of nuclear weapons in general.

Scientist-to-Scientist Interaction

To determine if participants thought US and Russian nuclear scientists should cooperate to reduce nuclear risks in Russia, we asked them to respond to the following two statements using a scale where one meant *strongly disagree,* and seven meant *strongly agree.*

- "Scientists at US nuclear laboratories should promote scientific cooperation with scientists at nuclear laboratories in Russia." (D1)

- "US and Russian nuclear scientists should exchange visits to promote better understanding." (D2)

Figures 4.26 and 4.27 summarize grouped results.

Figure 4.26 **US Nuclear Scientists Should Promote Cooperation With Russian Nuclear Scientists (D1)**

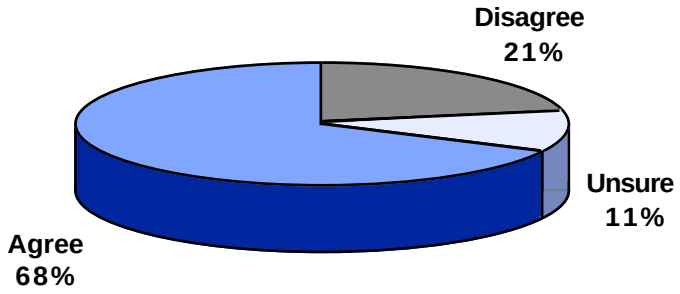
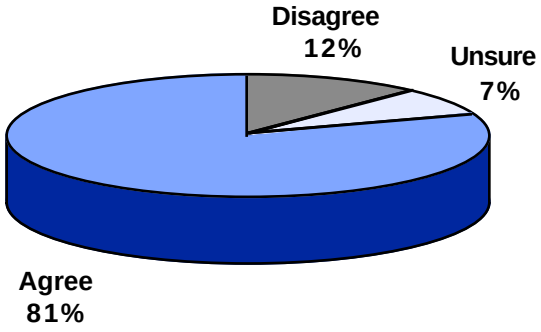
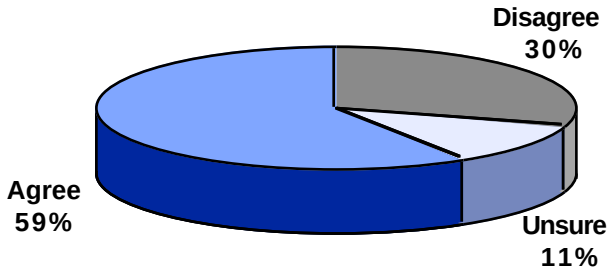


Figure 4.27 **US and Russian Nuclear Scientists Should Exchange Visits to Promote Better Understanding (D2)**



Since our respondents obviously supported interaction between US and Russian nuclear scientists, how would they feel about the possible exchange of sensitive information about nuclear matters? To answer this question, we asked participants to respond to the following statement: "If necessary to help prevent the illegal spread of nuclear weapons, it would be acceptable for US and Russian scientists to share some nuclear secrets." Results are summarized in Figure 4.28.

Figure 4.28 **Acceptable for US & Russian Scientists to Share Nuclear Secrets to Prevent Proliferation (D11)**



Securing Russian Nuclear Assets

To see if respondents thought US scientists should help Russian scientists secure their nuclear assets, we asked participants to respond to the following three statements:

- "US scientist should work with scientists in Russia to help insure that Russian nuclear materials are properly protected." (D3)

- "US scientists should work with scientists in Russia to help insure that they keep their nuclear weapons safe and secure, even if such assistance might also help preserve Russian abilities to develop new nuclear weapons in the future." (D4)

- "The US should help pay to correct dangerous nuclear security problems in Russia, even if the money is not repaid." (D8)

Grouped responses are compared in Figures 4.29–4.31.

Figure 4.29 US Scientists Should Help Insure Russian Nuclear Materials are Protected (D3)

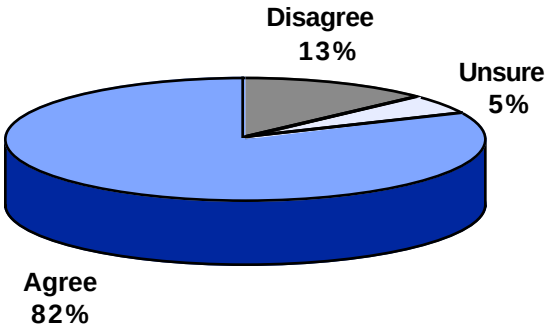


Figure 4.30 US Should Help Secure Russian Nuclear Weapons Even Though It Preserves Russian Nuclear Capabilities (D4)

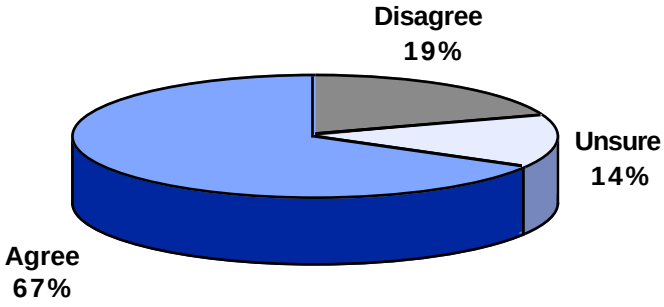
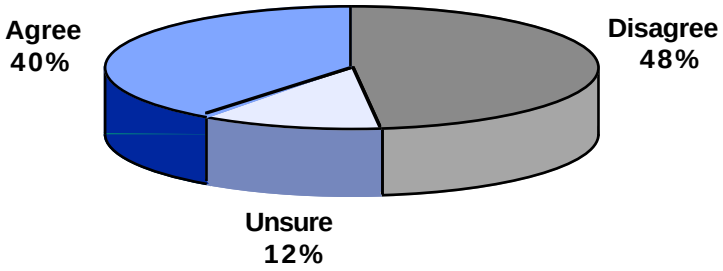


Figure 4.31 US Should Help Pay to Correct Dangerous Nuclear Security Problems in Russia (D8)



Notice that large majorities of respondents supported US efforts to secure Russian nuclear materials and nuclear weapons, even though such assistance might help preserve the Russian nuclear weapon infrastructure, but that level of support did *not* extend to helping pay to secure Russian nuclear assets.

Dismantling Russian Nuclear Weapons

Because existing agreements require the US and Russia to dismantle large numbers of nuclear warheads and to dispose of their nuclear materials, we inquired about helping Russians to manage nuclear materials from dismantled weapons. We asked participants to respond to the following two statements:

- "The US should help the Russians safely dispose of nuclear materials from dismantled Russian warheads." (D9)

- "The US should fund safe disposal of dismantled Russian nuclear warheads, even if the money is not repaid." (D10)

Figures 4.32 and 4.33 show the responses.

Figure 4.32 **US Should Help Russians Dispose of Nuclear Materials from Dismantled Russian Warheads (D9)**

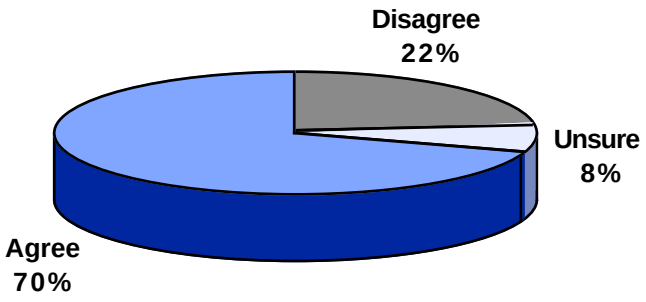
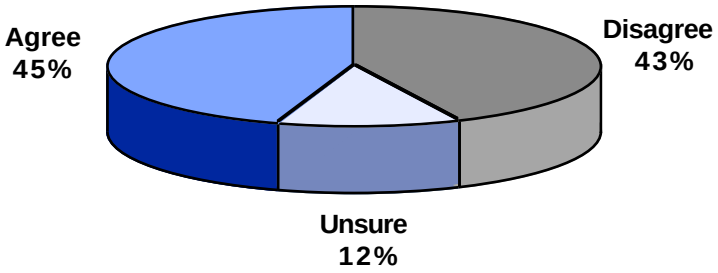


Figure 4.33

US Should Fund Safe Disposal of Dismantled Russian Nuclear Warheads (D10)



Consistent with previous indications, a large majority of respondents were supportive of US scientific assistance to help secure the nuclear materials from Russian warheads, but opinion was much more divided about providing US funding for those measures.

Converting Russian Nuclear Infrastructure

The next two issues concerned US assistance to redirect Russian nuclear research and production to other types of industry. Participants were asked to respond to the following two statements:

- "US scientists should work with scientists in Russia to help them move from nuclear weapons research into other areas of research." (D5)

- "The US government should help pay to convert Russian industries from producing nuclear weapons to producing other kinds of products." (D6)

As Figure 4.34 shows, respondents favored scientific cooperation to restructure Russian nuclear research and production. But as Figure 4.35 shows, they were not supportive of paying for such changes.

Figure 4.34

US Should Help Russians Redirect Nuclear Research to Other Areas (D5)

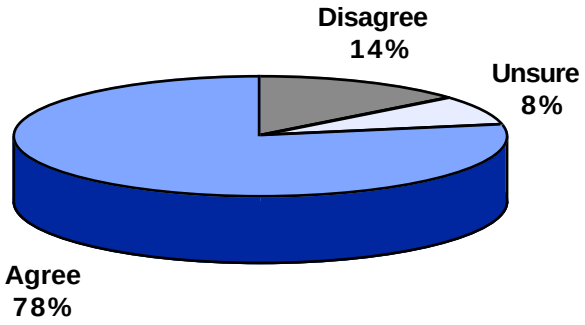
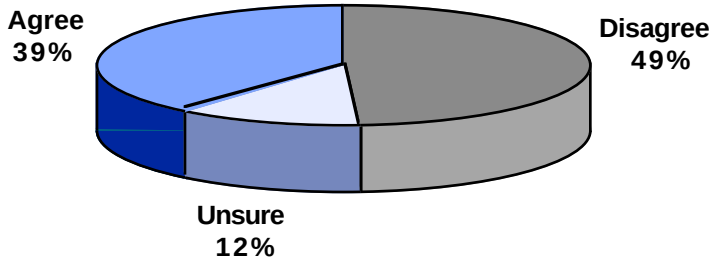


Figure 4.35

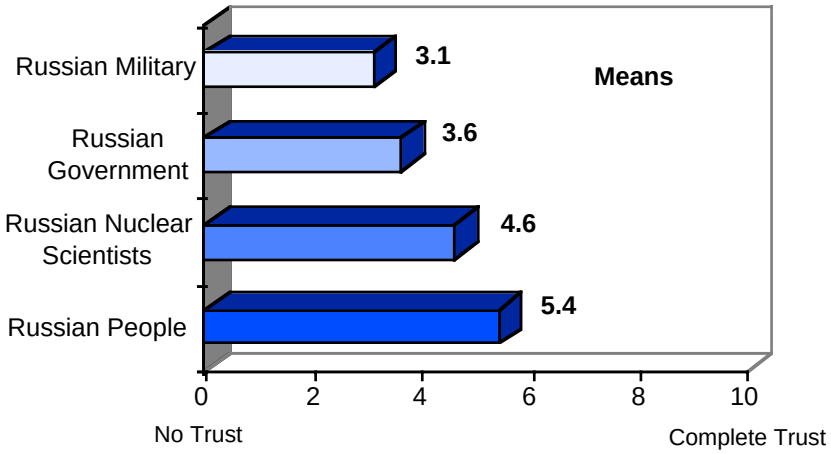
US Should Pay to Convert Russian Industries From Producing Nuclear Weapons to Other Products (D6)



Matters of Trust in Russia

Our final inquiry into US/Russian nuclear interaction deals with relative perceptions of trust. We asked participants how much they trusted several elements of Russian society to support peaceful policies. The scale used zero to mean *no trust,* and ten to mean *complete trust.* Figure 4.36 compares mean responses.

Figure 4.36 **Trust in Russian Groups to Promote Peaceful Policies (D14-17)**



Assist Without Subsidizing

Our evidence indicates that respondents were concerned about the security of Russian nuclear weapons and nuclear materials and that they were very supportive of cooperative technical assistance between US and Russian nuclear science communities. However, participants were much more divided about issues of *funding* improvements in the security of Russian nuclear programs, and when asked if the US should help pay for improving nuclear surety in Russia, more respondents were opposed and unsure than were supportive. Respondents were distrustful of the Russian military and government, and more trustful of the Russian scientific community and the Russian people. Respondents supported cautious scientific cooperation that did not entail large US subsidies of programs to secure Russian nuclear assets.

Section 4.5: Relating Nuclear Weapons Risk and Benefit Indices to Policy and Spending Preferences

If the hypotheses inherent to our analytic model presented in Chapter One are valid, we should find statistically significant relationships between perceptions of risks and benefits of US nuclear weapons and specific policy and spending preferences measured in this chapter. Using ordinary least squares bivariate

regression methods, we will relate each of the four indices to individual policy and spending issues. Before presenting a summary of key relationships for multiple issues, it is useful to illustrate the statistical relationships in more detail for a single issue. After doing so, relationships will be more apparent when presenting summary information for a wide range of issues.

Illustrating the Relationship of Key Indices to a Single Issue

We will use the issue of retaining nuclear weapons to show how the four major indices—external and domestic risks and external and domestic benefits—are statistically related to preferences about that issue. We asked respondents to rate the importance of retaining nuclear weapons using a scale where one meant *not at all important,* and seven meant *extremely important.* Responses were previously described in Figure 4.4. Next we relate those results to our four indices.

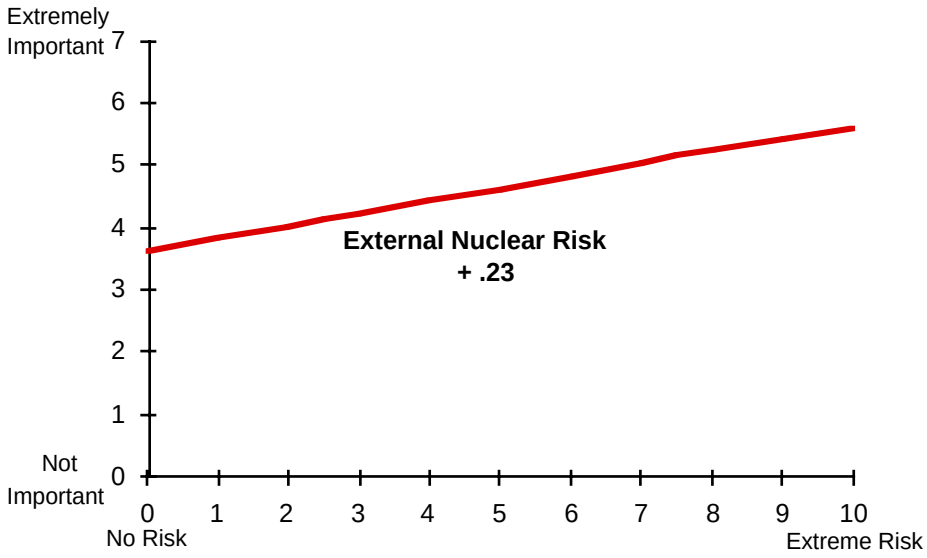
First we use the external nuclear risk index constructed in Chapter Two (Figure 2.9) as the independent variable, and perceptions of the importance of retaining nuclear weapons (question B21) is used as the dependent variable. Bivariate regression calculations yield the results shown in Table 4.3.

Table 4.3 Relating External Risk Perceptions to Importance of Retaining US Nuclear Weapons (B21)

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	3.61	.12	3.61	29.72	<.0001	
External Nuclear Risk Index	+.23	.02	.25	12.63	<.0001	.060

These values indicate that the external nuclear risk index and the issue of the importance of retaining nuclear weapons are highly statistically related. The p-value of < .0001 means that the described relationship between the two variables would occur by chance fewer than one in 10,000 times. The external risk coefficient of + 0.23 indicates that for every one unit increase in perception of external risk, the importance of retaining nuclear weapons *increases* 0.23 units. The coefficient of the intercept indicates that the regression line intercepts the scale representing perceptions of the importance of retaining nuclear weapons at 3.61. Figure 4.37 illustrates the regression results graphically.

Figure 4.37 External Nuclear Risk Index vs. Retain US Nuclear Weapons (B21)



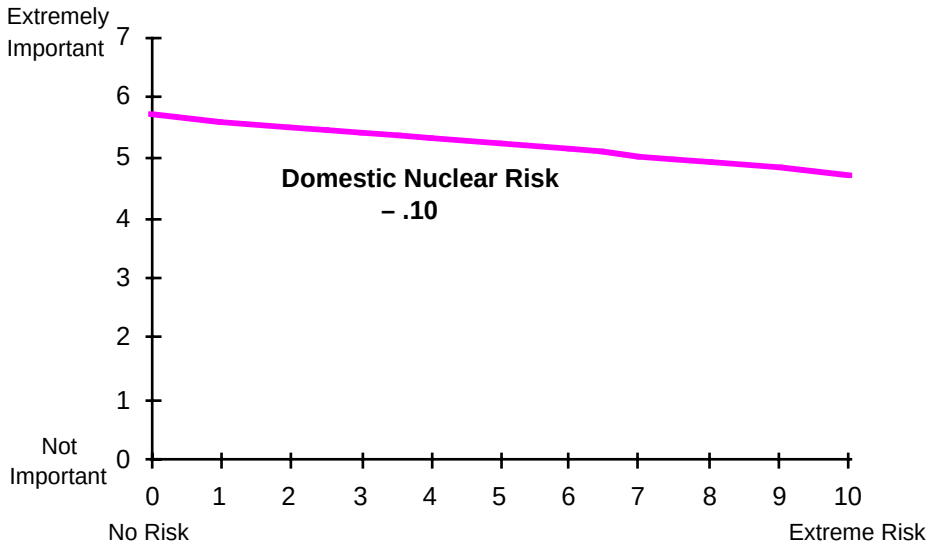
The second example uses the domestic nuclear risk index constructed in Chapter Two (Figure 2.20) as the independent variable to predict perceptions of the importance of retaining US nuclear weapons. Regression outcomes are shown in Table 4.4.

Table 4.4 Relating Domestic Risk Perceptions to Importance of Retaining US Nuclear Weapons (B21)

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	5.70	.11	5.70	51.16	<.0001	
Domestic Nuclear Risk Index	–.10	.02	–.12	–6.13	<.0001	.015

Again we find a highly statistically significant relationship in which each one point increase in perceived domestic nuclear risk produces a *decrease* of 0.10 points in perception of the importance of retaining US nuclear weapons. Figure 4.38 graphs the relationship.

Figure 4.38 Domestic Nuclear Risk Index vs. Retain US Nuclear Weapons (B21)



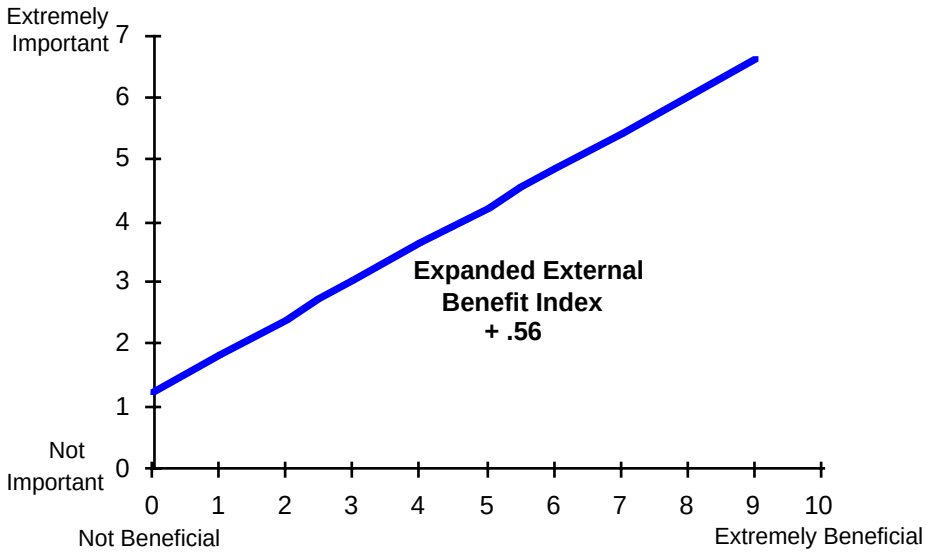
For our third example, we regressed the expanded external nuclear benefit index developed in Chapter Three (Figure 3.8) against perceived importance of retaining nuclear weapons to find the relationship provided in Table 4.5.

Table 4.5 Relating Perceptions of External Nuclear Benefits to Importance of Retaining US Nuclear Weapons (B21)

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	1.16	.13	1.16	9.20	<.0001	
Expanded Ext. Benefit Index	+.56	.02	.54	32.16	<.0001	.295

The relationship is again highly statistically significant, and an increase of one point in the expanded external benefits index equates to an *increase* of 0.56 points in perceived importance of retaining US nuclear weapons. Thus the perceived benefits of nuclear weapons for national security purposes is strongly related to the perceived importance of retaining nuclear weapons, as shown in Figure 4.39.

Figure 4.39 Expanded External Benefit Index vs. Retain US Nuclear Weapons (B21)



The level of statistical significance and magnitude of the relationship means that the expanded external nuclear benefit index is strongly predictive of policy preferences about this issue.

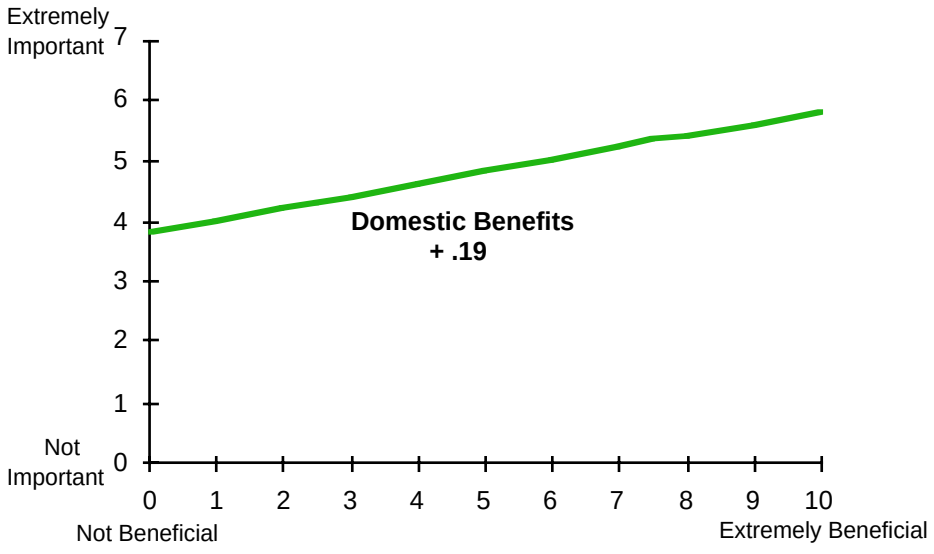
Finally, relating the index of domestic benefits to the perceived importance of retaining nuclear weapons yields almost the same results as did the external nuclear risk index. Table 4.6 shows the results.

Table 4.6 Relating Perceptions of Domestic Benefits to Importance of Retaining US Nuclear Weapons (B21)

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	3.76	.11	3.78	35.43	<.0001	
Domestic Benefits Index	+.19	.02	.25	12.77	<.0001	.062

An increase of one unit on the domestic benefits scale yields an *increase* in perceived importance of retaining nuclear weapons of 0.19 units, as illustrated in Figure 4.40.

Figure 4.40 Domestic Benefit Index vs. Retain US Nuclear Weapons (B21)



Note that all four of the indices are highly statistically related to the policy issue in question, yielding p-values less than .0001 in each case.

Relating Key Indices to Multiple Policy and Spending Issues

Table 4.7 summarizes the effects of each of the four major indices on ten individual policy and spending issues. The number in each of the four columns of indices is the coefficient (slope) of the regression line for the associated issue. The example illustrated in detail above is summarized in the first row. The other nine policy and spending issues can be visualized as regression lines having the direction and slope of the coefficients shown. The statistical significance of each relationship is coded as follows: one asterisk indicates a p-value of .05 or less; two asterisks mean a p-value of .01 or less; and three asterisks represent a p-value of .001 or less. Relationships that are not statistically significant at the .05 level or below are indicated by the letters “n. s.”

Table 4.7 Influence of Risk and Benefit Perceptions on Policy and Spending Preferences

ISSUE (DEPENDENT VARIABLE) *P < .05 **P < .01 ***P < .001	EXTERNAL RISK INDEX	DOMESTIC RISK INDEX	EXTERNAL BENEFIT INDEX	DOMESTIC BENEFIT INDEX
1. Importance of retaining US nuclear weapons (B21).	+.23***	–.10***	+.56***	+.19***
2. Reducing US nuclear weapons below 3,000 (B29).	–.05*	+.15***	–.34***	–.09***
3. Participating in a Comprehensive Test Ban Treaty (B37).	+.04*	+.09***	–.09***	n. s.
4. Participating in a Fissile Material Cutoff Treaty (B38).	+.04*	+.09***	–.09***	n. s.
5. Funding for developing and testing new nuclear weapons (B10).	+.07***	–.09***	+.27***	+.13***
6. Funding for sustaining nuclear weapons research infrastructure (B14).	+.05*	–.10***	+.43***	+.18***
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	+.10***	–.12***	+.35***	+.16***
8. Funding to prevent nuclear terrorism (B16).	+.05*	n. s.	+.08***	+.04*
9. Funding to prevent the spread of nuclear weapons (B15).	+.06**	n. s.	+.05*	n. s.
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	+.10**	–.05*	+.20***	+.06*

To illustrate interpretation, look at issues five, six, and seven. First, note that the relationship of each of the four indices and each of the three issues is statistically significant. Second, note that the relationship with the external nuclear risk index is positive in each case. As perceptions of external risks increase, funding support for all three issues increases. Third, the relationship between each issue and

perceptions of risks from our own nuclear arsenal is negative. As perceptions of domestic nuclear risks increase, support for funding each of the three issues decreases. Fourth, the relationship between perceived external benefits and each funding issue is positive, and the same is true for perceptions of domestic benefits and support for funding. As the two benefit indices increase, so does support for funding.

The relationships shown in this chart (and with other policy issues not shown) support our hypothesis that the relationships of perceptions of external nuclear risks, domestic nuclear risks, the external benefits of nuclear weapons for achieving national security objectives, and the domestic benefits of nuclear and other types of defense investments are related in predictable ways to a wide range of nuclear weapons policy and spending options.

Section 4.6: Summarizing Policy and Spending Implications

Our respondents perceived that numbers of nuclear weapons can be safely reduced, and they were supportive of mutually negotiated arms control agreements. They were not supportive of unilateral US nuclear force reductions. While they might prefer a nuclear weapons-free world, they did not think that option is feasible at this time, and a large majority of respondents felt that the US should retain a nuclear arsenal as long as others have nuclear weapons. Participants were concerned about the security of Russian nuclear assets, and large majorities of respondents favored cooperation between US and Russian scientists. They were also supportive of sharing US expertise in nuclear materials management with the Russians, but they were not supportive of the US paying for such programs.

Respondents were both consistent and stable during the 1993–1995 period in expressing their preferences for policies and spending choices about nuclear weapons. Our findings document significant support for the following investments:

- Research and spending to increase the safety of existing nuclear weapons.

- Spending to maintain existing nuclear weapons in reliable condition.

- Spending to assure the competence of those who manage nuclear weapons.

- Spending to prevent nuclear proliferation and nuclear terrorism.

We found little support for research or spending to develop and test new types of nuclear weapons. Opinion was almost equally divided about spending to maintain the ability to develop and improve nuclear weapons in the future.

Participants preferred for technical experts to make most decisions about applying advanced technologies, but they evidenced considerable skepticism of official government information about the environmental implications of nuclear weapons development. The Department of Defense and US National Laboratories were trusted more highly than the Department of Energy and public utilities to safely manage nuclear resources.

Greatest Fears: Proliferation & Terrorism

Nuclear proliferation and nuclear terrorism were among the greatest concerns we found. Respondents were willing to consider extending military guarantees or using military force to prevent some states from gaining nuclear weapons. Iraq, Iran, and North Korea were perceived to pose significant risks of nuclear proliferation, and large majorities of our respondents were willing to consider using force to prevent them from going nuclear. Respondents were also not sanguine about the prospects of a nuclear Japan or Germany, but many fewer participants were willing to consider force to prevent them from acquiring nuclear weapons. There was strong, stable support for increasing funding to prevent the spread of nuclear weapons.

Similarly, very large majorities of respondents were willing to increase funding to prevent nuclear terrorism, which they viewed as a very serious threat. Respondents seemed to understand that combating terrorism could involve encroachments on individual prerogatives, and were willing to consider such measures if necessary to stop terrorist acts.

Participants were willing to justify the employment of US nuclear weapons for two purposes: to deter others from using nuclear weapons, and to retaliate against those who use weapons of mass destruction against the US or its military forces.

Risks & Benefits Relate to Policy Preferences

Respondent perceptions of the risks and benefits of nuclear weapons were related in highly statistically significant ways to specific policy and spending choices. Our evidence indicates that members of the public make logical and rational connections between perceptions of external and domestic nuclear risks and benefits and the rationale for or against nuclear weapons and associated investments. The process is not formalized; it does not meet analytically rigorous risk-benefit calculation parameters; but it appears to be logical, consistent, and predictable, and those attributes of public opinion about nuclear weapons have important relevance for future strategic nuclear weapons choices.

However, we know that in addition to weighing perceived risks and benefits of nuclear weapons, there are many other factors operating at the individual level of analysis that influence opinion about nuclear choices. Chapter Five will examine a number of individual level attributes that interact with perceptions of risks and benefits to help shape public preferences.

End Notes

[1] These figures are from a US national telephone survey of 1,005 adults conducted by the Associated press, April 21–25, 1995.

[2] Wording in 1993: "The US has agreed to reduce the number of its nuclear weapons by about 30 to 40 percent. Some people argue that greater reductions are warranted because of the end of the cold war. Others argue that international ethnic conflicts, revolutions, and other uncertainties make it risky to reduce below these levels. On a scale from one to seven, where one means you *strongly oppose* further reductions in US nuclear weapons, and seven means you *strongly support* further reductions, please indicate how you feel about further reducing the number of US nuclear weapons below the levels of current agreements."

Wording in 1995: "The US has agreed to reduce the number of its nuclear weapons from more than 20,000 down to approximately 3,000. Using a scale where one means you *strongly oppose,* and seven means you *strongly support* further reductions in US nuclear weapons, how do you feel about *further* reducing the number of US nuclear weapons below 3,000?"

[3] See question 69 in Section 6.5 of Hank C. Jenkins-Smith, Richard P. Barke, and Kerry G. Herron, 1994, *Public Perspectives of Nuclear Weapons in the Post-Cold War Environment: Findings and Analysis of the National Security Survey: Perceptions and Policy Concerns 1993–1994,* document ID: SAND 94-1265, Albuquerque, NM: Sandia National Laboratories.

Chapter Five

Measuring Demographics

In this chapter we shift from describing the perceptions and policy preferences that were measured in Chapter Four to identifying who held those positions. We will do that by analyzing respondent demographics such as age, gender, income, education, training, professional experience, and place of residence. Our model in Chapter One, Figure 1.1, suggests that these kinds of demographic attributes influence the process by which members of the public perceive and weigh the risks and benefits of nuclear weapons. To examine the influence of such factors, we will follow three analytic steps:

- First, we will describe and characterize respondents to the 1995 survey in terms of the demographic variables being examined.

- Second, we will relate the demographic variables to the major risk/benefit indices developed in Chapters Two and Three. To streamline the process, we will combine the external and domestic risk indices into a single composite index reflecting overall perceptions of nuclear weapons risks. Similarly, we will combine the external and domestic benefit indices into a single composite index reflecting overall perceptions of nuclear weapons benefits. These two composite indices represent the left and right sides of our analytic model (Figure 1.1). By relating demographic variables to perceptions of nuclear weapons risks and benefits, we can begin to examine the relationships between variables in the center of the model and those on each side.

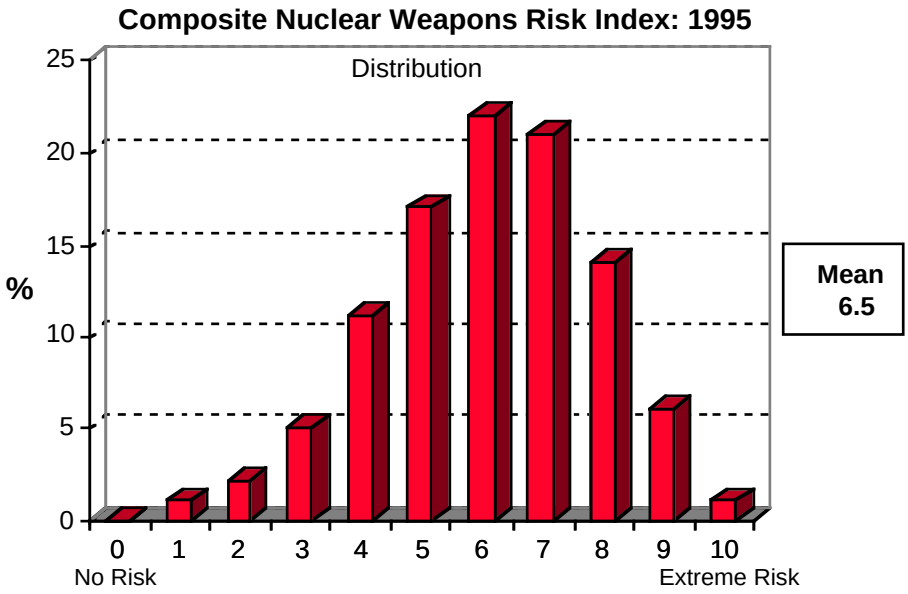
- Third, we will relate the demographic variables being examined to selected policy and spending choices to determine if policy relevant connections exist. In Chapter Four we used ten representative policy and spending issues to measure the influence of risk and benefit perceptions. In this chapter we will use the same set of issues as the base line for evaluating the policy relevance of the demographic variables being examined.

Section 5.1: Creating Composite Risk and Benefit Indices

Composite Nuclear Weapons Risk Index

BY COMBINING THE NUCLEAR WEAPONS EXTERNAL RISK INDEX shown in Chapter Two, Figure 2.9 with the domestic nuclear risk index shown in Chapter Two, Figure 2.20, we can create a composite representation of respondent perceptions of nuclear weapons risks that is more robust than either of its components. It also simplifies analysis of relationships between demographic variables and perceived risks, as well as relationships between risk perceptions and policy and spending preferences. Figure 5.1 presents the composite nuclear weapons risk index.

Figure 5.1



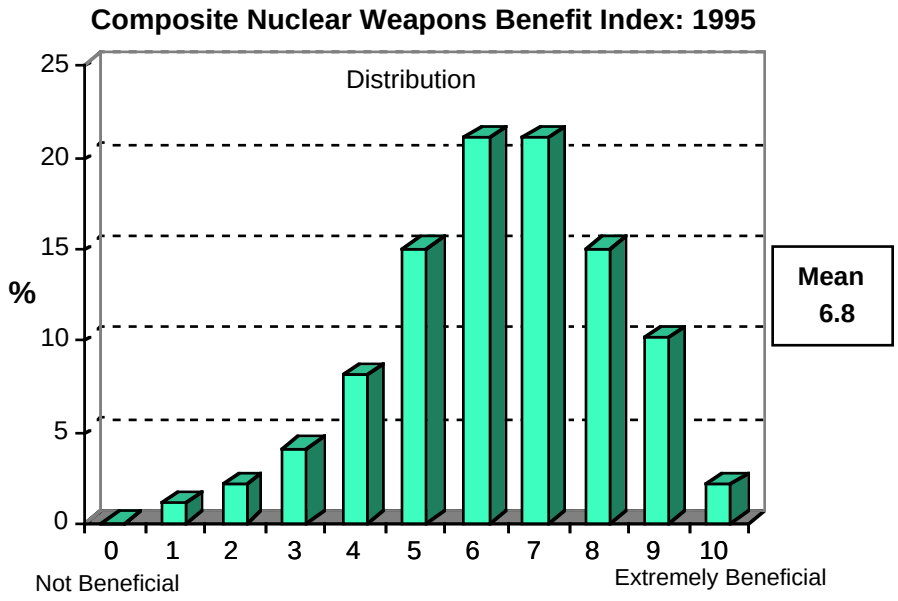
The mean, the mode, and the pattern of responses all indicate that perceived risks posed by others' nuclear weapons, combined with the perceived risks of living with and managing our own nuclear weapons, were judged to be substantial by most respondents. Most ratings were above mid-scale, but few were at either extreme. Only seven percent rated nuclear risks in the two highest categories, and only one percent

rated them in the lowest two categories. For the offsetting image, we need to consider how respondents perceived nuclear weapons benefits.

Composite Nuclear Weapons Benefit Index

We developed that image by combining the expanded nuclear weapons external benefit index shown in Chapter Three, Figure 3.8 with the domestic benefit index shown in Figure 3.12 to create a robust composite representation of respondent perceptions of nuclear weapons benefits that can be compared with the composite nuclear weapons risk index. Figure 5.2 presents the composite nuclear weapons benefit index.

Figure 5.2

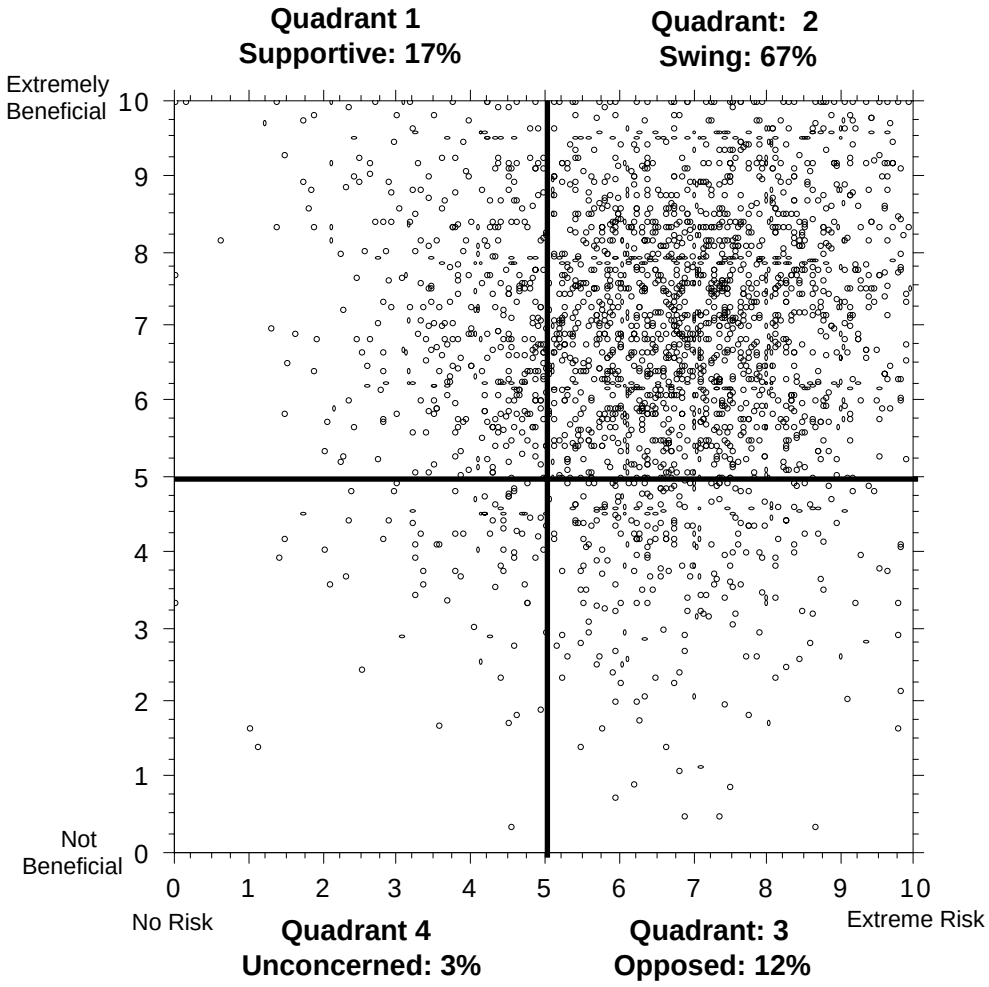


This image is similar to the previous image of perceived risks. Again the mean, the modal ratings, and the distribution of responses all indicate that substantial benefits were perceived to derive from nuclear weapons. We now have two sets of composite perceptions. One is of perceived nuclear risks that are above mid-scale on average; the other of perceived nuclear benefits that also are above mid-scale on average. We can form a more meaningful picture by integrating these two important variables.

Relating Nuclear Weapons Risks and Benefits

By using the composite nuclear weapons risk index as the horizontal axis and the composite nuclear weapons benefit index as the vertical axis, we can create a grid in which each respondent's views of risks and benefits associated with nuclear weapons can be plotted. This integration of risk and benefit perceptions provides a spatial characterization of respondent views that is useful for anticipating risk/benefit trade-offs and associated policy and spending implications. Figure 5.3 provides a scattergram in which each respondent is plotted in a two dimensional space representing perceived nuclear weapons risks and benefits as measured by the composite indices described above. Each symbol represents one respondent.

Figure 5.3 **Nuclear Weapons Risk/Benefit Perceptions Matrix**



Quadrant One

Respondents in Quadrant 1 rated nuclear weapons risks below mid-scale and benefits above mid-scale. The 17 percent of respondents in this group should generally be more supportive of policies that value US nuclear weapons capabilities and investment options that are supportive of the US nuclear arsenal. Some of these respondents have probably reached what Daniel Yankelovich classified as "public judgment" about nuclear weapons issues in general, and many may have political and social belief systems that support their nuclear views.[1]

Quadrant Two

Respondents in Quadrant 2 perceived both the risks and benefits of nuclear weapons to be above mid-scale, and the 67 percent of our participants in this group are more likely to perceive a necessity for trade-offs across a range of nuclear weapons related issues. These members of the public are probably in either Yankelovich's "consciousness raising" or "working through" stages of forming judgments about nuclear security issues. It is among this portion of the population that opinion about nuclear weapons is likely to be most variable, because people may not have strong differences in perceptions of the risks and benefits of nuclear weapons, or they may see risks and benefits to be mutually nullifying, so that policy preferences are more likely to be decided on a case-by-case contextual basis. It is significant that more than two-thirds of our respondents were located in this quadrant, because it is here that policy preferences are most likely to depend on individual circumstances and available information, and it is among this portion of the population that debate about nuclear weapons issues and strategy should have the most influence.

Quadrant Three

Respondents in Quadrant 3 perceived nuclear weapons risks to be above mid-scale and benefits to be below mid-scale. The 12 percent of participants in this group are most likely to have reached "public judgments" about nuclear weapons that predispose them to oppose policies that depend on and prolong nuclear deterrent postures and investments that sustain or expand nuclear weapons capabilities. The strongest proponents of nuclear disarmament and the strongest opponents of the nuclear weapons establishment are likely to be found in this portion of the population, and like their counterparts in Quadrant 1, belief and value systems are more likely to be related to risk/benefit perceptions.

Quadrant Four

Respondents in Quadrant 4 perceived nuclear weapons to pose risks that are below mid-scale and to offer benefits that are also below mid-scale. The three percent of respondents in this group are probably less concerned about nuclear security issues, and may devalue them in relation to other issues. The small number of participants in this quadrant and their lower likelihood of participating in nuclear debate makes this fraction of the public least relevant to nuclear policy evolution.

We should note that these descriptions are based on generalizations about entire quadrants, each of which has many shadings. For example, some respondents perceived risks or benefits to be only slightly above or below mid-scale, while others perceived one or both to be at the extremes of the scale. Therefore we would expect the above characterizations to be most descriptive of those respondents who were closer to the outer corners of the matrix. The purpose of this spatial characterization of relative views is to provide a picture that helps us envision the respondent population as a whole (and by extension the general public) regarding trade-offs in nuclear weapons risks and benefits. It is within this risk/benefit context that post-cold war attitudes about nuclear security issues are evolving, and it is in this environment that US nuclear weapons policies must operate.

To illustrate the policy implications of the interaction of perceptions of nuclear weapons risks and benefits, we will return to the ten policy and spending issues used in Chapter Four. Table 5.1 summarizes mean policy preferences for respondents in each of the four quadrants of the nuclear weapons risk/benefit matrix.

Table 5.1 Relating Risk/Benefit Perceptions to Policy Preferences

ISSUE (ALL ON SCALE FROM 1-7)	QUAD-1 (MEANS)	QUAD-2 (MEANS)	QUAD-3 (MEANS)	QUAD-4 (MEANS)
1. Importance of retaining US nuclear weapons (B21).	5.5	5.3	3.6	3.5
2. Reducing US nuclear weapons below 3,000 (B29).	3.9	4.4	5.4	4.9
3. Participating in a comprehensive test ban treaty (B37).	5.0	5.5	5.9	4.9
4. Participating in a fissile material cutoff treaty (B38).	4.8	5.3	5.8	5.4
5. Funding for developing and testing new nuclear weapons (B10).	2.9	2.7	1.7	1.9
6. Funding for sustaining nuclear weapons research infrastructure (B14).	4.5	4.2	2.8	2.9
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	4.7	4.5	3.4	3.2
8. Funding to prevent nuclear terrorism (B16).	5.8	5.9	5.8	4.8
9. Funding to prevent the spread of nuclear weapons (B15).	5.1	5.3	5.3	4.4
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	5.2	5.0	4.4	4.3

Note that mean policy preferences reflect the predicted differences in views between respondents in the four quadrants. For example, the first issue asked participants to rate the importance of retaining US nuclear weapons. Respondents in Quadrant 1 (low risk, high benefit) placed more importance on retaining nuclear weapons than did those in the other three quadrants. Respondents in Quadrant 2 (high risk, high benefit) placed slightly but significantly less importance on retention ($p = .0399$). Respondents in Quadrant 3 (high risk, low benefit) thought that retaining nuclear weapons was far less important. The few respondents in Quadrant 4 (low risk, low benefit) probably considered

nuclear weapons to be less relevant than respondents in the other three quadrants, and they were the least supportive of the retention issue.

Similarly, in looking at the second issue, which asked respondents about whether the US should reduce its nuclear arsenal below START II limits, we find that respondents in Quadrant 1 were least supportive of further reductions; those in Quadrant 2 were more supportive; those in Quadrant 3 were the most supportive of all; and those in Quadrant 4 were somewhat less supportive, since they probably viewed the issue to be unimportant. Predicting the attitudes of those relatively few members of the public who perceive nuclear weapons to have low issue saliency will be more problematic than predicting the views of the very large majority of the public who consider nuclear security issues to be much more important.[2]

Given this foundation of risk and benefit perceptions, the remainder of this chapter and Chapter Six will be devoted to enriching the nuclear weapons policy context by examining other factors that interact with risk/benefit considerations to influence public opinion about nuclear security.

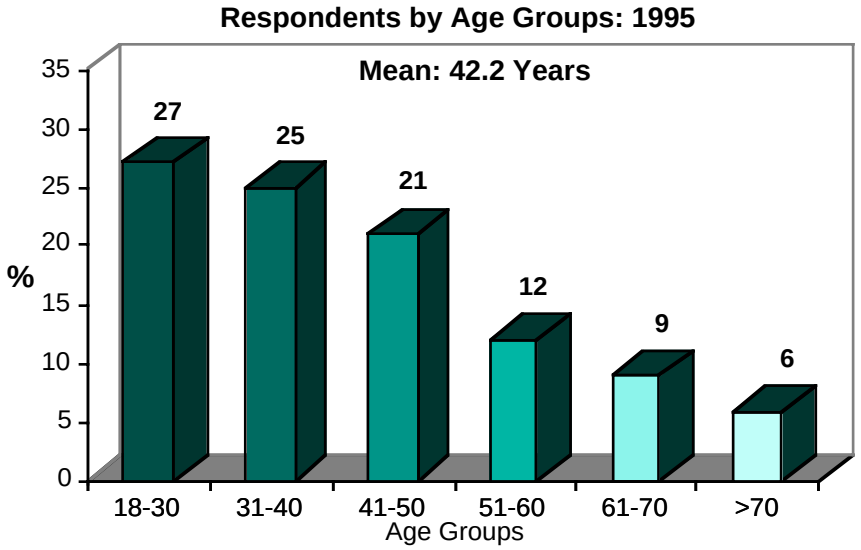
Section 5.2: The Implications of Demographic Factors

Age

Do our views about nuclear security evolve with age? If so, how does age influence perceptions and preferences? First we will report the ages of our respondents; then we will investigate potential influences on risk/benefit perceptions and policy and spending preferences.

Respondents ranged from 18 to 90 years of age, with a mean age of 42.2 years. Figure 5.4 shows the distribution by age groups.

Figure 5.4



To determine if a relationship existed between respondent age and perceptions of the risks and benefits of nuclear weapons, we used age as the independent variable to predict the composite risk and benefit indices. Results are shown in Table 5.2 for the relationship of age to perceived nuclear weapons risks, and Table 5.3 shows the relationship of age to perceived nuclear weapons benefits. Both regressions are graphed in Figure 5.5.

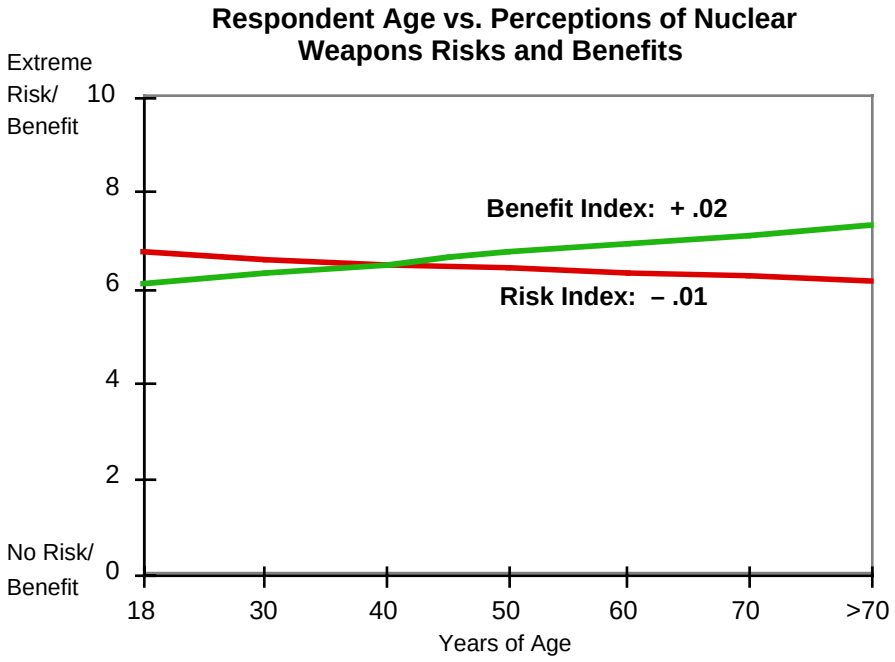
Table 5.2 Relating Age to the Composite Nuclear Weapons Risk Index

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	6.73	.100	6.73	66.32	<.0001	.002
Age	–.01	.002	–.05	–2.28	.0226	

Table 5.3 Relating Age to the Composite Nuclear Weapons Benefit Index

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	6.06	.100	6.06	60.31	<.0001	.024
Age	.02	.002	.16	7.86	<.0001	

Figure 5.5



These results show that for each increase of one year in age, respondent perceptions of nuclear weapons risks decreased 0.01 points on the zero to ten composite risk index, and perceptions of nuclear weapons benefits increased by 0.02 points on the zero to ten composite benefit index. Older respondents perceived higher benefits and lower risks to be associated with nuclear weapons; younger respondents perceived higher risks and lower benefits.

To analyze the implications of age on policy preferences, we looked at the same ten policy and spending options previously used. Table 5.4 summarizes the results of bivariate regressions in which respondent age is the independent variable, and each of the ten issues is alternatively used as the dependent variable.

Table 5.4 Relating Age to Policy and Spending Preferences

ISSUE (DEPENDENT VARIABLE; ALL ON SCALE FROM 1-7)	AGE COEFF.	P VALUE	ADJ. R^2
1. Importance of retaining US nuclear weapons (B21).	+.02	<.0001	.024
2. Reducing US nuclear weapons below 3,000 (B29).	–.01	.0015	.004
3. Participating in a comprehensive test ban treaty (B37).	n. s.	n. s.	n. s.
4. Participating in a fissile material cutoff treaty (B38).	n. s.	n. s.	n. s.
5. Funding for developing and testing new nuclear weapons (B10).	n. s.	n. s.	n. s.
6. Funding for sustaining nuclear weapons research infrastructure (B14).	+.01	.0003	.005
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	+.01	.0075	.003
8. Funding to prevent nuclear terrorism (B16).	–.01	.0382	.001
9. Funding to prevent the spread of nuclear weapons (B15).	–.01	.0007	.004
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	n. s.	n. s.	n. s.

The coefficient column indicates the slope of the regression line; the p-value indicates the statistical significance of the relationship (n. s. indicates "not statistically significant"); and the adjusted R^2 indicates explanatory power. For example, the first line relates respondent age to views about the importance of retaining US nuclear weapons (question B21). Bivariate regression using age as the independent variable shows that as age increases one year, perceptions of the importance of retaining US nuclear weapons increases by 0.02 points on scale from one to seven. The p-value indicates that the relationship is highly statistically significant, occurring by chance fewer than one in 10,000 times. The

adjusted R^2 value indicates that age accounts for 2.4 percent of the variation in perception of the importance of retaining US nuclear weapons.

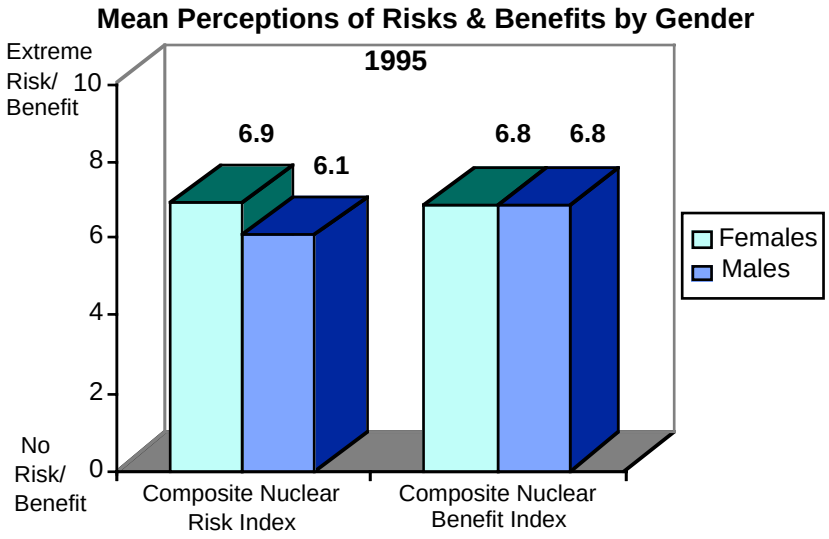
These findings show that although age alone was not sufficient to characterize a respondent's overall views about policy and spending issues, age was a statistically significant factor in forming opinions about six of the ten issues examined. In general, older respondents were more likely to support increased funding for maintaining nuclear weapons and the related research infrastructure, and less likely to support increased funding to prevent proliferation and terrorism than were younger respondents.

Gender

Do men and women perceive the risks and benefits associated with nuclear weapons differently? Does gender influence preferences regarding arms control, nuclear weapons related research, or spending on nuclear weapons issues? Fifty-one percent of our respondents were females, and 49 percent were males. We will compare their views about nuclear weapons risks, benefits, and associated policy and spending issues in order to identify the policy-relevant implications of gender.

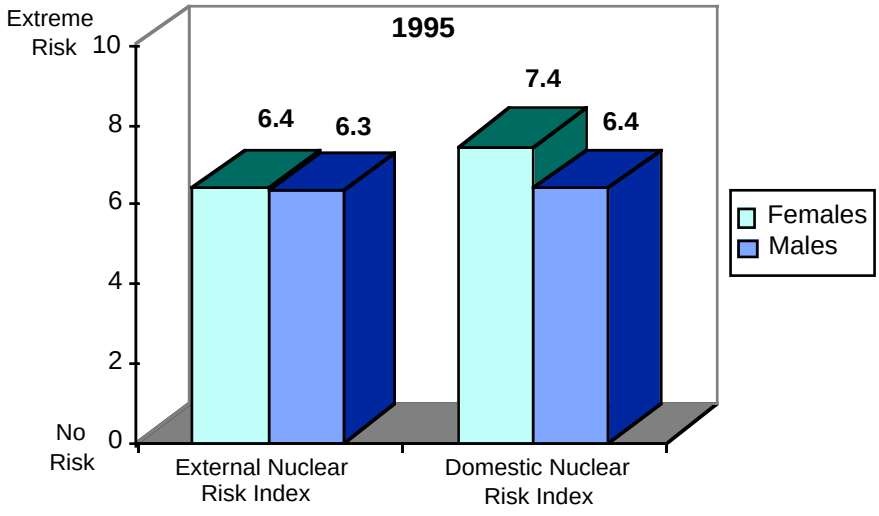
Figure 5.6 compares average male and female perceptions of nuclear weapons risks and benefits as measured by the composite indices introduced above.

Figure 5.6



Among our respondents, females and males perceived nuclear benefits the same, on average, but females perceived substantially higher levels of nuclear risk than did males. To investigate this difference in more detail, we examined each of the two component indices—external risk perceptions (threat of others' nuclear weapons) and domestic risk perceptions (risks associated with our own nuclear arsenal)—that were combined to produce the composite risk index. Figure 5.7 compares these two dimensions of risk as perceived by males and females.

Figure 5.7



Females Attribute More Risks to US Weapons

We found females and males to perceive threats from others' nuclear weapons in very similar ways, but a highly statistically significant difference ($p < .0001$) existed between female and male perceptions of the *domestic* risks associated with maintaining the US nuclear arsenal. This difference of a full index point was the primary driver of gender-based differences in overall perceptions of nuclear weapons risks.

To see how these gender differences in nuclear risk perceptions were manifested in policy and spending preferences, we analyzed responses to the same set of ten policy and spending issues examined above. Table 5.5 summarizes the mean responses to each of the issues for males and females.

Table 5.5 Relating Gender to Policy and Spending Preferences

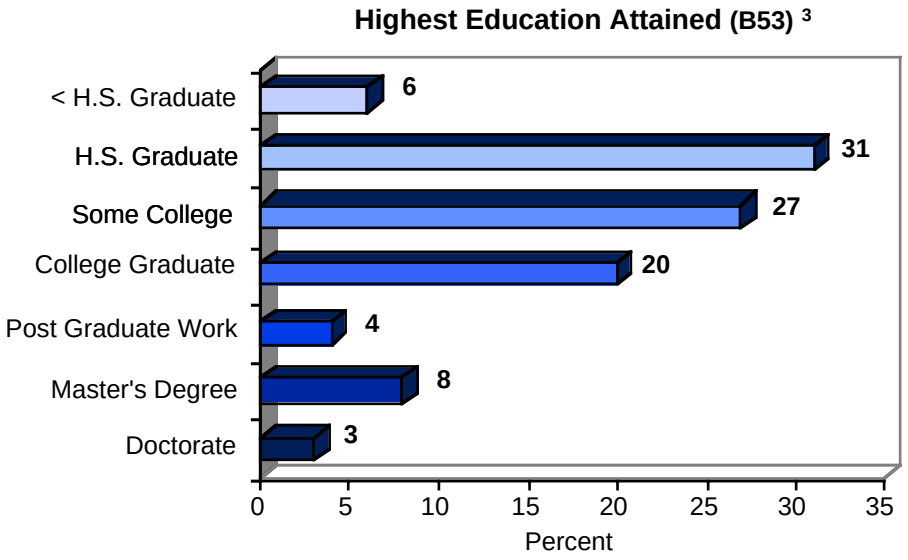
ISSUE (ALL ON SCALE FROM 1-7)	FEMALES (MEANS)	MALES (MEANS)	p VALUE
1. Importance of retaining US nuclear weapons (B21).	5.0	5.2	.0047
2. Reducing US nuclear weapons below 3,000 (B29).	4.5	4.4	n. s.
3. Participating in a comprehensive test ban treaty (B37).	5.4	5.5	.0215
4. Participating in a fissile material cutoff treaty (B38).	5.3	5.3	n. s.
5. Funding for developing and testing new nuclear weapons (B10).	2.6	2.6	n. s.
6. Funding for sustaining nuclear weapons research infrastructure (B14).	4.1	4.0	n. s.
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	4.3	4.4	n. s.
8. Funding to prevent nuclear terrorism (B16).	5.8	5.9	n. s.
9. Funding to prevent the spread of nuclear weapons (B15).	5.2	5.2	n. s.
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	4.8	5.2	.0020

Gender-based influences in perceptions of nuclear risks are reflected in subtle differences in policy preferences that, while not determinant in most cases, may imply differences in some nuclear policy choices among females and males. For example, Table 5.5 reflects statistically significant differences between females and males for three of the ten issues compared: retaining US nuclear weapons, participating in a comprehensive test ban treaty, and using force to prevent some countries from acquiring nuclear weapons were all supported more strongly by males than by females.

Education

To determine if level of education or field of study influenced perceptions and policy preferences about nuclear weapons issues, we asked each respondent to identify the highest level of formal education they had attained, and for those with college training, we asked them to identify the principle field that they had studied. Figure 5.8 summarizes respondent education levels.

Figure 5.8



To determine if statistically significant relationships existed between the level of formal education and perceptions of nuclear weapons risks and benefits, we used education, represented by the above categories,

as the independent variable to predict respondent perceptions, as measured by the composite nuclear weapons risk and benefit indices. Regression results are summarized in Table 5.6 for nuclear weapons risks and in Table 5.7 for nuclear weapons benefits. Figure 5.9 graphs the two regression lines.

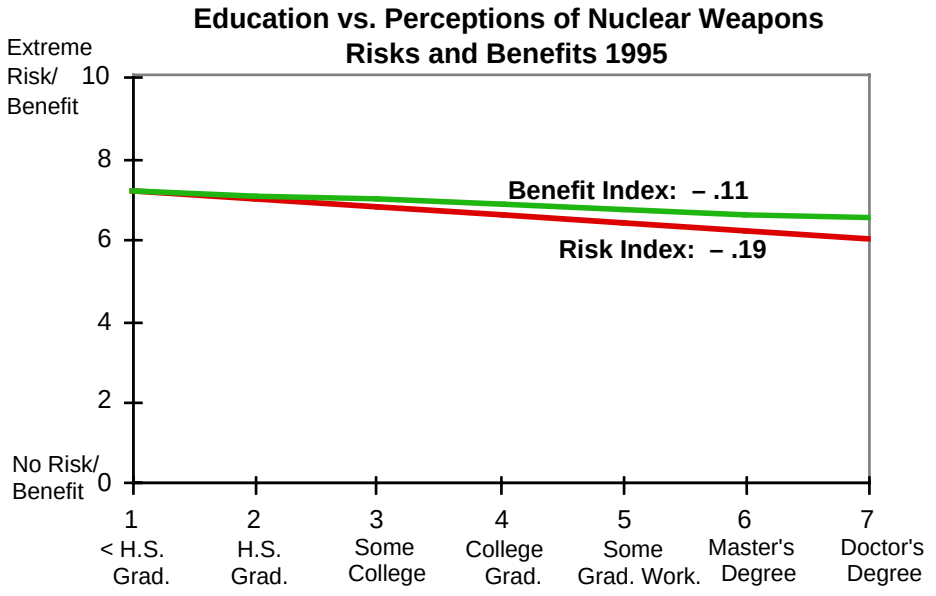
Table 5.6 Relating Edcation to the Composite Nuclear Weapons Risk Index

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	7.14	.09	7.14	82.70	<.0001	.024
Education	–.19	.02	–.16	–7.85	<.0001	

Table 5.7 Relating Education to the Composite Nuclear Weapons Benefit Index

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	7.16	.09	7.16	81.32	<.0001	.008
Education	–.11	.03	–.09	–4.49	<.0001	

Figure 5.9



Respondent education levels were highly statistically related both to perceptions of nuclear weapons risks and benefits. For each increase of one educational level, respondent perceptions of nuclear weapons risks decreased 0.19 points on a scale from zero to ten. Similarly, for each increase of educational level, perceptions of benefits decreased by 0.11 points on a scale from zero to ten. Table 5.8 relates education levels to our set of ten policy and spending options previously introduced.

Table 5.8 Relating Education to Policy and Spending Preferences

ISSUE (DEPENDENT VARIABLE; ALL ON SCALE FROM 1-7)	EDUCATION COEFF.	P VALUE	ADJ. R^2
1. Importance of retaining US nuclear weapons (B21).	–.07	.0097	.002
2. Reducing US nuclear weapons below 3,000 (B29).	n. s.	n. s.	n. s.
3. Participating in a comprehensive test ban treaty (B37).	+.11	<.0001	.007
4. Participating in a fissile material cutoff treaty (B38).	+.06	.0211	.002
5. Funding for developing and testing new nuclear weapons (B10).	–.07	.0133	.002
6. Funding for sustaining nuclear weapons research infrastructure (B14).	–.07	.0223	.002
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	+.08	.0102	.002
8. Funding to prevent nuclear terrorism (B16).	+.24	<.0001	.026
9. Funding to prevent the spread of nuclear weapons (B15).	+.29	<.0001	.031
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	–.12	.0139	.006

Level of education was a statistically significant factor in predicting each of the above policy or spending issues except for reducing nuclear weapons below START II levels. As education increased, support for

four issues decreased: (1) the importance of retaining US nuclear weapons; (2) funding to develop and test new nuclear weapons; (3) funding for sustaining nuclear weapons research infrastructure; and (4) using force to prevent nuclear proliferation. Conversely, support for five issues increased with higher education: (1) participating in a comprehensive nuclear test ban treaty; (2) participating in a treaty to stop the production of fissile materials that could be used to make nuclear weapons; (3) funding for maintaining existing nuclear weapons in reliable condition; (4) funding to prevent nuclear terrorism; and (5) funding to prevent nuclear proliferation.

To determine if field of study was associated with perceptions of nuclear weapons risks and benefits, we asked those respondents with undergraduate or graduate college degrees to identify their principle field of study. Figure 5.10 summarizes the distribution.

Figure 5.10

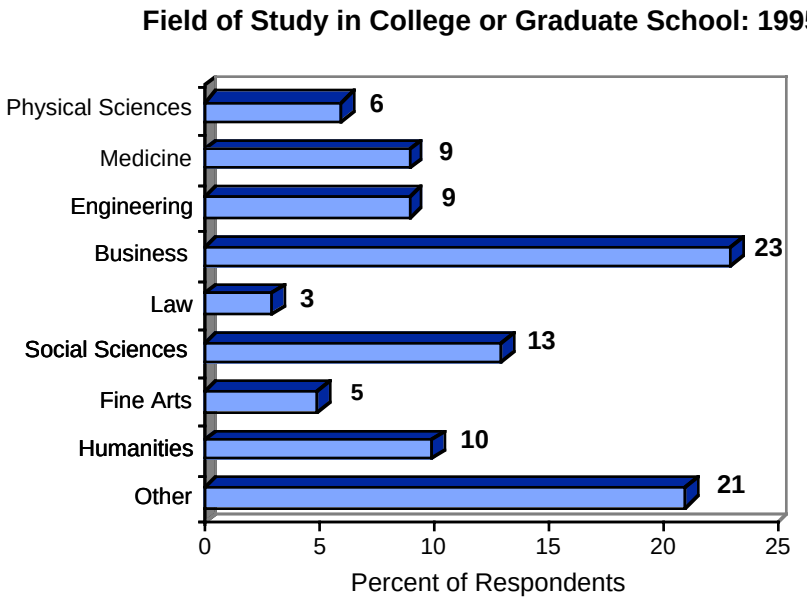


Table 5.9 summarizes mean perceptions of nuclear weapons risks and benefits by educational field of study.

Table 5.9 Academic Field and Mean Perceptions of Nuclear Weapons Risks and Benefits

Field of Study	%	Mean Composite Risk Index	Mean Composite Benefit Index
Physical Sciences	6	6.1	6.4
Medicine	9	6.7	6.4
Engineering	9	5.8	6.8
Business	23	6.3	6.8
Law	3	6.2	6.6
Social Sciences	13	6.5	6.5
Fine Arts	5	6.3	6.6
Humanities	10	6.3	6.6
Other	21	6.5	6.9

Differentiating perceptions of nuclear weapons risks by respondent field of study provided a wide spread of views. On a scale where zero meant *no risk,* and ten meant *extreme risk*, perceptions ranged from a minimum of 5.8 for engineers to 6.7 for medically trained persons. On the benefits side, using a scale where zero meant *not beneficial* and ten meant *extremely beneficial*, views ranged from 6.4 for physical scientists and medical personnel to 6.9 for the combination of fields other than those listed as survey choices. Analysis of variance among means showed that the differences in risk and benefit scores by academic field were statistically significant ($p < .05$), implying that field of academic study or training was related to perceptions of risks and benefits associated with nuclear weapons.

Income

Do our attitudes about nuclear security change with our level of income? To understand the relationship between income and attitudes about nuclear weapons, we divided our respondents into groups defined by household income and used income as the independent variable to predict perceptions of nuclear weapons risks and benefits, as

well as preferences for our now familiar set of policy and spending choices. Figure 5.11 describes the distribution of respondent household income levels.

Figure 5.11

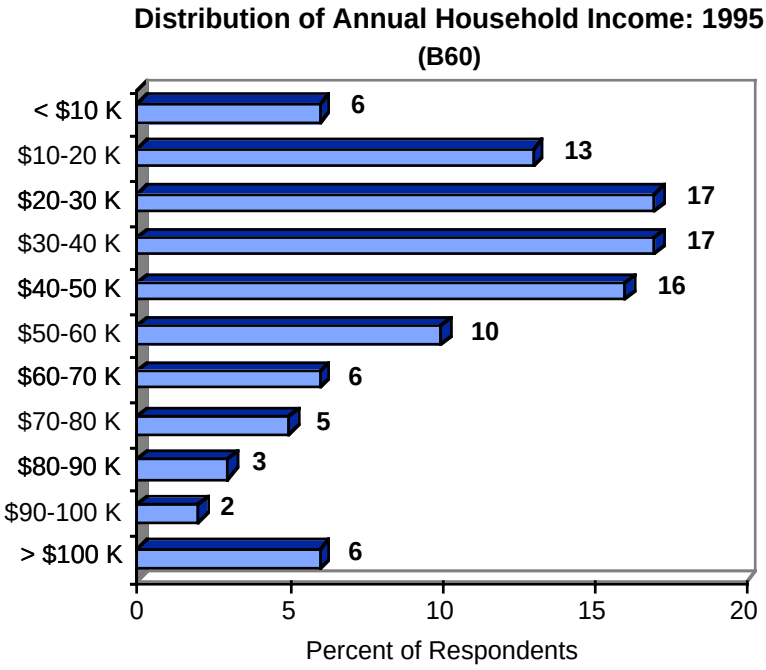


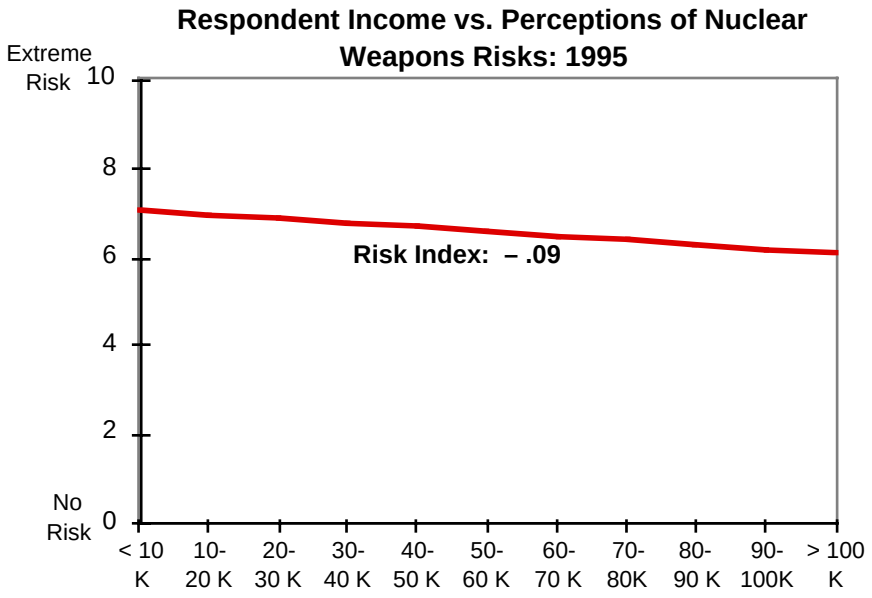
Table 5.10 summarizes the regression outcome of using household income as the independent variable to predict the composite nuclear weapons risk index.

Table 5.10 Relating Household Income to the Composite Nuclear Weapons Risk Index

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	6.99	.08	6.99	89.76	<.0001	.017
Household Income	–.09	.01	–.13	–6.41	<.0001	

As household income increased in increments of $10,000, perceptions of nuclear weapons risks decreased by 0.09 points on a ten point scale, as graphed in Figure 5.12. However, household income was *not* significantly related to perceptions of benefits as measured by the composite nuclear weapons benefit index, nor was it related to either external or domestic benefit indices when they were examined independently.

Figure 5.12



To determine if income could be used to predict nuclear weapons policy and spending choices, we used household income as the independent variable in regressions in which our ten policy and spending issues were alternately used as dependent variables. Table 5.11 shows the results.

Table 5.11 Relating Household Income to Policy and Spending Preferences

ISSUE (DEPENDENT VARIABLE; ALL ON SCALE FROM 1-7)	INCOME COEFF.	P VALUE	ADJ. R^2
1. Importance of retaining US nuclear weapons (B21).	n. s.	n. s.	n. s.
2. Reducing US nuclear weapons below 3,000 (B29).	n. s.	n. s.	n. s.
3. Participating in a comprehensive test ban treaty (B37).	+.07	<.0001	.009
4. Participating in a fissile material cutoff treaty (B38).	+.04	.0207	.002
5. Funding for developing and testing new nuclear weapons (B10).	–.04	.0079	.003
6. Funding for sustaining nuclear weapons research infrastructure (B14).	n. s.	n. s.	n. s.
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	+.06	.0005	.005
8. Funding to prevent nuclear terrorism (B16).	+.12	<.0001	.024
9. Funding to prevent the spread of nuclear weapons (B15).	+.14	<.0001	.024
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	+.06	.0359	.004

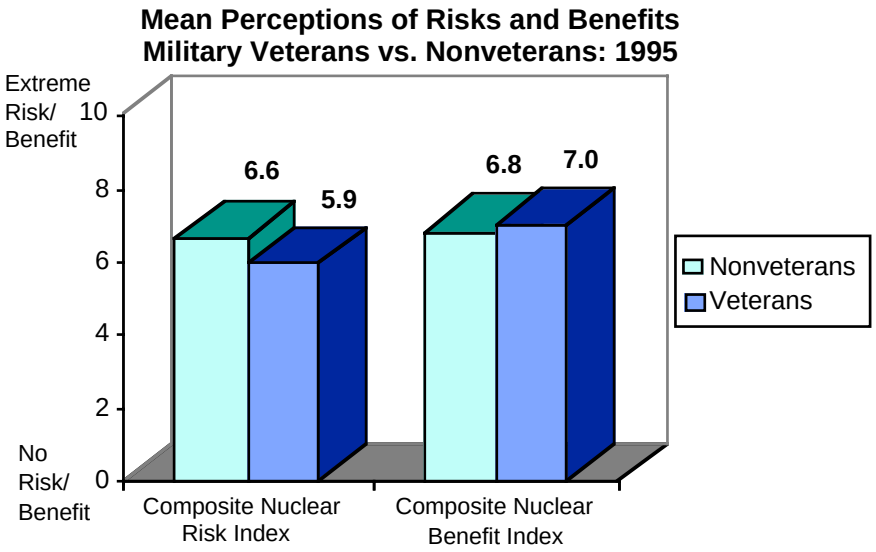
Household income was significantly related to seven of the ten issues, with support for the issues or spending choices increasing as income increased, except in the case of funding for developing and testing new nuclear weapons, where support decreased as income increased.

Military Experience

Is military experience related to perceptions of nuclear weapons risks and benefits or preferences for nuclear weapons policies? To determine if military experience was systematically related to views about nuclear weapons, we asked each respondent whether or not they had

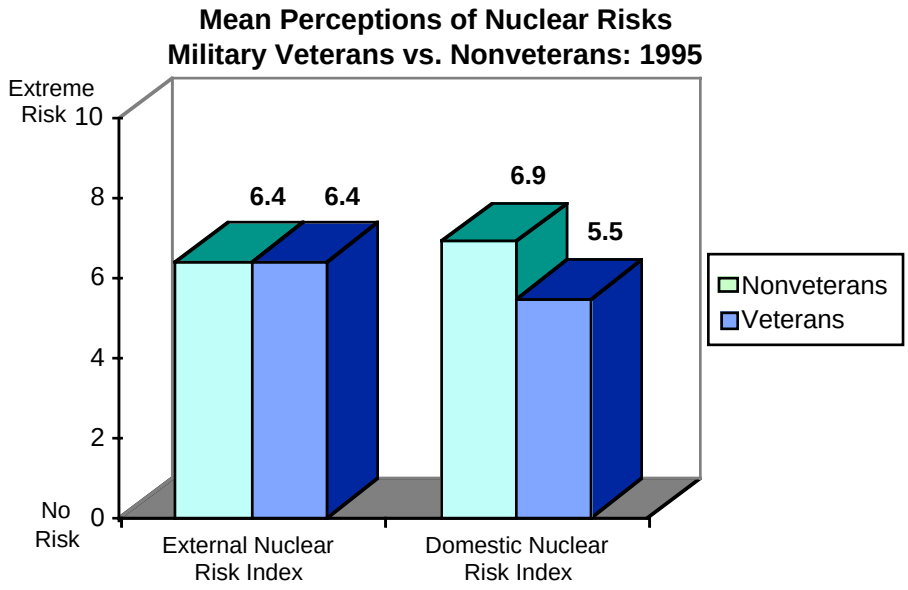
ever served in any branch of US military forces, whether in active or reserve status. Of the total of 2,490 survey participants, 426 (17 percent) reported having served in one or more branches of the military. Mean perceptions of nuclear weapons risks and benefits are contrasted in Figure 5.13 for military veterans and nonveterans.

Figure 5.13



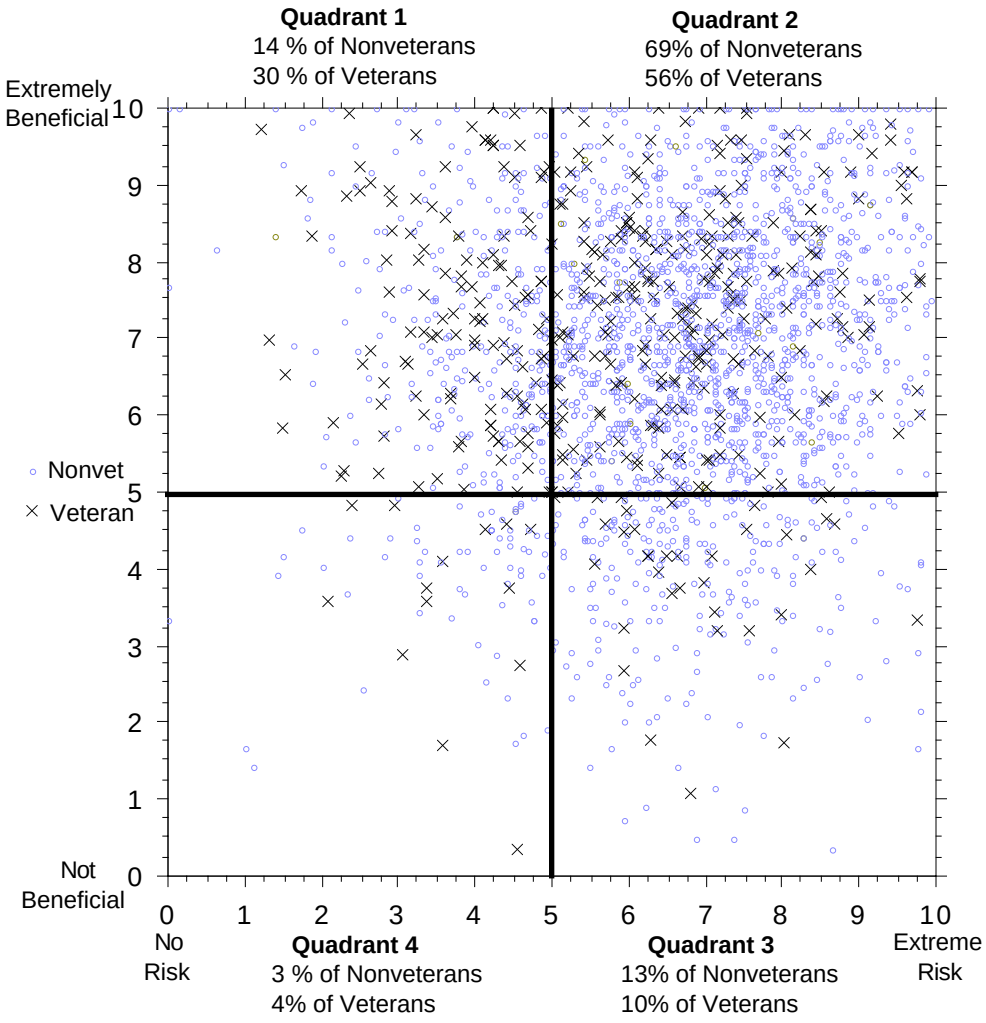
On average, respondents with personal military experience perceived significantly lower nuclear weapons risks ($p < .0001$) and higher nuclear weapons benefits ($p = .0408$) than did those respondents who had no personal military experience. We divided the composite nuclear risk index into its component parts to determine if differences in perceptions of external risks or domestic risks were driving the overall differences in risk perceptions. Figure 5.14 shows that veterans and nonveterans perceived external nuclear weapons risks (nuclear threats) the same on average, but the difference between the two groups in mean perceptions of the domestic risks associated with managing our own nuclear stockpile was a highly statistically significant 1.4 points ($p < .0001$). Nonveterans perceived risks from our own nuclear weapons to be much higher than did respondents with military experience.

Figure 5.14



These differences can also be visualized by examining the nuclear weapons risk/benefit matrix introduced in Figure 5.3. In Figure 5.15, respondents with military experience are separately designated from those respondents without military experience.

Figure 5.15 Locating Military Experience on the Nuclear Weapons Risk/Benefit Matrix



Proportionally More Veterans in Quadrant One

Differences in risk perceptions are most noticeable in the higher than proportional representation of military veterans in Quadrant 1, which contains only 14 percent of all those respondents *without* military experience but has 30 percent of those *with* military experience. Respondents in that quadrant rated nuclear weapons risks below mid-scale and benefits above mid-scale.

Given differences in risk/benefit perceptions between veterans and nonveterans, we examined the same set of ten policy and spending

issues to determine if military experience was also related to policy preferences. Table 5.12 summarizes findings.

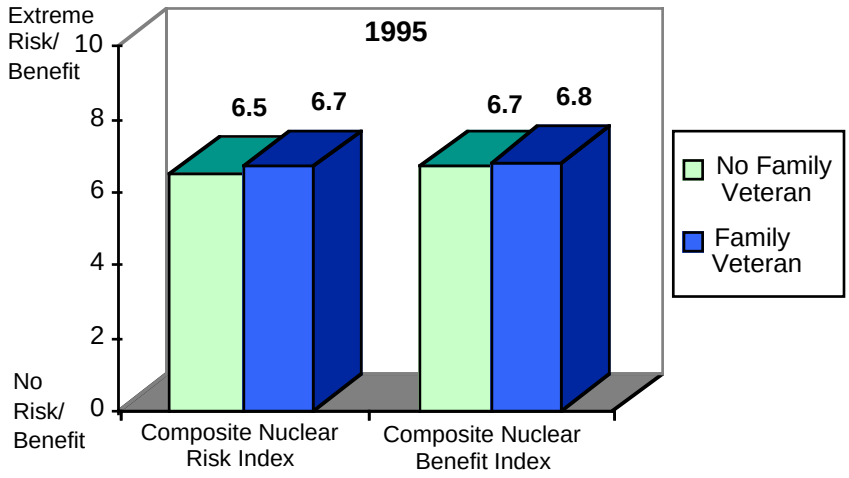
Table 5.12 Relating Millitary Experience to Policy and Spending Preferences

ISSUE (ALL ON SCALE FROM 1-7)	VETERANS (MEANS)	NONVETS. (MEANS)	P VALUE
1. Importance of retaining US nuclear weapons (B21).	5.5	5.0	<.0001
2. Reducing US nuclear weapons below 3,000 (B29).	4.2	4.5	.0356
3. Participating in a comprehensive test ban treaty (B37).	5.5	5.4	n. s.
4. Participating in a fissile material cutoff treaty (B38).	5.5	5.3	n. s.
5. Funding for developing and testing new nuclear weapons (B10).	2.7	2.6	n. s.
6. Funding for sustaining nuclear weapons research infrastructure (B14).	4.2	4.0	n. s.
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	4.7	4.3	<.0001
8. Funding to prevent nuclear terrorism (B16).	5.7	5.9	n. s.
9. Funding to prevent the spread of nuclear weapons (B15).	5.1	5.2	n. s.
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	5.1	4.9	n. s.

Military experience was statistically significant to policy and spending preferences for only three issues. Military veterans supported retaining nuclear weapons and increasing funding to maintain them in reliable condition significantly more than nonveterans, and veterans were significantly less supportive of reducing nuclear weapons than those respondents without military experience.

If having personal military experience is statistically related to perceptions of nuclear weapons risks and benefits and some policy and spending issues, does that relationship extend to other members of veterans' families? We found some evidence that those respondents without personal military experience that had a military veteran in their immediate family perceived overall nuclear weapons risks and benefits somewhat differently than did those respondents without members of their immediate family who had served in the military.[4] Figure 5.16 compares mean perceptions as measured by the composite nuclear weapons risk and benefit indices for those respondents without personal military experience that did and did not have military veterans in their immediate family.

Figure 5.16 **Mean Perceptions of Risks & Benefits: Family Veterans vs. No Veterans in Immediate Family**



Results indicate that respondents without personal military experience that had a least one member of their immediate family who was a military veteran perceived statistically significantly higher nuclear weapons risks ($p = .0182$) than those respondents that did not have veterans in their immediate family. Differences in perceptions of nuclear weapons benefits were not statistically significant.

Geographic Region

To determine if place of residence was related to risk and benefit perceptions, we identified respondents' primary residence by the four regions used by the US Census Bureau—West, Midwest, Northeast, and South.[5] Table 5.13 summarizes mean regional perceptions measured by the composite nuclear weapons risk and benefit indices.

Table 5.13 Nuclear Risk/Benefit Perceptions by Geographic Region

Geographic Region	Mean Composite Risk Index	Mean Composite Benefit Index
West	6.45	6.75
Midwest	6.38	6.73
Northeast	6.64	6.69
South	6.57	6.96

Respondents from the Northeast had the highest mean perceptions of nuclear weapons risks and the lowest mean perceptions of nuclear weapons benefits. Respondents from the South exhibited the highest mean perceptions of nuclear weapons benefits, and Midwesterners exhibited the lowest perceptions of nuclear weapons risks. Statistically significant differences in mean perceptions of risks existed between the Midwest and Northeast ($p = .0146$) and between the Midwest and the South ($p = .0415$). Significant differences in mean perceptions of benefits were found between the South and each of the other regions: West, $p = .0368$; Midwest, $p = .0142$; Northeast, $p = .0072$.

Section 5.3: Summarizing Demographic Factors

Our evidence indicates that moderate but statistically significant relationships existed between demographic characteristics and perceptions of nuclear weapons risks and benefits and preferences for policy and spending options related to nuclear security.

- **Age:** As age increased, perceptions of nuclear weapons risks decreased, and perceptions of nuclear weapons benefits increased. The importance of retaining US nuclear weapons increased with age, as did funding support for maintaining the nuclear stockpile and sustaining nuclear weapons research infrastructure. Support for reducing below START II levels, and funding support for preventing nuclear proliferation and nuclear terrorism also declined with age.

- **Gender:** Males and females viewed nuclear weapons benefits and external risks from others' nuclear weapons very similarly, but females perceived the risks from our own nuclear weapons to be much higher than did males. Men thought it was more important to retain US nuclear weapons than did women, and men were more willing to use force to prevent some countries from acquiring nuclear weapons. Men were also slightly more supportive of a comprehensive ban on nuclear weapons tests.

- **Education:** We found that as education increased, perceptions of nuclear weapons risks *and* benefits decreased. Respondents with higher levels of education were less supportive of the following policy options: (1) retaining US nuclear weapons; (2) funding for developing and testing new nuclear weapons; (3) sustaining the nuclear weapons research infrastructure; and (4) using force to prevent nuclear proliferation. Respondents with higher education levels were more supportive of arms control, funding to maintain existing nuclear weapons in reliable condition, and funding to prevent nuclear proliferation and nuclear terrorism. Field of professional study was significantly related to perceptions of

nuclear weapons risks and benefits, with the highest perceptions of nuclear risk found among medical personnel and the lowest among engineers. Highest perceptions of nuclear benefits were found among engineers, business persons, and a mix of other fields not listed in the survey. Lowest perceptions of nuclear benefits were registered among medical personnel and those in the physical sciences.

- **Income:** As income increased, perceptions of nuclear weapons risks decreased, but no statistically significant relationship was found between income and perceptions of benefits. As income increased, support strengthened for the following: (1) arms control; (2) funding for maintaining the reliability of existing nuclear weapons; (3) funding to prevent nuclear proliferation and nuclear terrorism; and (4) using force to prevent proliferation. Support for developing and testing new nuclear weapons decreased as income increased.

- **Military Experience:** On average, respondents with military experience perceived nuclear weapons risks to be lower and nuclear weapons benefits to be higher than did those without military experience. No significant differences were found between veterans and nonveterans in perceptions of risks from others' nuclear weapons, but very significant differences were found in their views about domestic risks from our own nuclear arsenal. Those without military experience perceived domestic risks to be much higher than did military veterans. Participants with military service were much more supportive of retaining US nuclear weapons capabilities and maintaining the existing nuclear stockpile in reliable condition. Veterans were less supportive of reducing the US nuclear arsenal below START II levels. Respondents without military experience that had one or more military veterans among their immediate family perceived slightly more risks than did those that did not have family members with military experience, but views about nuclear weapons benefits were not significantly different between the two groups.

- **Geographic Region:** Respondents from the Northeast perceived the lowest benefits and the highest risks to be associated with nuclear weapons. Participants from the Midwest

viewed nuclear weapons to pose the lowest risks, and those from the South considered nuclear weapons to provide the highest levels of benefits. Significant differences existed between regions in terms of both risk and benefit perceptions.

To investigate other factors operating at the individual level of analysis, we will examine the relationship of political ideology and culture to views of nuclear security in Chapter Six.

End Notes

[1] Daniel Yankelovich, 1991, *Coming to Public Judgment: Making Democracy Work in a Complex World,* Syracuse, NY: Syracuse University Press.

[2] Though there were no direct inquiries about the relative saliency of nuclear weapons issues to other public policy issues, respondents in quadrant four rated the overall risks and benefits of nuclear weapons lower on average than respondents in each of the other three quadrants. Because nuclear weapons were perceived by respondents in quadrant four to be less relevant in terms of risks and benefits, there is an implication that they probably placed relatively less importance on nuclear weapons in terms of policy and issue saliency as well.

[3] Persons with trade school or vocational certification were combined with high school graduates.

[4] Immediate family was defined as spouse, child, mother, father, brother, or sister.

[5] Alaska, Hawaii, Micronesia, Guam, Marshall Islands, Northern Mariana Islands, Palau, Puerto Rico, Midway Islands, and the Virgin Islands were not included in the sample frame from which respondents were randomly chosen. The four regions consisted of the following states:

West: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.

Chapter Six

Measuring Belief Systems

In Chapter Four we examined *what* perceptions and preferences about nuclear security we found in our survey, and in Chapter Five we looked at *who* held those views. In this chapter we shift our focus to understanding more about *why* respondents understood security issues in the various ways they reported. Determining causality would require identifying and ordering cause and effect actions and interactions. Our objectives are much more modest; we attempt only to identify and generally characterize two broad indications of belief systems and to investigate their relationship to risk/benefit perceptions and selected policy preferences.

Religious beliefs, ethical values, political ideology, political culture, perceptions of efficacy and other generalized belief systems interact to predispose individuals toward certain policies and preferences and away from others. These belief systems can act like filters through which only some information is allowed to pass, and they sometimes act as lenses through which we see issues in only a certain light or only within a restricted field of view.

In this chapter we report our findings about two of these underlying belief systems that may influence the way we think about security. First, we examine political orientation, which has to do with our preferences across a wide spectrum of relationships among and between individuals, the state, society, and government. We operationalize political orientation by characterizing respondents' political ideology. A second underlying belief system that we investigate is political culture, which has to do with an individual's world view: the degree to which individuals identify with social groups and how constrained they feel by objective conditions beyond their control.

Both political ideology and political culture reflect how people think society is organized and how it functions, and how they would *prefer* for it to be organized and to function. Our data indicate that these two underlying value systems are systematically related to the ways people perceive nuclear weapons risks and benefits and to the ways that they form certain policy and spending preferences.

Section 6.1: Political Orientation

We asked respondents three questions to identify their political orientation. First, we asked them to characterize their political ideology. Second, we asked them to name the political party with which they most identified; and third, we asked them to classify the degree to which they identified with that political party.

Political Ideology

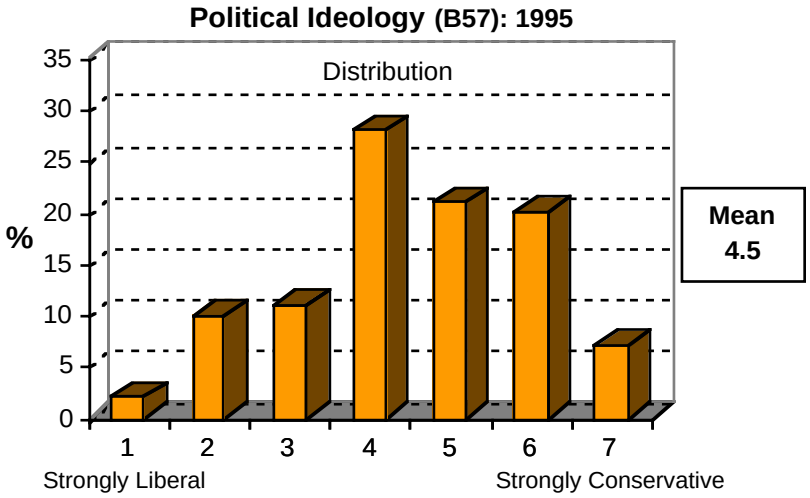
Measuring Ideology

We appreciate the complexity and difficulty of accurately characterizing individual political views. People are more conservative or more liberal on some issues, while on others those descriptions may be reversed. Nevertheless, when asked to characterize their overall ideology, individuals are routinely able to generalize about their political orientation. If we attempted to characterize ideology based on respondents' perceptions and preferences about certain issues, we would be presumptuous, since we cannot ask them about an exhaustive list of issues and preferences. Instead, we asked respondents to classify their own political ideology on a scale where one meant *strongly liberal,* and seven meant *strongly conservative.* But this technique also has its limitations, because labels such as "liberal" and "conservative" can be interpreted differently, and many people are hesitant to place themselves at either extreme of such a spectrum. However, its virtues are threefold. First, it is neither an assumed nor imposed judgment. In each case, placement on the scale is made by the person who is theoretically

most knowledgeable about the complex spectrum of views that go into such a characterization. Second, we can relate an individual's self-identified ideology to measures of perceptions and policy preferences that are collected from large numbers of other respondents to control for anomalies in definition and interpretation. And third, the continuous scale is sufficiently encompassing as to avoid requiring people to artificially pigeonhole themselves according to a limited number of descriptive characterizations.

Figure 6.1 shows the distribution and the mean value of responses to our request for participants to classify their personal political ideology.

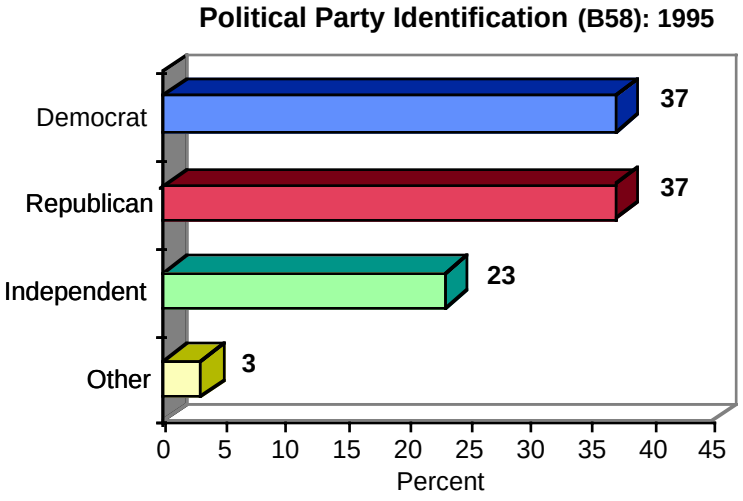
Figure 6.1



The modal response was at mid-scale, and the mean indicated that most respondents judged themselves to be slightly conservative.

Figure 6.2 summarizes responses to the question that asked participants to identify the political party with which they most identified.

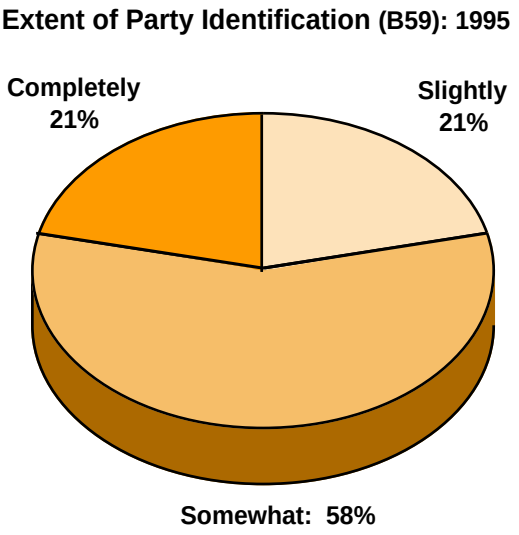
Figure 6.2



Preferences for the two major political parties were even, but over one-fourth of respondents did not identify strongly with either the Democrat or Republican party.

We then asked respondents to characterize their degree of identification with the party they named. Figure 6.3 summarizes strength of party identification.

Figure 6.3



Relating Ideology, Party, and Partisanship

We examined the measures of political ideology, party preference, and strength of party identity to determine if expected relationships existed. If respondents were relatively consistent in their interpretations and ratings of political ideology, we would expect to find higher mean ideology ratings (indicating greater relative political conservatism) among those respondents that identified with the Republican Party, lower mean ideology ratings among independents, and lowest mean ratings among those who identified with the Democrat Party. Furthermore, those participants who indicated that they identified with the Republican or Democrat parties most completely should register the overall highest scores (Republicans) and lowest scores (Democrats) respectively on the political ideology scale. Table 6.1 summarizes the relationships that were found.

Table 6.1 Political Ideology vs. Party Identification and Political Partisanship

Party Preference	Mean Ideology*	Mean Ideology of Those Who Identified Most Completely With Party
Republican	5.28	5.88
Independent	4.18	NA
Democrat	3.84	3.67

*1 = Extremely Liberal, 7 = Extremely Conservative

These results confirm expected relationships between political ideology, party affiliation, and political partisanship, and they suggest that most respondents were able to characterize and relate political ideology in comparable ways.

Relating Political Ideology to Perceptions of Risks and Benefits

To gauge the influence of political orientation on perceptions of nuclear weapons risks and benefits, we used political ideology as the independent variable to predict the composite nuclear weapons risk

and benefit indices. Table 6.2 relates political ideology to nuclear weapons risk perceptions, and Table 6.3 relates ideology to perceptions of nuclear weapons benefits.

Table 6.2 Effect of Political Ideology on Composite Nuclear Weapons Risk Index

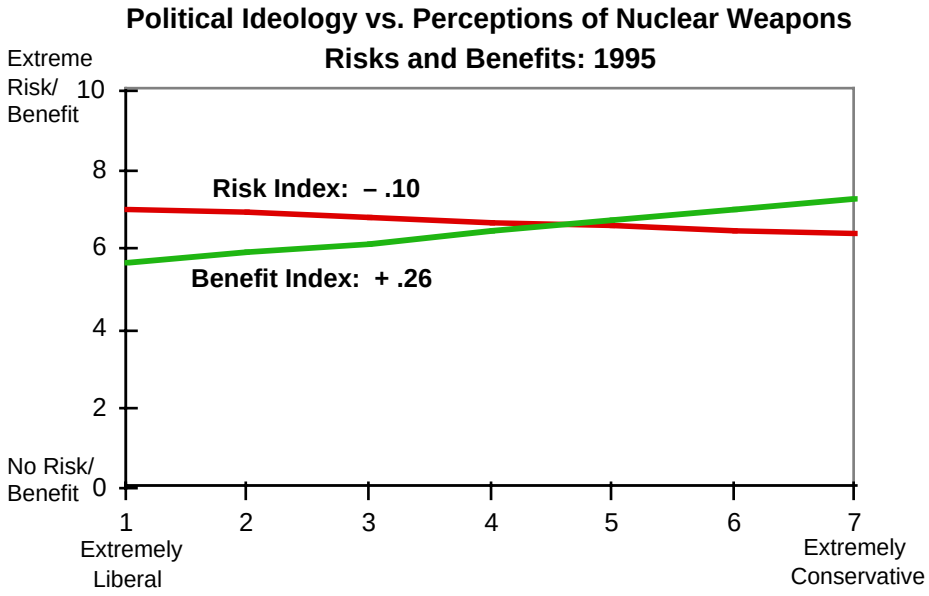
Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	6.97	.11	6.97	60.69	<.0001	.007
Ideology	–.10	.02	–.09	–4.20	<.0001	

Table 6.3 Effect of Political Ideology on Composite Nuclear Weapons Benefit Index

Independent Variable	Coefficient	Standard Error	Standard Coefficient	t Value	p Value	Adjusted R^2
Intercept	5.65	.11	5.65	49.73	<.0001	.045
Ideology	.26	.02	.21	10.73	<.0001	

We found political ideology to be statistically significantly related to perceptions of risks *and* benefits associated with nuclear weapons. As ideology increased one point (increasing conservatism), perceptions of risks, as measured by the composite nuclear weapons risk index, decreased by 0.10 points and perceptions of benefits, as measured by the composite nuclear weapons benefit index, increased by 0.26 points. Both bivariate relationships are graphed in Figure 6.4.

Figure 6.4



Relating Political Ideology to Policy and Spending Preferences

To determine if political ideology was systematically related to policy preferences, we used ideology as the independent variable to predict preferences for the ten policy and spending issues previously used in Chapters Four and Five. Table 6.4 summarizes regression results.

Table 6.4 Relating Political Ideology to Policy and Spending Preferences

Issue (Dependent Variable; all on Scale from 1-7)	Ideology Coeff.	p Value	Adj. R^2
1. Importance of retaining US nuclear weapons (B21).	+.31	<.0001	.058
2. Reducing US nuclear weapons below 3,000 (B29).	–.30	<.0001	.038
3. Participating in a comprehensive test ban treaty (B37).	–.16	<.0001	.016
4. Participating in a fissile material cutoff treaty (B38).	–.18	<.0001	.020
5. Funding for developing and testing new nuclear weapons (B10).	+.19	<.0001	.021
6. Funding for sustaining nuclear weapons research infrastructure (B14).	+.22	<.0001	.020
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	+.17	<.0001	.014
8. Funding to prevent nuclear terrorism (B16).	n. s.	n. s.	n. s.
9. Funding to prevent the spread of nuclear weapons (B15).	n. s.	n. s.	n. s.
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	n. s.	n. s.	n. s.

Ideology Related to Policy Preferences

These findings indicate that political ideology was highly statistically significantly related to the first seven policy and spending issues (less than one chance in 10,000 that the relationship would exist by chance). As conservatism increased, support increased for the following issues: (1) retaining US nuclear weapons; (2) funding to develop and test new nuclear weapons; (3) funding to sustain nuclear weapons research infrastructure; and (4) funding to maintain existing nuclear weapons in reliable condition. Conversely, as conservatism decreased, support increased for reducing the nuclear arsenal and participating in comprehensive test ban and fissile material cutoff treaties.

Proliferation & Terrorism Cross Ideological Lines

Ideology was not significantly related to support for funding to prevent nuclear proliferation or nuclear terrorism. This is explained by the overwhelmingly strong support for both measures reported in Chapter Four (Figures 4.19 and 4.23). Support for increasing funding to prevent nuclear proliferation and terrorism was so strong that it crossed ideological lines. Political ideology also was not significantly related to preferences about using force to prevent some countries from acquiring nuclear weapons, and this too is explained by the strong support for this issue shown in Figure 4.17.

Our findings show that individual political orientation was related in highly statistically significant ways to perceptions of nuclear weapons risks and benefits and to a spectrum of nuclear security policy and spending issues. Ideology dropped out as a significant variable only where public judgment approached political consensus.

Section 6.2: Political Culture

POLITICAL CULTURE IS LESS INTUITIVE THAN POLITICAL ORIENTATION, but as we will show, it can be powerful in understanding and predicting views at the individual level of analysis. The term does not refer to culture in the sense that most of us have come to understand it. *Political* culture is not defined by nationality, ethnicity, tradition, language, history, political system, or any of the other attributes we commonly relate to culture in its broadest sense. The theory of political culture was developed by anthropologists, sociologists, and political scientists in part because of the need to find comparative variables among very different peoples living in very different circumstances.[1] They sought to identify elemental characteristics that are shared by virtually all adults, regardless of where they live or what customs and traditions they follow.

The central thesis in cultural theory is that all adults (regardless of ethnicity, nationality, demographics, etc.) can be classified according

to two variables. One, named "group" by Mary Douglas, is the degree to which an individual is incorporated into bounded units or social groups. Douglas named the other dimension "grid." It refers to the degree to which an individual's life is circumscribed by externally imposed prescriptions, such as rules, laws, and traditions.[2] Douglas explained that the group dimension taps the extent to which "the individual's life is absorbed in and sustained by group membership."[3] She defined grid as "an explicit set of institutionalized classifications [that] keeps [individuals] apart and regulates their interactions."[4] If the two continuums of group and grid are overlaid, they produce a matrix of four primary cultural types.

Grid//Group Theory

Hiearchists are persons with high group identity and binding prescriptions (high group, high grid). They tend to place the welfare of the group before their own, and they are usually very aware of whether other individuals are members of the group or outsiders. They prefer organizations to be stratified, and for individuals to have unequal roles. In hierarchies, rank or pecking order is usually well defined and closely followed. Hierarchists place great value on procedures, lines of authority, social stability, and order. They are predisposed to trust experts and those in authority and to have faith in technologies that are sanctioned by experts.[5] Hierarchical environments are organized more vertically than horizontally, and they usually have clearly defined measures of success and paths for advancement. Government bureaucracies, the Catholic Church, and militaries are hierarchical organizations. Some individuals are attracted to such environments because their clear structure and high degree of order offers a more secure and predictable future.

Hierarchy

Individualists are persons who have little if any group identity, and they feel bounded by few structural prescriptions (low group, low grid). They prefer a libertarian society without many rules and regulations, and they feel little obligation to define themselves in terms of group memberships. They perceive themselves to be involved in bidding and bargaining with others to transact their own terms for social relations. Intrusions on or restrictions to the bargaining process are

seen as threats to individuals' abilities to chart their own courses in life.[6] Examples include the largely mythological cowboy of the old West, entrepreneurs, independent researchers, and explorers. Individualists may be quite comfortable commanding or leading others, as long as they set the standards and guidelines with which others must comply. In Western societies, business environments and market economies typify individualist settings (even though such contexts can be quite structured).

Individalism

Egalitarians are individuals that seek strong group identities and prefer minimal external prescriptions (high group, low grid). One of the most important values of egalitarianism is equality of outcome. Egalitarian groups are usually organized more horizontally than vertically, and consensus is usually the preferred decision making model. Rules are to be avoided where possible, however egalitarians are perfectly capable of rationalizing high levels of social constraints if such prescriptions are part of group identity and if they serve the interests of social equity. Egalitarians distrust experts and those in positions of authority, and they fear concentration of power. Potentially hazardous technologies controlled by organizations that are not open to public scrutiny pose particularly high risks. The "establishment" is not trusted by most egalitarians. Today, groups such as the Green Party and the Clamshell Alliance are organized in accordance with egalitarian principles.[7]

Egalitarianism

Fatalists are persons who consider themselves subject to binding external constraints, yet they feel excluded from membership in important social groups (low group, high grid). They believe they have little control over their lives. Equity is an unreachable goal; one's fate in life is much more a matter of chance than choice. The fatalist suffers the social isolation of individualism without the freedom of autonomy; the constraint of hierarchy without the benefits of group belonging.[8] Thus they seem to inhabit the worst of all worlds. Few organizations provide fatalist environments, because the act of organizing means that participants are also group members. Subjects of despots and dictators may think of their lives as being largely a product of fate (in the form of the dictator's whim). Of the four principal cultural types, fatalists are the fewest in number and the least likely to be active in policy processes.

Fatalism

The theoretical framework provided by grid-group analysis and its resulting cultural types provides a cosmology of world views that can be used to anticipate individual perceptions and preferences.

Measuring Cultural Types

We measured the four cultural types among our respondents by employing a series of thirteen questions that were modifications of similar inquiries originated by Aaron Wildavsky and Karl Dake.[9] Their original formulations have been iteratively revised based on opinion survey research conducted during the 1990s by Hank Jenkins-Smith and others at the University of New Mexico's Institute for Public Policy.[10] The instruments used to measure political culture in this survey are shown below. Each is in the form of a statement to which the participant was asked to respond on a scale from one to seven, where one meant *strongly disagree,* and seven meant *strongly agree.*[11]

- **Measures of Hierarchy**

  B40: "The best way to get ahead in life is to work hard and do what you are told to do."

  B44: "Our society is in trouble, because we don't obey those in authority."

  B48: "Society would be much better off if we imposed strict and swift punishment on those who break the rules."

- **Measures of Individualism**

  B41: "Even if some people are at a disadvantage, it is best for society to let people succeed or fail on their own."

  B45: "Even the disadvantaged should have to make their own way in the world."

  B49: "People who get rich in business have a right to keep and enjoy their wealth."

B52: “We are all better off when we compete as individuals.”

- **Measures of Egalitarianism**

  B42: “What our society needs is a fairness revolution to make the distribution of goods more equal.”

  B46: “Society works best if power is shared equally.”

  B50: “It is our responsibility to reduce the differences in income between the rich and the poor.”

- **Measures of Fatalism**

  B43: “Most of the important things that take place in life happen by random chance.”

  B47: “No matter how hard we try, the course of our lives is largely determined by forces beyond our control.”

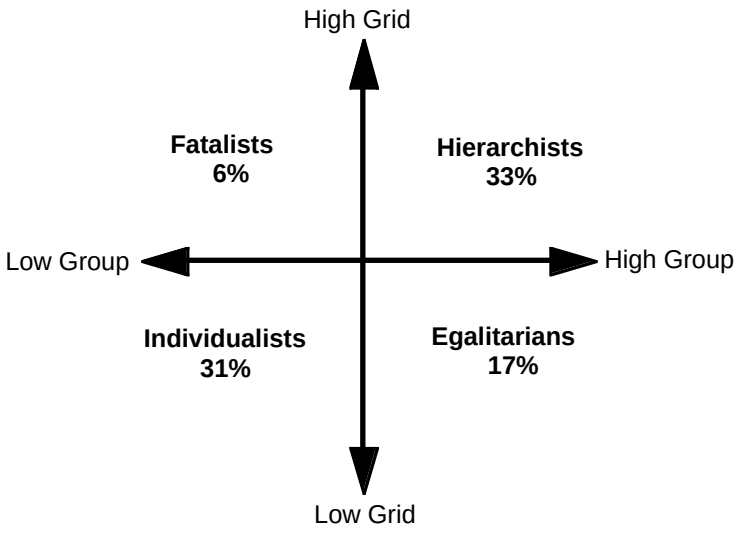
  B51: “For the most part, succeeding in life is a matter of chance.”

Determining Cultural Types

Responses to each set of statements were combined, and a mean score was calculated for each respondent and for each cultural category. Those individuals whose average scores were higher in one of the categories than in each of the other three categories were classified in accordance with their highest score. Individuals who did not clearly score higher in one category than in the other three were not culturally typed. This means that we identified and separated those with the strongest affinity to each cultural category and used only the most clearly typed individuals for further analysis regarding the relationship of political culture to perceptions of nuclear weapons risks and benefits and nuclear security policies.

Figure 6.5 summarizes the distribution of respondents according to their identification with individual cultural types.

Figure 6.5 **Distribution by Cultural Types**



About one-third of respondents exhibited hierarchical views, and about one-third evidenced individualist outlooks. Only about 17 percent of respondents exhibited strong egalitarian views, and only about six percent were fatalists. The remaining 13 percent (not represented above) did not exhibit a dominate world view according to the established criteria, or did not respond to all the culture questions.

Relating World View to Perceptions of Risks and Benefits

Previous research indicates linkage between cultural bias and perceptions of risks, but little research has been done to examine the relationship between cultural bias and perceptions of benefits.[12] Our data indicate that cultural type is related both to risk and benefit perceptions. Table 6.5 compares mean perceptions of risks and benefits among cultural types as measured by our composite nuclear weapons risk and benefit indices.

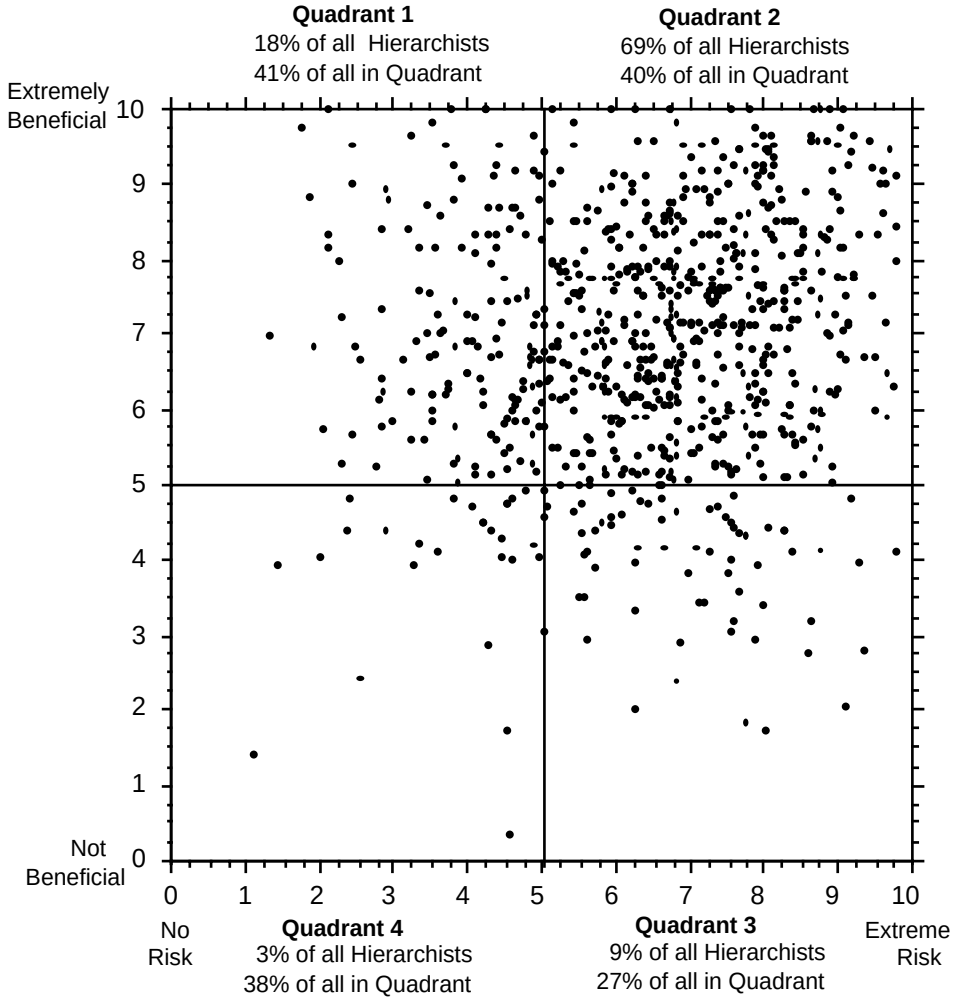
Table 6.5 Mean Perceptions of Nuclear Weapons Risks and Benefits by Cultural Type

Cultural Type	Mean Risk Perceptions	Mean Benefit Perceptions
Hiearachists	6.46	6.90
Individualists	6.18	6.96
Egalitarians	6.95	6.28
Fatalists	6.70	6.41

Analysis of variance shows that statistically significant differences in mean risk perceptions existed between hierarchists and individualists ($p = .0012$), between hierarchists and egalitarians ($p < .0001$), between individualists and egalitarians ($p < .0001$), and between individualists and fatalists ($p = .0009$). We also found statistically significant differences in mean benefit perceptions between hierarchists and egalitarians ($p < .0001$), between hierarchists and fatalists ($p = .0022$), between individualists and egalitarians ($p < .0001$), and between individualists and fatalists ($p = .0006$).

Figures 6.6–6.9 spatially relate each of the four cultural types to perceptions of risks and benefits as plotted on the nuclear weapons risk/benefit perceptions matrix introduced in Chapter Five.

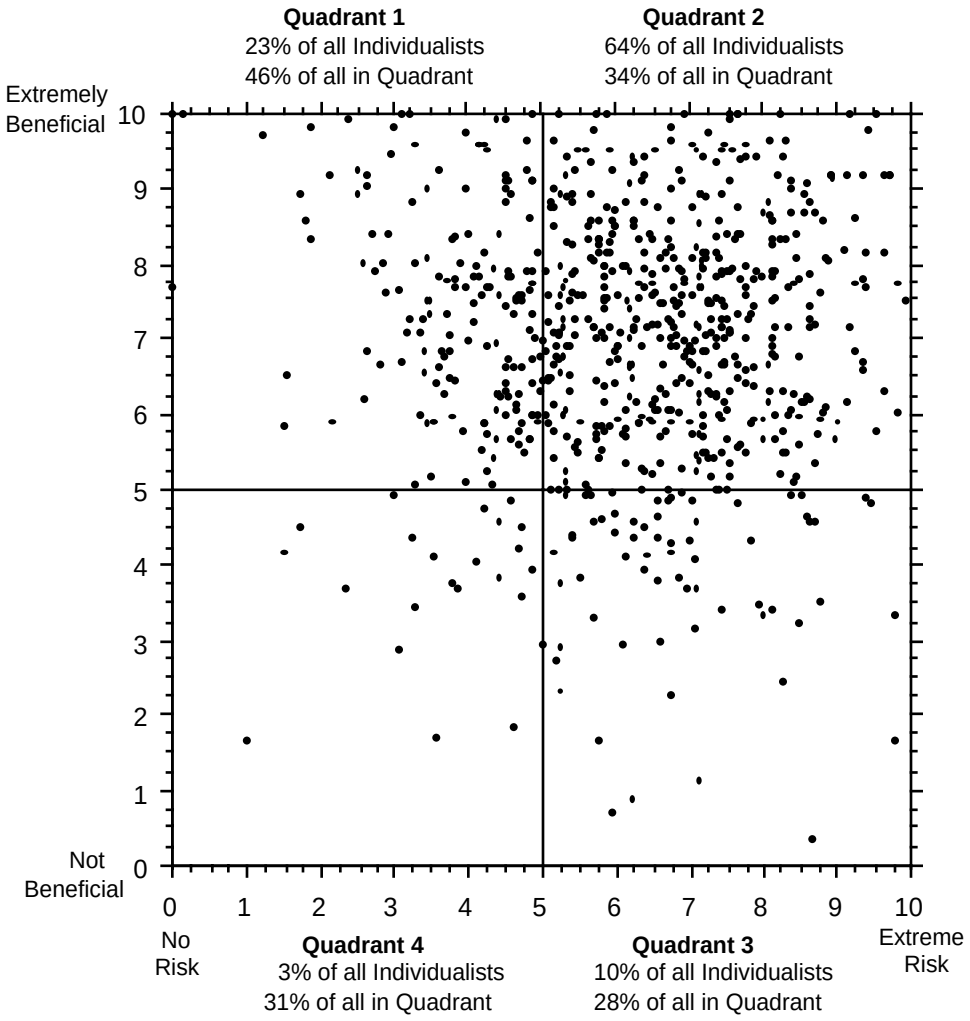
Figure 6.6 **Nuclear Weapons Risk/Benefit Matrix: Distribution of Hierarchists**



Notice that 41 percent of all in Quadrant 1 (low risk, high benefit), where we would expect support for nuclear weapons policies to be highest, were hierarchists. Similarly, 40 percent of respondents in Quadrant 2 (high risk, high benefit), where we would expect policy positions to be less firmly held and more context driven, were also hierarchists. Only nine percent of all hierarchists were found in Quadrant 3 (high risk, low benefit), where we would expect support for nuclear weapons policies to be weak, and only three percent were in Quadrant 4 (low risk, low benefit), where we would expect nuclear weapons issues to be least salient.

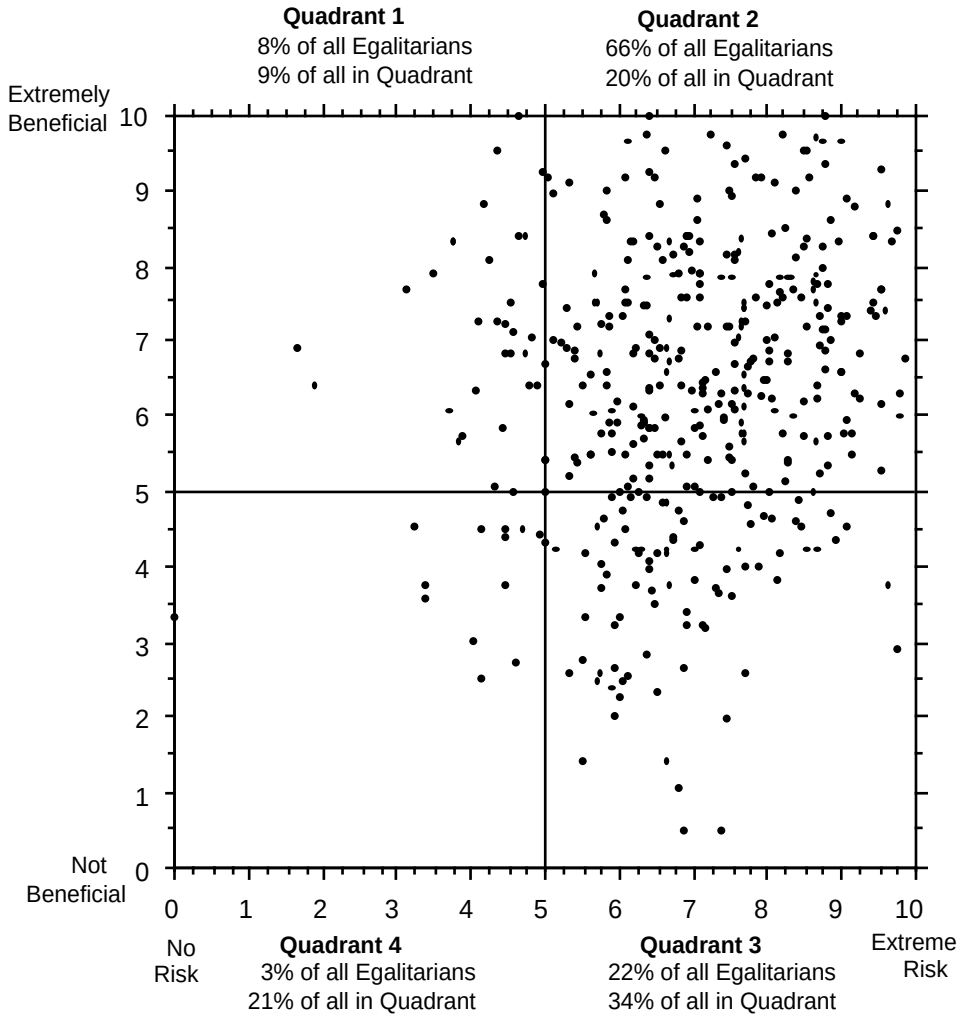
Figure 6.7 shows the distribution pattern for individualists.

Figure 6.7 **Nuclear Weapons Risk/Benefit Matrix: Distribution of Individualists**



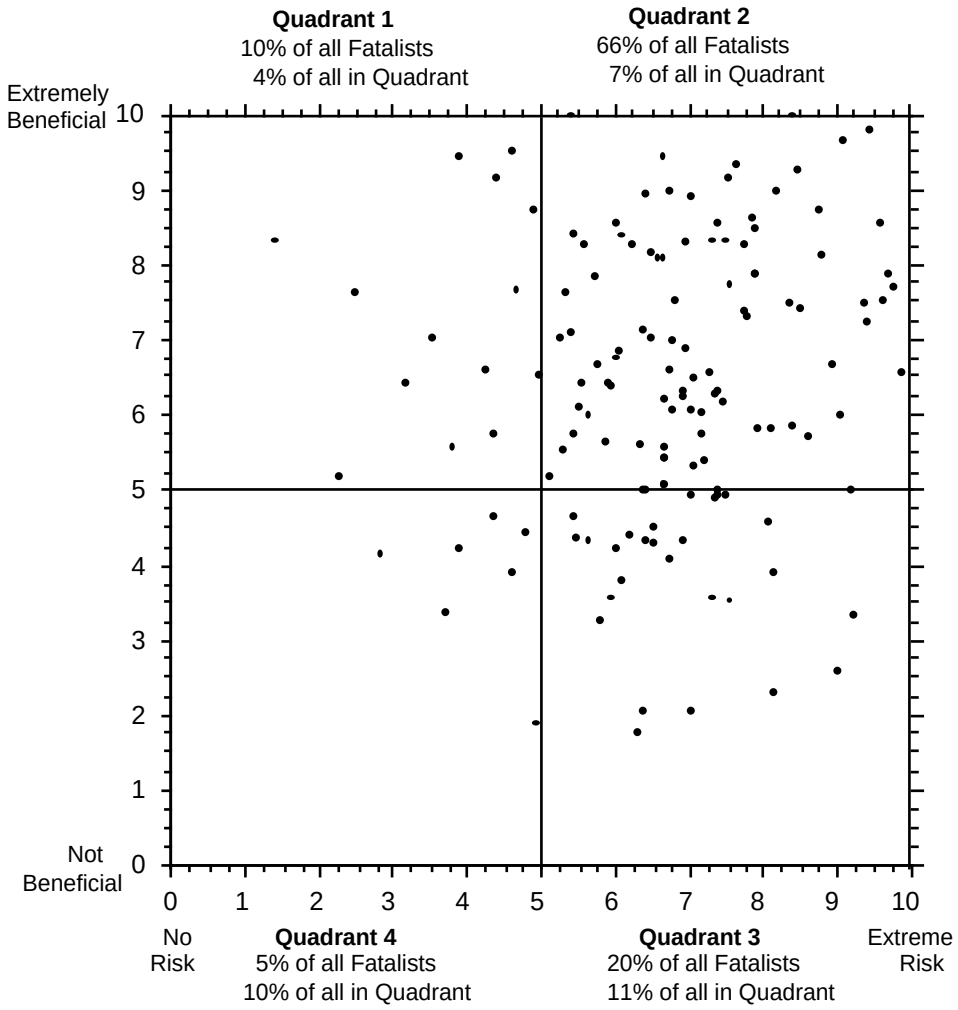
The proportion of respondents who were individualists and their distribution pattern on the risk/benefit matrix were similar to that for hierarchists, except that more individualists were in Quadrant 1, and fewer individualists were in Quadrant 2. As was the case with hierarchists, relatively few individualists were found in Quadrants 3 and 4.

Figure 6.8 **Nuclear Weapons Risk/Benefit Matrix: Distribution of Egalitarians**



Notice the very different distribution pattern and proportions for egalitarians in Figure 6.8. Only nine percent of respondents in Quadrant 1 (most supportive) were egalitarians, while 34 percent of all respondents in Quadrant 3 (most opposed) were egalitarians. The largest portion of all egalitarians was found in Quadrant 2, indicating that most perceived both high risks and high benefits to derive from nuclear weapons. Only three percent of egalitarians were in Quadrant 4, indicating that few egalitarians were unconcerned about nuclear security issues.

Figure 6.9 **Nuclear Weapons Risk/Benefit Matrix: Distribution of Fatalists**



As Figure 6.9 shows, most respondents with fatalist views were found in Quadrants 2 and 3. The lowest percentage of fatalists was in Quadrant 1. Regardless of their perceptions about nuclear weapons risks and benefits, fatalists are least likely to be activists, since they generally have little expectation of influencing policy outcomes. Their small numbers also mitigate against policy relevance.

With these pictures of the statistical and spatial relationships of political culture types to perceptions of nuclear weapons risks and benefits, we now turn to relationships of cultural bias to specific policy and spending issues.

Relating World View to Policy and Spending Preferences

Using our familiar set of ten policy and spending measures, Table 6.6 compares mean policy preferences by cultural type.

Table 6.6 Relating Cultural Type to Policy and Spending Preferences

ISSUE (ALL ON SCALE FROM 1-7)	HIERARHIST (MEANS)	INDIVIDULIST (MEANS)	EGALITARIAN (MEANS)	FATALIST (MEANS)
1. Importance of retaining US nuclear weapons (B21).	5.1	5.2	4.7	5.0
2. Reducing US nuclear weapons below 3,000 (B29).	4.3	4.3	4.8	4.9
3. Participating in a comprehensive test ban treaty (B37).	5.3	5.5	5.8	5.2
4. Participating in a fissile material cutoff treaty (B38).	5.2	5.3	5.6	4.9
5. Funding for developing and testing new nuclear weapons (B10).	2.7	2.5	2.3	2.6
6. Funding for sustaining nuclear weapons research infrastructure (B14).	4.2	4.0	3.8	3.9
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	4.4	4.5	4.2	3.9
8. Funding to prevent nuclear terrorism (B16).	5.8	6.1	6.0	5.2
9. Funding to prevent the spread of nuclear weapons (B15).	5.2	5.4	5.4	4.9
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	5.0	5.0	4.7	4.9

Note the similarities in policy preferences between hierarchists and individualists and the contrast between those two groups and egalitarians and fatalists.

The combined influence of cultural bias can be illustrated using all four cultural types to predict policy preferences. Table 6.7 summarizes the results of multiple regressions in which average scores for each of the four cultural types were used as independent variables, and each of the ten policy and spending issues was in turn used as the dependent variable. Results can be visualized as regression lines having the direction and slope of the coefficients shown. The statistical significance of each relationship is coded as follows: one asterisk indicates a p-value of .05 or less; two asterisks represent a p-value of .01 or less; and three asterisks mean a p-value of .001 or less. Relationships that are not statistically significant at the .05 level or below are indicated by the letters “n. s.”

Table 6.7 Influence of Cultural Bias on Policy and Spending Preferences (Multiple Regressions)

ISSUE	HIER-ARCHIST	INDIVID-UALIST	EGALI.-TARIAN	FATAL-IST	ADJ. R^2
1. Importance of retaining US nuclear weapons (B21).	+.21***	+.18***	–.12***	n. s.	.059
2. Reducing US nuclear weapons below 3,000 (B29).	–.13***	–.08*	+.20***	+.06*	.036
3. Participating in a comprehensive test ban treaty (B37).	–.13***	n. s.	+.14***	–.09***	.019
4. Participating in a fissile material cutoff treaty (B38).	–.10***	n. s.	+.13***	–.09***	.017
5. Funding for developing and testing new nuclear weapons (B10).	+.14***	+.11***	–.07**	+.08***	.029
6. Funding for sustaining nuclear weapons research infrastructure (B14).	+.20***	+.08*	–.09**	n. s.	.027
7. Funding for maintaining existing nuclear weapons in reliable condition (B11).	+.08*	+.13***	–.08**	–.08**	.019
8. Funding to prevent nuclear terrorism (B16).	n. s.	n. s.	n. s.	–.22***	.033
9. Funding to prevent the spread of nuclear weapons (B15).	–.08*	n. s.	n. s.	–.20***	.027
10. Using force to prevent some countries from acquiring nuclear weapons (C2).	+.17***	+.14**	n. s.	n. s.	.036

To illustrate interpretation, look at issues 5, 6, and 7 which address funding for developing and testing new nuclear weapons (B10), sustaining the nuclear weapons research infrastructure (B14), and maintaining existing nuclear weapons in reliable condition (B11). First note that the relationship of each of the four cultural types and each of the

three issues was statistically significant, except in the single case of fatalists and B14. Second, note that a hierarchist or individualist outlook was related positively to all three issues, and that an egalitarian perspective was related negatively in each case. The stronger the hierarchical or individualistic outlook, the stronger the support for all three nuclear weapons policies, and the stronger the egalitarian orientation, the less support for the three issues. The fatalist perspective was mixed, with a positive relationship in B10, a negative relationship in B11, and an influence in B14 that was not statistically significant. This appears to reflect the ambivalence of fatalists who may feel that they cannot influence policy.

The relationships shown in Tables 6.6 and 6.7 are mutually consistent, and both support the hypothesis that political culture is systematically related to nuclear weapons policy and spending preferences.

Section 6.3: Summarizing Political Orientation and Culture

OUR EVIDENCE INDICATES THAT POLITICAL ORIENTATION AND political culture were both statistically significantly related to perceptions of nuclear weapons risks and benefits and to nuclear security policy and spending choices.

Political Orientation

As political conservatism increased, perceptions of nuclear weapons risks decreased, and perceptions of nuclear weapons benefits increased. Support for retaining US nuclear weapons, developing and testing new nuclear weapons, sustaining nuclear weapons research infrastructure, and nuclear stockpile maintenance increased with degree of political conservatism. Support for reducing the US stockpile below START II limits, participating in a comprehensive test ban treaty, and participating in a fissile material cutoff treaty all decreased as conservatism increased. Political ideology was not significantly related to funding to

prevent nuclear proliferation or nuclear terrorism, or to using force to prevent nuclear proliferation. Support for these three issues was strong enough to cross ideological lines.

Political Culture

Respondents' world views as captured by the four cultural types were systematically related to perceptions of nuclear weapons risks and benefits. Hierarchists and individualists perceived the lowest nuclear weapons risks and highest benefits, and egalitarians and fatalists perceived the highest risks and lowest benefits. Spatial analysis of respondents' positions on a nuclear weapons risk/benefit perception matrix found individualists and hierarchists to predominate in Quadrant 1 (low risk, high benefit), and egalitarians represented the largest proportion of respondents in Quadrant 3 (high risk, low benefit).

Analysis of variance in mean preferences for ten policy and spending issues revealed substantial differences between cultural types, with strongest support among hierarchists and individualists for retaining US nuclear weapons and for most funding issues supportive of the nuclear weapons infrastructure. Egalitarians were more supportive of reducing the nuclear arsenal below START II limits and participating in a comprehensive test ban treaty and a fissile material cutoff treaty. Fatalists' preferences were less predictable, but tended in the same direction as egalitarian preferences. All four cultural types were supportive of increasing funding to prevent nuclear proliferation and nuclear terrorism and using force to prevent some countries from acquiring nuclear weapons.

Multiple regressions using the four culture types as independent variables to predict policy preferences found statistically significant relationships to most issues examined, with the direction and slope of the regression lines consistent with the above characterizations.

End Notes

[1] The origin of cultural theory can be found in the work of Mary Douglas. In 1970 she introduced the grid/group typology that is the basis of cultural theory in *Natural Symbols,* London: Barrie and Rockliff. The typology was applied to risk analysis by Mary Douglas and Aaron Wildavsky in 1982 in *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers,* Berkeley, CA: University of California Press. Among other important contributions to the study of culture and risk are the following: (1) Michael Thompson and Aaron Wildavsky, 1982, "A Proposal to Create a Cultural Theory of Risk," in H.C. Kunreuther and E. V. Ley, eds., *The Risk Analysis Controversy: An Institutional Perspective,* New York: Springer-Verlag; (2) Michael Schwartz and Michael Thompson, 1990, *Divided We Stand: Redefining Politics, Technology and Social Choice,* Philadelphia: University of Pennsylvania; (3) Michael Thompson, Richard Ellis, and Aaron Wildavsky, 1990, *Cultural Theory,* Boulder, CO: Westview Press; (4) Aaron Wildavsky and Karl Dake, 1990, "Theories of Risk Perception: Who Fears What and Why?," *Daedalus,* 119:41-60. For a quantitative test of cultural theory hypotheses see Hank Jenkins-Smith and Walter Smith, 1994, "Ideology, Culture, and Risk Perception," in Dennis J. Coyle and Richard J. Ellis, eds., *Politics, Policy and Culture,* Boulder, CO: Westview Press. For the evolution of cultural theory as it is applied to risk analysis, see Steve Rayner, "Cultural Theory and Risk Analysis," in Sheldon Krimsky and Dominic Golding, eds., *Social Theories of Risk,* Westport, CT: Praeger Publishers.

[2] Thompson, Ellis, and Wildavsky, 1990.

[3] Mary Douglas, 1982, "Cultural Bias," in *In the Active Voice,* London: Routledge and Kegan Paul, p.206.

[4] Ibid., p.192.

[5] Jenkins-Smith and Smith, 1994.

[6] Ibid.

[7] Richard J. Ellis and Dennis J. Coyle, 1994, "Introduction," in Ellis and Coyle, eds, *Politics, Policy and Culture,* Boulder, CO: Westview Press.

[8] Ibid.

[9] Wildavsky and Dake, 1990.

[10] For example, see Jenkins-Smith and Smith, 1994, and Hank Jenkins-Smith, John Gastil, Judith Palier, Carol Silva, and Laura Stevens, 1994, "A Cognitive Filtering Model of the Perceived Risk of Environmental Hazards," in Rohinton K. Bhada, Abbas Ghassemi, Timothy J. Ward, M. Jamshidi, and M. Shahinpoor, eds., *Waste Management: From Risk to Remediation, Volume 1,* Albuquerque, NM: ECM Press.

[11] One question was asked from each set and then the order was repeated to provide the question sequence as numbered.

[12] For research on relationships between cultral bias and perceptions of risk, see Douglas and Wildavsky, 1982, and Mary Douglas, 1985, *Risk Acceptability According to the Social Sciences,* New York: Russell Sage Foundation; Jenkins-Smith and Smith, 1994.

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Chapter Seven

Personal Security and Technology

Previous chapters focused primarily on physical security at the systemic and national levels of analysis. We conclude by shifting to perceptions of physical security at the *individual* level of analysis. We focus specifically on Americans' perceptions of crime and the potential for national laboratory research and technology to ameliorate crime. Using a selected subset of 812 respondents surveyed in 1995, we document the extent that respondents and their families had experienced crime, and we analyze perceptions about trends in the overall levels of crime. We differentiate among perceived risks of various types of crimes as well as respondents' exposure sensitivities to crime in different settings. We also examine demographic influences on perceptions of personal security.

After analyzing participants' experiences with crime and their perceptions of its risks, we report what they think the role of technology should be in crime prevention and their preferences for whether anti-crime technologies should be developed by government laboratories or private industry. We examine the consequences of potential technology failures through the use of scenarios requiring respondents to apportion responsibility for risk reduction technologies that fail to perform as intended. We also make an initial inquiry into public consciousness about the reliability and surety of technologies and processes whose failures would pose extreme risks to public health and safety.

Section 7.1: Focus Group Indications

NO ISSUE DISCUSSED AMONG OUR FOCUS GROUPS HAD HIGHER saliency than personal security. With few exceptions, participants considered their personal security today to be seriously threatened by violence and crime at home, in the work place, and in their children's schools. Most acknowledged using personal security preventive measures such as home, car, and office security systems, owning personal firearms, and modifying their patterns of behavior to reduce exposure to potential crime and violence. Most participants described patterns of business and leisure behavior that had been limited or otherwise modified to reduce risks to personal security. It was apparent that the threat of crime and the many social disorders that are perceived to result from crime were paramount to the security concerns of many of our group participants. For some, this perceived deterioration in personal security signalled a broad erosion of the stable societal bases that Americans identify with a secure life.

When asked whether US national laboratories should direct part of their scientific expertise and technical capabilities to research and development of technologies for enhancing personal security, focus group members indicated that they would welcome such investments. A few participants had reservations about government intrusions, but most were very supportive of a wide range of potential technologies from nonlethal immobilizing foams, to smart weapons, to reducing credit card and check fraud. Strong interest was expressed in electronic devices for locating stolen cars.

Issues of Liability

The issue of responsibility and potential legal liability for how technologies developed by national laboratories might be marketed by commercial interests and ultimately used by consumers was difficult to assess. Some discussants distinguished between technologies whose failures posed little risk of personal injury and those whose failures have more serious implications for personal safety. For example, a device intended to prevent credit card fraud was perceived to be very different in terms of responsibility and potential liability from a handgun

designed not to discharge unless fired by the authorized user. Some felt that a laboratory might be held more accountable for failures of technologies that have large consequences for public safety. They also advised against overpromising the benefits of security technologies.

Several participants differentiated between the implications of mishaps related to security technologies that were being used for criminal behavior and those being used for legitimate purposes. They were more reluctant to attribute responsibility and liability for technology failures to the developers if those technologies were being used to commit a crime. They were less reluctant to hold developers of technologies partially responsible for systems whose failures led to the death or injury of law-abiding consumers.

There was also a general feeling by some participants that technologies designed to enhance security will eventually be countered by other technologies. They noted how easily automobile alarms and even simple devices like the "club" used to immobilize a steering wheel can be defeated. Automobile alarms were cited in particular as examples of ineffective technologies that have become nuisances rather than reliable security devices.

Two issues of trust emerged. First, some participants were hesitant to trust government agencies to develop certain security technologies such as positive identification systems, because they considered them to have potential for being used by the government to intrude on personal privacy. The author George Orwell and terms like "Big Brother" were mentioned by a few participants to characterize their concerns about technologies that might threaten their sense of privacy. Though most focus group members did not express reservations in those particular terms, many evidenced sensitivity to issues of privacy.

Government's Role

Second, some participants voiced their lack of confidence in government agencies to evolve affordable security technologies, and indicated that they trusted private industry to lead the way. Others thought the government could play a useful role if it acted in partnership with

industry. Several noted the importance of developing security technologies and systems that would be affordable to most people. They indicated that expensive systems that could only be afforded by wealthier citizens would do little to help citizens with lower incomes whose needs for protection from crime may be among the highest.

Security Continuum

Finally, some discussants seemed to conceive of security as a continuum extending across all levels of analysis from concerns about personal security to issues of national and international security. Some discussions would begin at one level of analysis and lead spontaneously to other levels. From this tendency, it seemed that some discussants did not compartmentalize security concerns. They were worried about a continuum of risks to their personal security and that of their families regardless of whether those issues derived from systemic threats such as nuclear proliferation and terrorism, or the challenges of restructuring US national defense capabilities in a radically altered international environment, or the problems of societal crime. We are not suggesting that individuals did not differentiate between various levels of risk to security and the differing requirements of security at each level, but rather that some focus group participants thought about physical security in complex and sophisticated ways that integrated multilevel concerns and demanded coordinated policy solutions.

Section 7.2: Perceptions of Crime

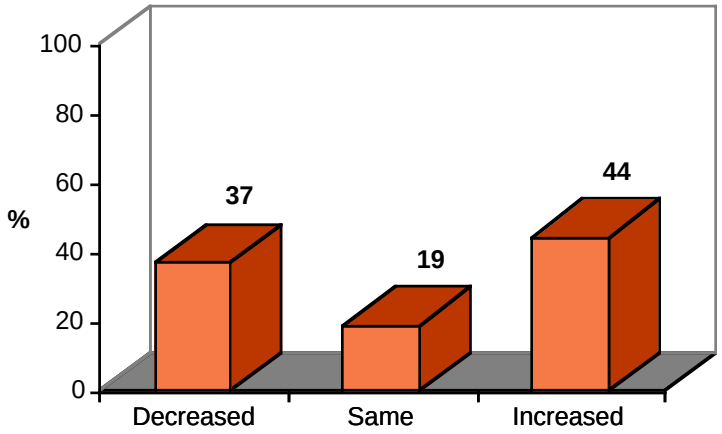
THE FOCUS GROUP IMPRESSIONS REPORTED ABOVE ARE CONSISTENT with empirical research findings that directly evaluate public perceptions of the relative importance of crime as a domestic problem. In a study conducted in November 1995, a random sample of New Mexico citizens was asked to identify the "most important problem" affecting citizens of that state. A near majority—48 percent—picked crime (including drug abuse) as the most important problem.[1] Crime statistics based on formal police records are widely used and cited in the US, and they provide the basis for official assessments

of changes in the frequency and distribution of crime across the country.[2] But in shaping government policies, public *perceptions* can be more relevant than empirical evidence, and to assess the perceptions of our respondents about trends in crime we asked the following question:

> "Using a scale where one means *greatly decreased,* and seven means *greatly increased,* how would you rate crime in your neighborhood today compared to five years ago?" (E28)

Figure 7.1 summarizes responses.

Figure 7.1 **Neighborhood Crime Today vs. Five Years Ago (E28)**



While 44 percent of respondents thought crime had increased in their neighborhood during the past five years, opinion was divided, with 37 percent of participants judging crime to have decreased, and the mean of 4.1 was at mid-scale.

Incidence and Nature of Crimes Against Respondents

To measure the degree to which respondents had been directly affected by crime, we asked them to report the incidence and nature of crimes which had been committed against them individually and against members of their families during the past five years. We then examined

those respondents who reported being personally victimized or their families being victimized by crime to search for patterns of vulnerability. Table 7.1 shows the percentage of individuals who reported having crimes of various types committed against them in the previous five years. The ten categories range from violent crimes to property crimes. Rates for all respondents are compared with those for males and females, for different levels of household income and for whites and members of racial minorities.

Table 7.1 Crimes Committed Against Respondents in Past Five Years

Type Crime	All %	Males %	Females %	0-$30K %	>$30K %	Whites %	Minorities %
All Types	36.5	40.1	33.7	38.0	35.6	37.5	33.1
Burglary	13.7	18.4	10.0	12.9	13.8	14.3	10.6
Robbery	11.5	10.8	12.5	11.0	11.2	12.1	9.9
Larceny/ Fraud	6.1	5.3	6.7	4.7	6.7	6.5	4.6
Assault	6.1	7.0	5.4	8.6	4.7	5.2	9.9
Vandalism	4.4	6.7	2.7	3.1	5.1	4.6	3.3
Auto Theft	3.9	4.4	3.6	3.4	3.7	3.7	4.6
Rape/Sexual Assault	1.0	<1.0	1.8	2.4	<1.0	1.0	1.3
Domestic Violence	<1.0	<1.0	1.3	1.6	<1.0	<1.0	<1.0
Kidnapping	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arson	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Other	3.3	3.8	2.9	3.5	3.4	3.7	2.0

More than one of every three of our respondents reported being a victim of crime in the past five years. Gender differences were small, but men reported being burglarized more than women, and females

reported higher rates of robbery and vandalism. Respondents with annual household incomes above $30,000 were more frequently affected by burglary, larceny/fraud, vandalism, and auto theft than were lower income respondents, but those with household incomes below $30,000 were more frequently the victims of assault, rape, and domestic violence. White respondents reported a lower overall rate of crime victimization than did members of minorities (which were grouped for this comparison), but whites reported higher rates of burglary, robbery, larceny/fraud, and vandalism. Respondents who were members of racial minorities were more frequently the victims of violent crimes.

Table 7.2 shows the percentage of individuals reporting family members other then themselves who were victims of crime in the past five years. Respondents are differentiated by household income and majority/minority racial categories.

Table 7.2 Crimes Committed Against Respondents' Family Members in Past Five Years

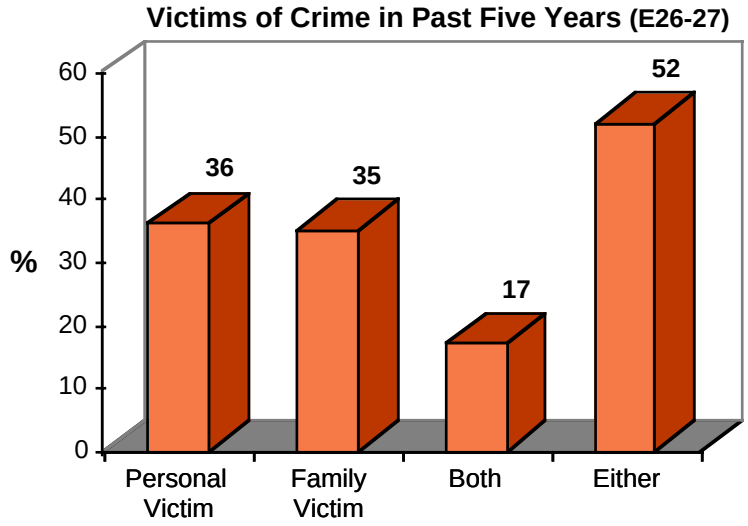
Type Crime	All %	0-$30K %	>$30K %	Whites %	Minorities %
All Types	34.6	36.1	34.2	33.8	37.1
Robbery	11.9	11.0	12.2	12.4	9.9
Burglary	9.5	10.6	9.3	9.4	10.6
Assault	8.1	8.6	8.1	8.1	8.0
Vandalism	4.4	2.8	5.3	4.4	3.3
Auto Theft	4.4	5.1	4.1	4.1	5.3
Larceny/ Fraud	3.2	3.9	2.8	2.7	5.3
Domestic Violence	1.7	1.2	2.0	1.4	2.7
Rape/Sexual Assault	1.4	2.8	<1.0	1.8	<1.0
Kidnapping	<1.0	<1.0	<1.0	<1.0	<1.0
Arson	<1.0	<1.0	<1.0	<1.0	<1.0
Other	2.5	2.4	2.6	2.1	4.0

About one-third of respondents indicated that members of their families other than themselves had been victims of crime in the past five years, and patterns of experience were similar to those reported for the respondents who were personally victimized.

Pervasiveness of Crime

Perhaps the most important point to be noted from the incidence and types of crimes reported by our respondents is the pervasive effect of crime across societal categories. Figure 7.2 shows that more than half of our respondents had either been the victim of crime or a member of their family had been the victim of crime within the past five years.

Figure 7.2



These data about crime experience among our survey respondents and their families illustrate that a large portion of the public is directly affected by domestic crime. Though not measured here, the indirect effects of crime in terms of financial and social costs make its influence even more pervasive.

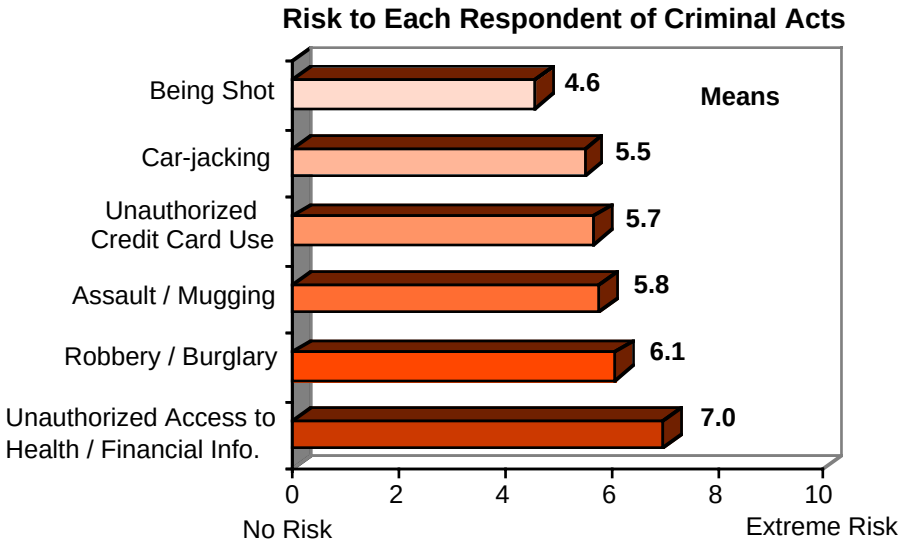
Section 7.3: Measuring Risk Perceptions

Risks of the Types of Crime

WHAT TYPES OF CRIME DO MEMBERS OF THE PUBLIC CONSIDER to pose the most risks? Do those perceptions vary systematically based on demographic factors? To better understand public perceptions of the personal risks posed by crime, we asked respondents to rate the risks to them of the following six criminal acts: car-jacking; assault or mugging; robbery or burglary in their homes; being intentionally shot; having their credit card used without permission; and someone illegally accessing personal information about them, such as health or financial records. The questions required respondents to assess both the likelihood that they would be the victim of such crimes, and the potential consequences of

such acts. Answers were provided on a scale where zero meant the criminal activity posed *no risk,* to them personally, and ten meant the activity posed *extreme risk.* Mean assessments for each criminal act are compared in Figure 7.3.

Figure 7.3



Participants considered the risk of someone gaining unauthorized access to confidential health and financial records to pose the highest risk on average. The risk of robbery or burglary in their homes was second, and assault or mugging was third. Next came the risk of unauthorized use of their credit card. The risk of car-jacking was fifth, and the least risk was judged to stem from being shot (probably because of a low likelihood of occurrence rather than potential consequences). However, four of the five criminal acts were judged to pose risks above mid-scale, indicating that most respondents considered them to be substantial threats.

These relative rankings of risk also indicate that some criminal acts that may be more readily ameliorated by technological applications, such as illegal access to personal records and credit card fraud, are of considerable import to the public.

To determine the degree to which perceptions of risk from crimes vary among groups with different demographic characteristics, we examined the effects of gender, ethnicity, income, age, education, and region. Tables 7.3–7.8 compare perceptions of the risk of crimes by demographic categories.

Table 7.3 Gender and Perceptions of the Risk of Crimes

Type of Crime (E14-E19)	All (Means)	Women (Means)	Men (Means)	p Value
Car-jacking	5.5	5.6	5.3	n. s.
Assault or Mugging	5.8	6.0	5.5	.0365
Robbery or Burglary	6.1	6.3	5.5	.0525
Being Shot	4.6	4.5	4.8	n. s.
Unauthorized Use of Credit Card	5.7	5.8	5.6	n. s.
Illegal Access to Personal Information	7.0	7.1	6.9	n. s.

On average, women perceived marginally higher risks from all the above crimes except being shot. The most notable differences were in perceptions of the risks of assault or mugging, which women viewed to be statistically significantly higher, and robbery or burglary, which while not meeting the .05 significance test, was notably close to statistical relevance.

Table 7.4 **Ethnicity and Perceptions of the Risk of Crimes**

Type of Crime (E14-E19)	All (Means)	Minorities (Means)	Whites (Means)	p Value
Car-jacking	5.5	6.2	5.3	.0067
Assault or Mugging	5.8	6.3	5.7	n. s.
Robbery or Burglary	6.1	6.1	6.0	n. s.
Being Shot	4.6	5.2	4.5	.0446
Unauthorized Use of Credit Card	5.7	5.8	5.7	n. s.
Illegal Access to Personal Information	7.0	6.9	7.1	n. s.

Respondents who were members of ethnic minorities perceived higher mean risks for all categories except illegally accessing personal information. The risks of car-jacking and of being intentionally shot were rated significantly higher by minorities than whites.

Table 7.5 **Income and Perceptions of the Risk of Crimes**

Type of Crime (E14-E19)	All (Means)	0-$30K (Means)	>$30K (Means)	p Value
Car-jacking	5.5	6.1	5.2	.0006
Assault or Mugging	5.8	6.2	5.6	.0208
Robbery or Burglary	6.1	6.6	5.8	.0047
Being Shot	4.6	5.5	4.2	<.0001
Unauthorized Use of Credit Card	5.7	5.6	5.8	n. s.
Illegal Access to Personal Information	7.0	7.2	7.0	n. s.

The largest differences in risk perceptions of these criminal acts were related to income, with those respondents whose household incomes were $30,000 or less perceiving the risks of all crimes except the

unauthorized use of their credit card to be higher than those respondents with larger incomes. The risks of car-jacking, assault or mugging, robbery or burglary, and of being intentionally shot were all rated statistically significantly higher by those with lower incomes.

Table 7.6 Education and Perceptions of the Risk of Crimes

Type of Crime (E14-E19)	All (Means)	<College Degree (Means)	College Degree + (Means)	p Value
Car-jacking	5.5	5.3	4.8	.0391
Assault or Mugging	5.8	5.6	5.2	n. s.
Robbery or Burglary	6.1	5.9	5.7	n. s.
Being Shot	4.6	4.4	3.7	.0035
Unauthorized Use of Credit Card	5.7	5.3	5.9	.0266
Illegal Assess to Personal Information	7.0	6.8	6.9	n. s.

Respondents without a college degree perceived all the crimes except credit card fraud and illegal access to personal records to pose higher risks than did participants with a bachelor's degree or higher. Risks of car-jacking and of being shot were judged significantly higher among those without a college education, and the risk of credit card fraud was seen to be significantly greater by those with a college degree.

Table 7.7 **Age and Perceptions of the Risk of Crimes**

Type of Crime (E14-E19)	All (Means)	18-50 (Means)	>50 (Means)	p Value
Car-jacking	5.5	5.2	6.1	.0024
Assault or Mugging	5.8	5.7	6.0	n. s.
Robbery or Burglary	6.1	6.0	6.3	n. s.
Being Shot	4.6	4.4	5.1	.0364
Unauthorized Use of Credit Card	5.7	5.6	6.2	n. s.
Illegal Access to Personal Information	7.0	6.9	7.3	n. s.

Respondents over the age of 50 perceived higher risks associated with each of the criminal acts than did those below 50 years of age. Differences in the mean risks of car-jacking and of being intentionally shot were statistically significant.

Our final demographic classification relates perceptions of the risks of criminal acts with the geographic region in which a respondent resided. We used the regional divisions defined by the US Census Bureau as the West, Midwest, Northeast, and South.[3] Table 7.8 compares mean perspectives among the four regions.

Table 7.8 **Perceptions of the Risk of Crimes by Geographic Region**

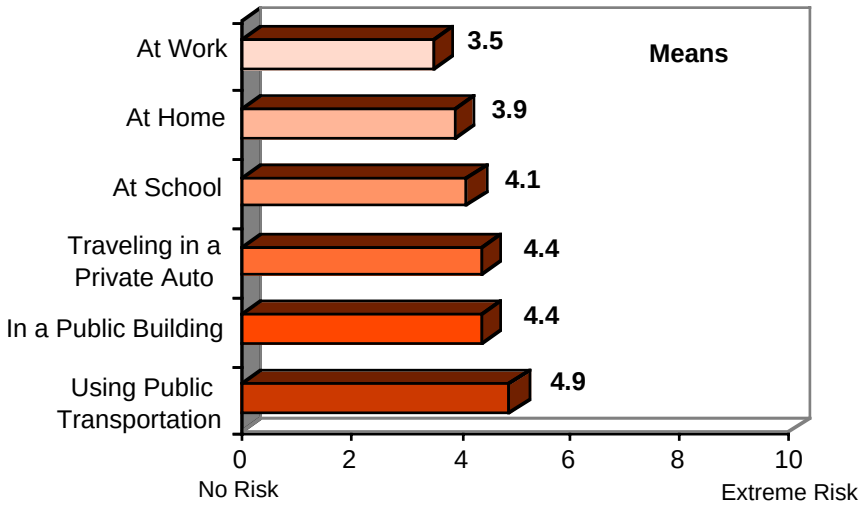
Type of Crime (E14-E19)	West (Means)	Midwest (Means)	Northeast (Means)	South (Means)
Car-jacking	5.9	4.9	6.0	5.5
Assault or Mugging	6.0	5.3	6.4	5.7
Robbery or Burglary	6.3	5.6	6.4	6.2
Being Shot	5.2	4.4	5.0	4.2
Unauthorized Use of Credit Card	6.2	5.6	5.9	5.5
Illegal Access to Personal Information	7.0	7.1	7.1	7.0

Car-jacking, assault or mugging, robbery or burglary, and illegal access to personal information were all perceived to pose higher risks by those respondents who resided in the Northeast. The risks of being shot and the risks of credit card fraud were rated highest by those living in the West. Those in the Midwest perceived the risks of car-jacking, assault or mugging, and robbery or burglary to be lower than respondents in the other three regions. Participants who lived in the South considered the risks of being shot, of being the victim of credit card fraud, and the danger of someone illegally accessing personal information about them to be lower than did those in the other regions. As expected, these data show that perceptions about the risks of crime vary substantially based on the region where an individual lives and works. It is also notable that the risks associated with illegally accessing personal data are almost uniformly high across all four regions.

Perceptions of the Risk of Crime by Setting

In what settings and contexts do people feel more safe and more at risk from crime? We expected that various environments and activities would yield significant differences in the perception of an individual's vulnerability. To examine those influences, we asked each respondent to rate their perception of the risk of crime to them and their families when in the workplace, at home, at school, while traveling in a private automobile, when in a public building, and while using public transportation. Figure 7.4 compares mean perceptions of the risk of crime in each setting.

Figure 7.4 **Perceived Risks of Crime in Comparative Settings**



As expected, participants perceived the risks of crime differently depending on their surroundings. Of the six locations about which we inquired, respondents felt that they and their families, on average, were more at risk from criminal activity while using public transportation than any other setting we tested. The next most risky settings were while in a public building and while traveling in a private automobile. The school environment was judged more risky than the home setting, and the workplace was seen to pose the least risk of crime.

If demographic factors are related to perceptions of the risks posed by different types of crime, should we expect demographics also to affect people's feelings of vulnerability to crime based on their environment? We examined the effects of gender, age, ethnicity, income, education, and geographic region on perceptions of the risks from crime in different surroundings. Tables 7.9–7.13 summarize the results.

Table 7.9 Gender and the Risk of Crime in Comparative Settings

Setting (E20-E25)	All (Means)	Women (Means)	Men (Means)	p Value
At Work	3.5	3.9	3.1	.0003
At Home	3.9	4.2	3.6	.0018
At School	4.1	4.3	3.9	.0409
In an Auto	4.4	4.8	3.8	<.0001
In a Public Building	4.4	4.9	3.8	<.0001
Using Public Transportation	4.9	5.2	4.5	.0009

Both men and women considered vulnerability to be highest when using public transportation, and lowest when in the workplace. Females rated the risks of crime to them or their families statistically significantly higher than did men in all settings.

Table 7.10 Ethnicity and the Risk of Crime in Comparative Settings

Setting (E20-E25)	All (Means)	Minorities (Means)	Whites (Means)	p Value
At Work	3.5	4.0	3.4	.0251
At Home	3.9	4.3	3.8	.0419
At School	4.1	4.3	4.0	n. s.
In an Auto	4.4	4.7	4.3	n. s.
In a Public Building	4.4	4.6	4.4	n. s.
Using Public Transportation	4.9	5.0	4.9	n. s.

Respondents who were members of ethnic minorities perceived higher average risks of crime than did white respondents in each of the six environments. Differences in perceptions of the risk of crime at work and at home were statistically significantly higher among minorities.

Table 7.11 **Income and the Risk of Crime in Comparative Settings**

Setting (E20-E25)	All (Means)	$0-30K (Means)	$>30K (Means)	p Value
At Work	3.5	4.1	3.3	.0006
At Home	3.9	4.5	3.6	<.0001
At School	4.1	4.8	3.8	<.0001
In an Auto	4.4	4.9	4.2	.0004
In a Public Building	4.4	4.7	4.3	.0170
Using Public Transportation	4.9	5.2	4.8	n. s.

As was the case in examining perceptions of the risks of different types of crime, household income also was related to perceptions of the risks of crime in various settings, with those respondents having annual household incomes exceeding $30,000 perceiving lower risks of crime in all the environments we tested. Those differences were statistically significant in each case except the risk of crime when using public transportation.

Table 7.12 **Education and the Risk of Crime in Comparative Settings**

Setting (E20-E25)	All (Means)	<College Degree (Means)	College Degree + (Means)	p Value
At Work	3.5	3.8	3.0	.0005
At Home	3.9	4.1	3.6	.0088
At School	4.1	4.4	3.5	.0001
In an Auto	4.4	4.6	4.0	.0029
In a Public Building	4.4	4.6	4.1	.0035
Using Public Transportation	4.9	5.1	4.7	.0462

Education level was an even more powerful predictor of risk perceptions in comparative settings. Those respondents with less than a college degree perceived statistically significantly higher risk of crime in every environment tested than did participants with a bachelor's degree or higher.

We also examined the effect of age on perceptions of the risks of crime in comparative settings and found that those respondents over 50 years of age tended to see marginally higher levels of risk in most settings than did participants between the ages of 18 and 50, but the difference was statistically significant only in the case of the risk of crime at school, where older respondents considered the school environment to be significantly more risky ($p = .0144$).

The final demographic category we examined was geographic region of residency. Table 7.13 compares risk perceptions among the four census regions previously described.

Table 7.13 Region and the Risk of Crime in Comparative Settings

Setting (E20-E25)	West (Means)	Midwest (Means)	Northeast (Means)	South (Means)
At Work	3.7	3.2	3.7	3.7
At Home	4.0	3.6	4.1	4.0
At School	4.4	3.9	4.0	4.2
In an Auto	4.5	3.9	4.6	4.7
In a Public Building	4.7	4.1	4.6	4.3
Using Public Transportation	5.1	4.6	5.4	4.8

Substantial differences were reported among the four geographical regions. Respondents from the Midwest perceived the lowest risk of crime in each of the six settings compared to participants from the

other three regions. Again, the risks of crime were judged by participants from all four regions to be highest while using public transportation and lowest in the workplace.

Section 7.4: Technology and Crime

WHAT PRIORITIES SHOULD GUIDE THE DEVELOPMENT OF technologies to fight crime and enhance personal security? To better understand where research emphasis should be placed, we asked respondents to rate four potential anticrime technologies on a scale where zero meant such technologies were *not at all important,* and ten meant they were *extremely important.* Figures 7.5–7.8 show the distribution of responses and mean ratings.

Figure 7.5

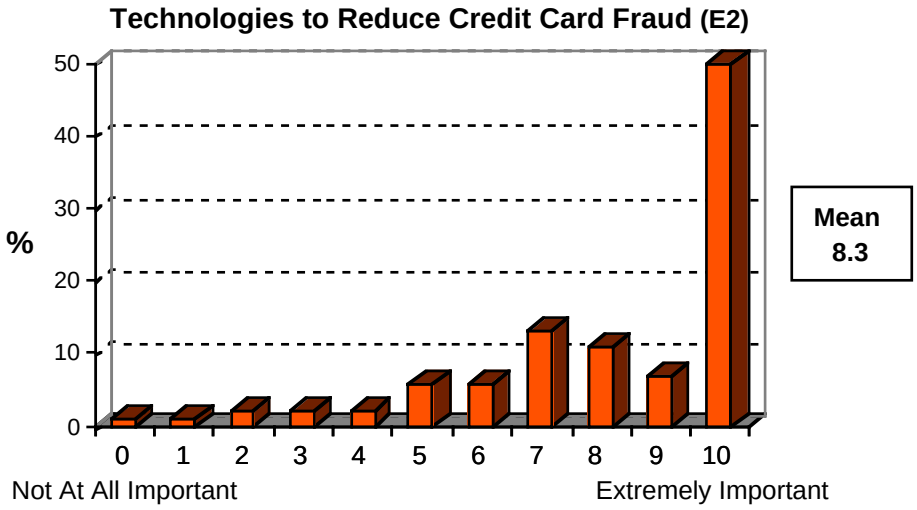


Figure 7.6

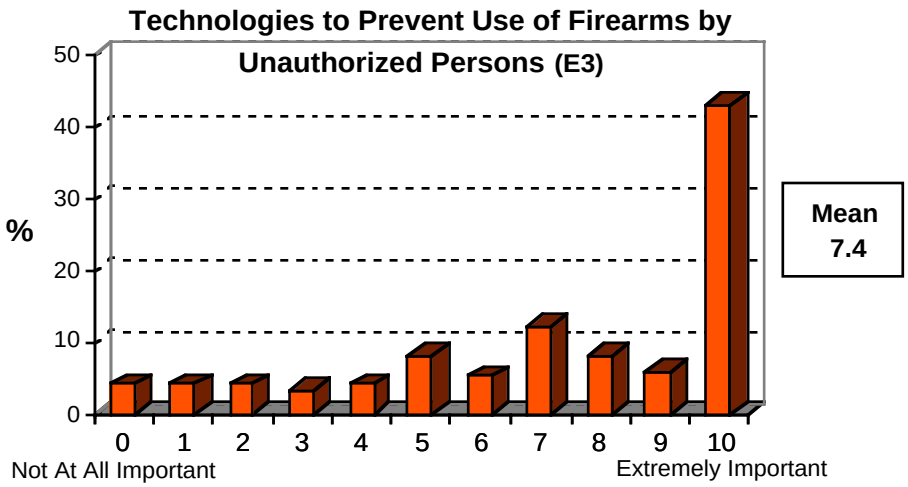


Figure 7.7

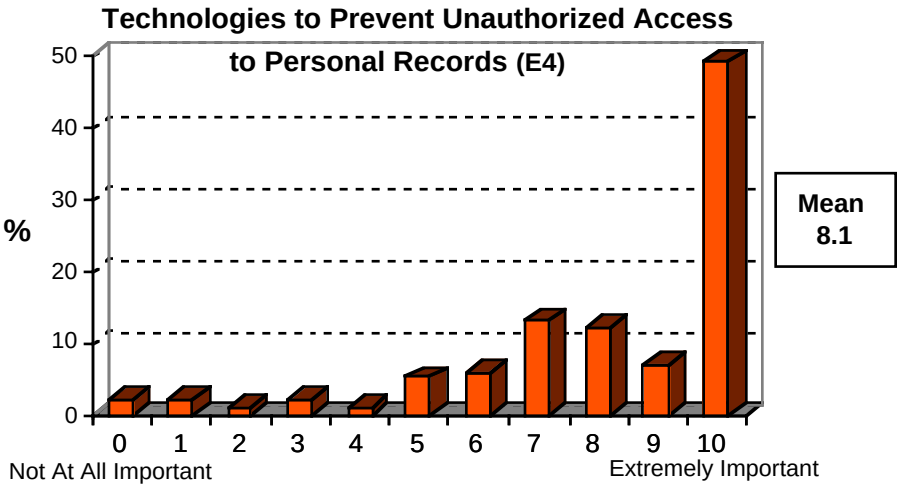
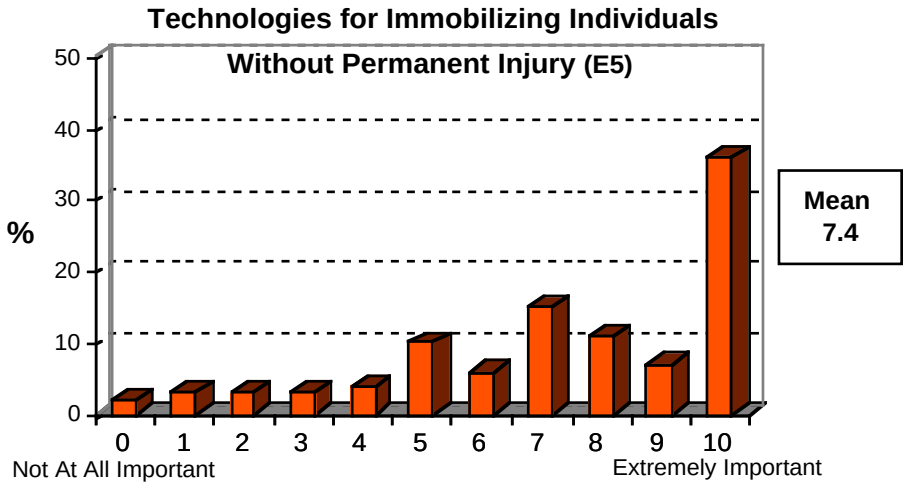


Figure 7.8



In each case, the modal response was ten, or "extremely important," and the means varied only between 7.4 and 8.3, indicating that our respondents considered technologies for preventing credit card fraud, preventing firearms from being fired by anyone not authorized to use them, preventing unauthorized access to personal information, and immobilizing criminals or violent individuals without permanently injuring them to all be very important. Though these four issues obviously do not constitute a comprehensive list of potential areas for technological investment to reduce crime, they do seem to indicate that the public may be very supportive of a range of technological initiatives.

But who should pursue such technologies? Should they be developed by private industry? Are they so important that government should pursue them? To better understand public preferences for how anticrime technologies should be developed, we asked participants to respond to a series of statements about research and development using a scale where one meant they *strongly disagreed* with the statement, and seven meant they *strongly agreed* with it. Figures 7.9–7.13 summarize grouped responses.

Figure 7.9

New Technologies Should be Developed and Marketed by the US Government (E7)

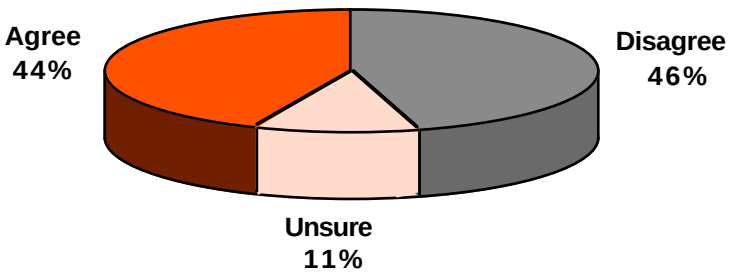


Figure 7.10 Give New Technologies at No Cost to Private Industry for Marketing to Public (E8)

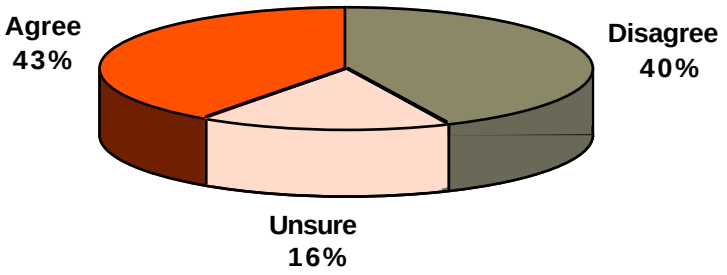


Figure 7.11 Government Should Sell New Technologies to Private Industry for Marketing to Public (E9)

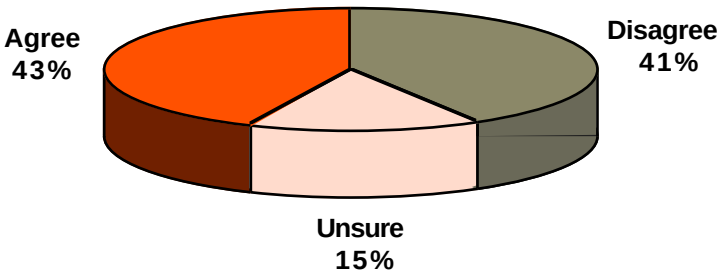


Figure 7.12 Develop & Market New Technologies Entirely by Private Sector (E11)

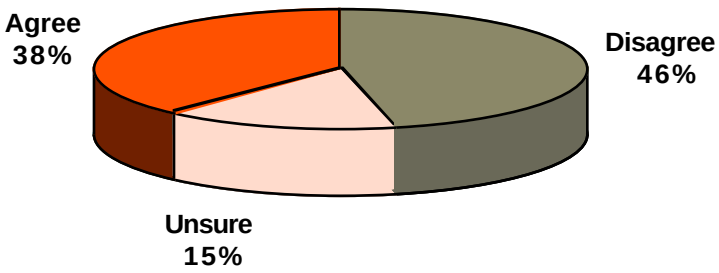
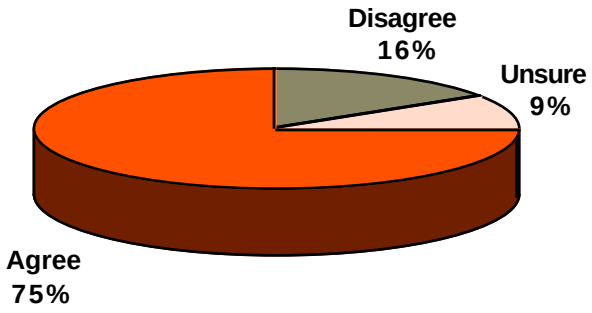


Figure 7.13 **Develop New Technologies With Partnership of Federal and Private Investments (E10)**



Note that Figures 7.9–7.11 indicate roughly equally divided opinions about each of three arrangements in which government would develop anticrime technologies. But Figure 7.12 indicates that most respondents opposed allowing private industry to have the full responsibility for developing such technologies. Only Figure 7.13 provides a large majority preference. These data indicate that respondents clearly preferred a partnership of government and private industry for developing technologies designed to prevent crime and enhance personal security.

Issues of Liability

Issues of liability for technological failures have to be considered during the research and development of new products. Who should be held responsible for failures of technologies that we intended to protect and enhance personal security? Definitive answers to questions of product liability are impossible to predict, since they are factors of circumstantial, legal, and emotional variables that cannot be fully identified prior to specific instances of failure. But we attempted to gain an impression of public attitudes about issues of product liability both in our focus group discussions and by including two scenarios in our survey.

Focus group discussions identified three points that seem relevant. First, as previously mentioned, participants considered technologies intended to prevent property crimes and other crimes that did not pose

bodily harm to be qualitatively different in terms of potential liability from technologies whose failures could result in death or injury. Accordingly they considered the failures of some anticrime technologies to be much more serious than others, and more likely to result in assignments of liabilities against those who develop and market high consequence technologies. Second, focus group members cautioned against marketing promises that might lead potential consumers to place greater confidence in the technologies than they might actually merit. And third, they were less inclined to hold developers and marketers of anticrime technologies accountable if such systems were circumvented or rendered ineffective because of criminal behavior.

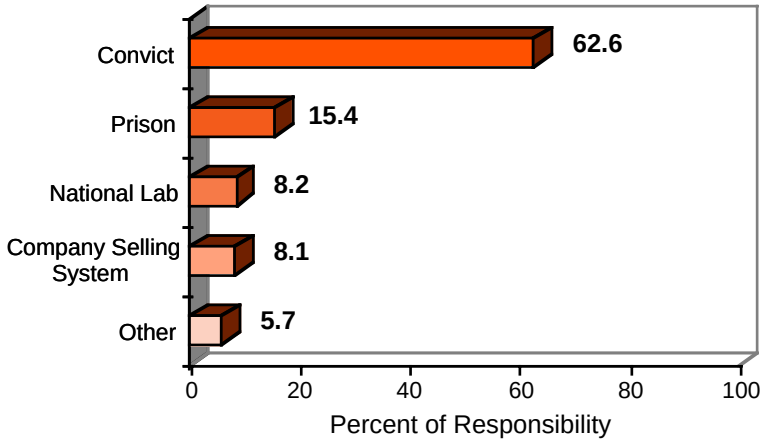
To gather more systematic data about these issues, we included two specific scenarios in our survey that required respondents to apportion responsibility for the failures of technologies. One scenario involved the failure of a technology intended to prevent criminal activity, and the other involved the failure of a technology intended to enhance personal and family safety. The wording used to establish the scenarios and the results of respondent assessments are described below.

Scenario 1:

> "Assume that a US national laboratory developed a security system that was sold by a private company to a state prison. The system was designed to reduce the chance of escape. Although the security system was working properly, an inmate managed to escape from prison and murder someone. The victim's family wants to sue for their loss. Any of the following four parties might be considered responsible: the convict; the prison; the company that sold the security system to the prison; or the national laboratory that developed the security system. What percent of the total responsibility, if any, would you assign to each of the parties?"

Each respondent apportioned responsibility among the four parties so that the total did not exceed 100 percent, but if respondents considered other parties to be partially responsible, accountability among the four named parties could total less than 100 percent. Figure 7.14 summarizes mean levels of assigned responsibility.

Figure 7.14 **Responsibility for Failed Prison Security System (E12)**



In this scenario, most respondents considered the convict that escaped to bear most of the responsibility for the consequences, but they also held the prison partially culpable, and they assigned the smallest levels of responsibility to the national laboratory that designed the system and the commercial firm that marketed it.

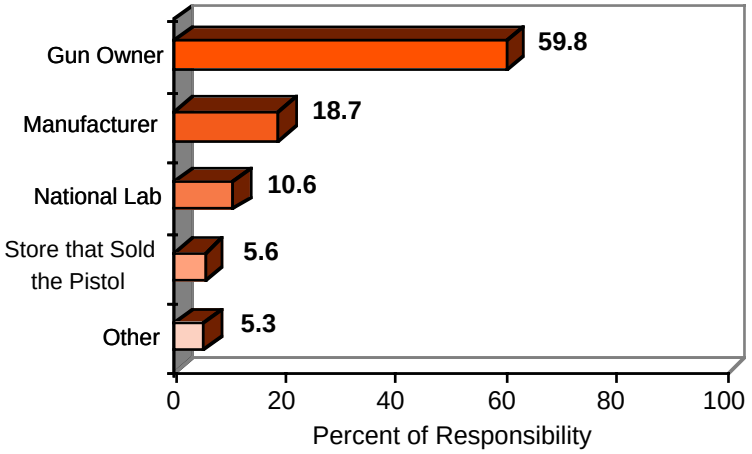
To determine if participants would apportion responsibility differently in a situation in which there was no overt criminal intent, we asked respondents how they would assign accountability in a second scenario.

Scenario 2:

> "Assume that a US national laboratory developed and a private firm marketed a new type of pistol designed to reduce the chance of being fired by anyone other than the authorized user. A label on the pistol warned that safety depends on maintaining strict control over the weapon. The safety feature failed, and the pistol was accidentally fired by the child of the gun owner, and someone was killed. Any of the following four parties might be considered responsible: the store that sold the pistol; the firm that manufactured the pistol; the gun owner who failed to keep the pistol from the child; and the national laboratory that developed the technology to prevent unauthorized firing of the pistol. What percent of the total responsibility, if any, would you assign to each of the parties?"

Figure 7.15 summarizes mean responses.

Figure 7.15 **Responsibility for Failed Pistol Safety Feature (E13)**



In this scenario, participants judged the owner of the pistol to be most at fault, followed by the company that manufactured it. But they also assigned substantial responsibility (10.6%) to the national laboratory that developed the technology that was intended to prevent accidental discharge. Note that greater responsibility was attributed to the national laboratory in this scenario in which a child was placed at risk than the previous one which derived from criminal behavior.

These figures may not correspond closely to the actual levels of pecuniary liability that might result from a lawsuit. But the relative weight of responsibility assigned by our respondents indicates that the public may hold research facilities partially accountable for the consequences of technologies that fail to protect personal security as intended.

To better understand the way in which the laboratory's role was perceived, we examined differences in mean assignments of responsibility to the laboratory in each scenario, based on demographic differences. Table 7.14 summarizes the relationships between demographics and levels of responsibility.

Table 7.14 Demographic Apportionment of Responsibility to National Lab

Demographic Category	Convict Scenario Mean %	Pistol Scenario Mean %
All	8.2	10.6
Males	7.2	10.6
Females	9.0	10.6
0-$30K Income	8.4	11.0
> $30K Income	8.8	10.7
< College Degree	9.1	11.0
College Degree +	6.6	9.9
18-50 Years Old	8.6	10.5
> 50 Years Old	6.9	10.3
Whites	7.8	10.3
Minorities	9.8	12.3
West	7.3	9.9
Midwest	7.8	10.0
Northeast	7.8	10.0
South	8.7	10.9

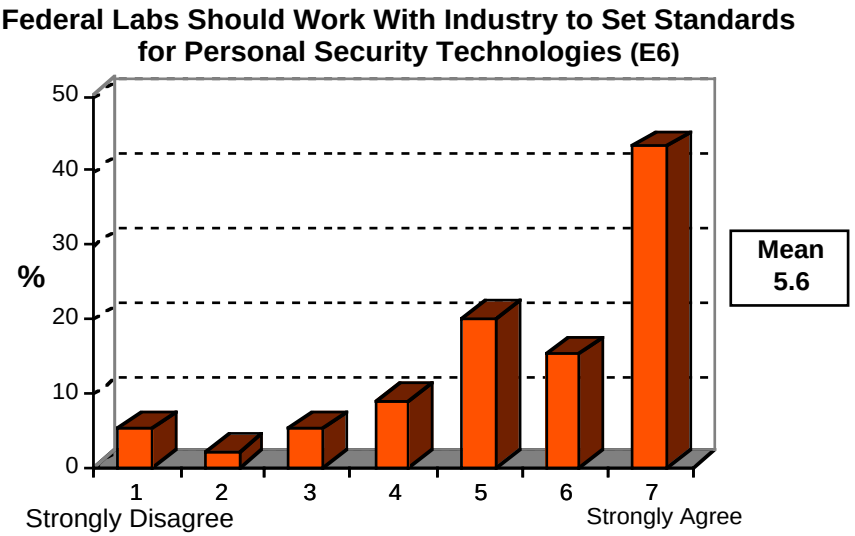
Differences between most demographic categories were not statistically significant or were not consistent between both scenarios. For example, though females assigned greater responsibility to the laboratory in the convict scenario, they did not in the case of the accidental discharge of the firearm. In both cases, individuals with less than a college degree assigned more responsibility to the laboratory than did college graduates. Older respondents tended to blame the laboratory less than younger participants, and minorities assigned more responsibility to the laboratory than did whites in both scenarios. Those who lived in the South tended to place somewhat more blame on the lab than did respondents who lived elsewhere, and residents of the West assigned slightly less blame to the lab than those who lived in other regions.

Establishing Technological Standards

As previously shown, respondents preferred that private industry and government work together to develop technologies to fight crime and enhance personal security. And the preliminary data from our two scenarios suggest that the public is likely to hold technology users, manufacturers, and research agencies partially responsible for personal security technologies that do not perform as intended. A related issue is the question of who should set the technological standards for these kinds of systems. We made two inquiries into this issue.

First we asked participants to respond to the following statement on a scale where one meant *strongly disagree,* and seven meant *strongly agree:* "Federally funded national laboratories should work with industry to establish standards for technologies whose purpose is to enhance personal security." Figure 7.16 shows the distribution of responses and their mean value.

Figure 7.16



The suggestion that national laboratories should work with industry to set standards for technologies to fight crime and enhance personal security was supported by most respondents. The modal response was

seven, which is the strongest level of agreement that could be expressed. The mean value of 5.6 was well above mid-scale, implying that a role by the national laboratories in setting technological standards would be well received by the public.

Nuclear Surety

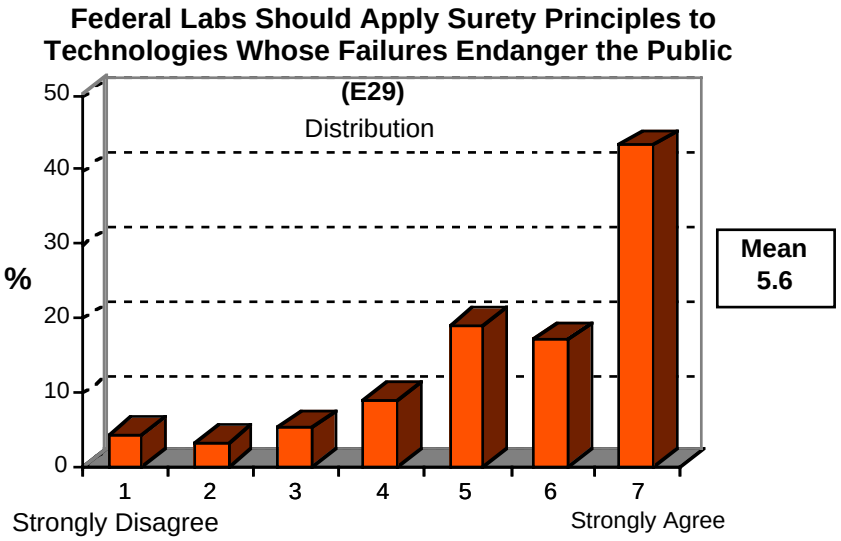
Our final inquiry into this area attempted to gauge public understanding of the principles involved in nuclear surety. Most members of the public probably have little understanding of the kinds of efforts that go into planning nuclear safety, security, and use control that are collectively described as nuclear surety measures. But we wanted to know if our respondents supported the concept of applying systematic processes that originated within the nuclear establishment to increase the safety and reliability of other technologies and processes whose failures could pose serious harm to the public.

Because of the sophisticated nature of the concept of surety, we employed a preamble before asking participants to respond to a statement about policy preferences. Interviewers read the following introduction and statement:

> "Because of the potential for drastic consequences, US national laboratories have developed specialized methods for ensuring the safety, security, and reliability of nuclear weapons. These laboratories could apply their methods to increase the safety and reliability of technologies and processes whose failure can harm the public. Examples might include heart pacemakers, highway bridges, and airliners. On a scale where one means *strongly disagree,* and seven means *strongly agree,* please respond to the following statement:
>
> Federally funded nuclear weapons laboratories should apply their specialized expertise to increase the reliability of technologies and processes whose failure would pose extreme risks to public health and safety."

Figure 7.17 provides the distribution of responses and their mean.

Figure 7.17



Most respondents supported the proposition that national laboratories should help apply the principles of nuclear surety to the development of other technologies whose failures have potentially high risks to the public (particularly those with drastic consequences). The modal response was the highest value on the answer scale, and the mean was well above mid-scale. Though the technical nature of nuclear surety and the risk reduction steps necessary to achieve it were probably not well understood by our participants, the concept seemed to appeal to them. Nevertheless, this concept would have to be investigated much more fully, including applying contingency valuation techniques, to determine the extent to which the public would support paying for greater levels of surety in key technologies. From these preliminary inquiries, we can only observe that the concept was well received by our participants. To be more carefully investigated, the concept of surety needs to be more fully operationalized and discussed in focus groups that could help develop and refine the kinds of questions needed to provide a more complete picture of the potential for wider applications of nuclear surety principles.

Section 7.5: Summarizing Technology and Personal Security

Focus group discussions identified fear of crime and concerns about personal security at the individual level of analysis as one of the most salient issues affecting overall public perceptions about security. Group discussants were very aware that many aspects of their lives and those of their families were being affected by the threat of crime and various preventive and avoidance measures that they felt compelled to employ to reduce associated risks. Some group members conceived of security as a continuum that bridged systemic, national, and personal levels of concern about security measures and relationships. Most discussants felt less secure on all fronts today than in the past.

Regardless of statistics that show some rates of crime to be leveling or decreasing, most participants in our discussions and most respondents to our survey considered crime to be an increasing concern. Most survey respondents did not think that crime in their neighborhoods had declined in the previous five years.

Risks of Crime by Type

When we asked participants to weigh both the likelihood and potential consequences of different categories of criminal acts to them or their families, respondents considered the risks of unauthorized access to personal information, such as health and financial records, to pose the most risk at 7.0 (on a scale where zero meant *no risk,* and ten meant *extreme risk*). It was followed by robbery or burglary at 6.1, assault or mugging at 5.8, the unauthorized use of their credit card at 5.7, carjacking at 5.5, and the risk of being intentionally shot was rated slightly below mid-scale at 4.6.

Women rated the risks of five of the six types of crime higher than did men, with men perceiving a slightly higher risk of being shot. Participants who were members of ethnic minorities rated all types of crime higher than whites except for the risk of someone illegally accessing personal information about them. Respondents who reported annual

household incomes below $30,000 rated all types of crime except the unauthorized use of their credit card higher than did respondents with larger household incomes. Those with college educations perceived lower risks of violent crimes and higher risks of credit card fraud. Participants over the age of 50 perceived the risks of all six categories of crime to be higher than did those participants between 18 and 50 years of age. People who lived in the Midwest rated the risks of violent crimes lower than did respondents from the other three regions.

Risks of Crime by Location

Turning to the settings in which personal vulnerability to crime was rated, our respondents judged using public transportation to pose the greatest risk at 4.9 (on the same scale where zero meant *no risk,* and ten meant *extreme risk*), and the workplace was judged to pose the lowest level of risk at 3.5. These two relative ratings held across all demographic categories. Two settings were rated second highest in risk of crime: public buildings and traveling in a private auto were both rated at 4.4. They were followed by school at 4.1 and the home at 3.9.

Women rated the mean risks of crime higher in all six settings than did men; members of ethnic minorities rated all six higher than whites; participants with household incomes below $30,000 rated the risks of all six locations higher than those with larger incomes; and those without a college degree rated all six higher than those with a college education. Respondents who lived in the Midwest rated all locations lower in mean risk of crime than did those who resided in the other three geographic regions.

Technology and Crime

Participants showed an eager receptivity to the potential of technology to reduce crime and enhance personal security. They supported the pursuit of technological applications in every category about which we inquired. They clearly preferred that new anticrime technologies be developed cooperatively by the government and private industry, rather than by government or the private sector acting alone. They demonstrated sophisticated capabilities for assessing responsibilities for technologies that fail to prevent crime or enhance personal safety as intended. In hypothetical scenarios they held the national laboratory that

developed such technologies partially responsible for the consequences of subsequent failures, but their levels of assigned responsibility were in the range of eight to ten percent.

Respondents also were receptive to a potential role for national laboratories in establishing technical standards for personal security technologies, and they seemed supportive of our initial inquiry into the potential application of nuclear surety principles to other high consequence technologies.

End Notes

[1]UNM Institute for Public Policy, *Quarterly Profile of New Mexico Citizens*, Winter, 8(1):5, Albuquerque, New Mexico: University of New Mexico, 1996.

[2]It should be noted that crime rate estimates taken strictly from official police reports will underestimate actual crime, because they do not include unreported crimes.

[3]*West:* Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming (Alaska and Hawaii were excluded)

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont

South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

Appendix 1

Questions, Distributions, and Means

Baseline Questions (N = 2490)

Instructions to each respondent about question scaling: *We will be asking you to answer using two different kinds of scales. For some questions the scale will be from zero to ten, and you may choose zero, ten, or any number between zero and ten. The scale for other questions will be one to seven, and you may choose one, seven, or any number between one and seven. We will tell you which scale we want you to use to answer each question.*

This first set of questions concerns the personal risks from two activities. On a scale from zero to ten, where zero means ***no risk***, and ten means ***extreme risk***, how much risk is there to ***you***, from each of the following activities?

B1/Drive Driving an automobile?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	MEAN
%												
Pub 95	**10**	**3**	**9**	**12**	**8**	**30**	**5**	**9**	**7**	**2**	**6**	**4.6**

B2/Gun Owning a personal firearm?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	MEAN
%												
Pub 95	**25**	**5**	**6**	**5**	**4**	**13**	**3**	**7**	**7**	**5**	**22**	**4.9**

Next we want to shift to the risks to American ***society*** from managing nuclear weapons. Using the same zero to ten scale, please rate the risks to our ***society*** for each of the following:

B3/Manu Manufacturing nuclear weapons in the US?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	MEAN
%												
Pub 95	**4**	**2**	**4**	**5**	**5**	**13**	**6**	**11**	**13**	**6**	**31**	**6.9**
Pub 93	3	3	6	6	6	14	8	11	13	8	22	6.5
UCS 93	0	2	5	8	5	7	8	13	15	13	24	7.1
Labs 93	2	20	21	18	10	10	6	6	3	2	2	3.4

MANU-5

B4/Trans Transporting nuclear weapons in the US?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	MEAN
%												
Pub 95	**3**	**2**	**3**	**4**	**4**	**12**	**5**	**10**	**13**	**9**	**34**	**7.2**
Pub 93	2	2	5	5	6	13	8	13	15	7	25	6.8
UCS 93	0	3	6	9	6	11	10	12	13	12	18	6.6
Labs 93	3	21	22	17	9	8	6	7	3	1	2	3.3

TRANS-6

B5/Store Storing existing nuclear weapons in the US?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	MEAN
%												
Pub 95	**3**	**2**	**4**	**5**	**4**	**13**	**6**	**11**	**12**	**8**	**30**	**6.9**
Pub 93	2	2	5	7	7	13	9	11	13	7	23	6.6
UCS 93	1	3	8	8	7	10	10	12	16	8	16	6.3
Labs 93	5	27	21	16	8	8	5	5	2	1	1	3.0

STORE-7

B6/Dsmbl Disassembling nuclear weapons in the US?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	MEAN
%												
Pub 95	**4**	**3**	**5**	**7**	**6**	**14**	**7**	**9**	**12**	**6**	**26**	**6.5**
Pub 93	4	3	7	8	8	17	7	10	14	6	17	6.0
UCS 93	1	5	13	14	9	12	10	9	14	5	7	5.2
Labs 93	2	17	23	20	13	9	6	5	3	1	0	3.3

DSMBL-8

B7/Rwaste Storing radioactive materials in the US from disassembled weapons?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	MEAN
%												
Pub 95	**3**	**2**	**3**	**5**	**4**	**10**	**5**	**10**	**15**	**9**	**36**	**7.4**
Pub 93	2	1	2	3	4	9	7	10	18	11	34	7.6
UCS 93	0	3	6	7	5	10	10	10	17	13	21	6.9
Labs 93	3	16	18	16	12	11	7	7	5	2	2	3.8

RWASTE-9

The next two questions pertain to nuclear weapons research. Using a scale from one to seven, where one means you ***strongly disagree*** and seven means you ***strongly agree***, please respond to the following two statements:

B8/Saftec US national laboratories should pursue new technologies that might be used to make existing nuclear weapons more safe.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**13**	**3**	**5**	**6**	**11**	**11**	**51**	**5.4**
Pub 93	12	3	4	6	12	12	52	5.5
UCS 93	19	12	8	11	14	16	20	4.2
Labs 93	3	5	6	10	17	28	31	5.5

SAFETEC-10

B/9Newnucs US national laboratories should pursue new technologies that might lead to new types of nuclear weapons.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**38**	**10**	**11**	**10**	**11**	**5**	**15**	**3.2**
Pub 93	36	12	9	8	11	6	17	3.3
UCS 93	64	20	7	4	3	1	2	1.7
Labs 93	13	19	13	17	17	13	9	3.8

NEWNUCS-11

Please indicate how you think government spending on nuclear weapons issues should change in each of the following areas using a scale from one to seven, where one means spending should ***substantially decrease***, and seven means spending should ***substantially increase.***

B10/Devtest Developing and testing new nuclear weapons?

	SUBSTANTIALLY DECREASE 1	2	3	4	5	6	SUBSTANTIALLY INCREASE 7	MEAN
	%							
Pub 95	**44**	**14**	**14**	**10**	**9**	**2**	**7**	**2.6**
Pub 93	40	16	12	9	11	3	8	2.8
UCS 93	74	17	5	3	1	0	0	1.4
Labs 93	16	25	23	23	9	3	1	3.0

DEV/TEST-13

B-11/Mtain Maintaining existing nuclear weapons in reliable condition?*

	SUBSTANTIALLY DECREASE 1	2	3	4	5	6	SUBSTANTIALLY INCREASE 7	MEAN
%								
Pub 95	**17**	**6**	**12**	**14**	**17**	**11**	**24**	**4.4**
Pub*93	12	6	13	15	19	10	25	4.5
UCS*93	28	26	21	18	5	1	1	2.6
Labs*93	3	6	13	40	24	11	3	4.2

MTAIN-14

* Wording in 1993: "Maintenance of existing nuclear weapons?"

B12/Safwpn Research to increase the safety of existing nuclear weapons?

	SUBSTANTIALLY DECREASE 1	2	3	4	5	6	SUBSTANTIALLY INCREASE 7	MEAN
%								
Pub 95	**11**	**4**	**7**	**7**	**14**	**12**	**45**	**5.2**
Pub 93	8	3	8	10	17	14	40	5.2
UCS 93	14	12	14	23	16	12	10	3.9
Labs 93	2	4	9	22	31	22	9	4.8

SAFWPN-15

B13/Tng Training to assure competence of those who manage US nuclear weapons?

	SUBSTANTIALLY DECREASE 1	2	3	4	5	6	SUBSTANTIALLY INCREASE 7	MEAN
%								
Pub 95	**8**	**2**	**3**	**6**	**10**	**10**	**61**	**5.8**
Pub 93	6	2	4	8	14	13	52	5.7
UCS 93	3	3	7	27	20	19	21	5.0
Labs 93	0	1	3	30	31	24	11	5.1

TNG-16

B14/Sustain Maintaining the ability to develop and improve US nuclear weapons in the future?

	SUBSTANTIALLY DECREASE 1	2	3	4	5	6	SUBSTANTIALLY INCREASE 7	MEAN
%								
Pub 95	**23**	**8**	**11**	**12**	**16**	**8**	**22**	**4.0**
Pub 93	23	12	16	12	14	8	16	3.7
UCS 93	41	23	14	14	6	1	1	2.3
Labs 93	5	7	11	28	25	17	7	4.4

SUSTAIN-17

B15/Prolif Preventing the spread of nuclear weapons?

	SUBSTANTIALLY DECREASE 1	2	3	4	5	6	SUBSTANTIALLY INCREASE 7	
%								MEAN
Pub 95	**18**	**3**	**3**	**5**	**9**	**10**	**52**	**5.2**
Pub 93	14	4	5	6	12	12	46	5.2
UCS 93	1	0	1	4	6	22	65	6.4
Labs 93	0	1	1	8	19	36	36	5.9

PROLIF-18

B16/Terror Preventing nuclear terrorism?

	SUBSTANTIALLY DECREASE 1	2	3	4	5	6	SUBSTANTIALLY INCREASE 7	
%								MEAN
Pub 95	**13**	**2**	**1**	**2**	**5**	**7**	**69**	**5.8**
Pub 93	7	2	4	5	8	12	61	5.8
UCS 93	1	1	1	7	11	22	57	6.2
Labs 93	0	0	1	6	17	31	45	6.1

TERROR-19

For the next two questions we will shift to a scale from zero to ten, where zero means ***not at all likely***, and ten means ***highly likely***.

B17/Unauth First, how would you rate the likelihood of a ***US*** nuclear weapons being used within the next twenty-five years without presidential authorization?

	NOT AT ALL LIKELY 0	1	2	3	4	5	6	7	8	9	HIGHLY LIKELY 10	
%												MEAN
Pub 95	**15**	**11**	**8**	**7**	**5**	**16**	**5**	**8**	**8**	**2**	**15**	**4.7**
Pub 93	15	13	11	12	6	14	4	6	8	2	10	4.1
UCS 93	7	21	17	15	5	10	6	5	6	2	4	3.6
Labs 93	20	38	19	9	3	3	1	3	2	1	1	1.9

UNAUTH-20

B18/Explode Second, how would you rate the likelihood of an accident involving a ***US*** nuclear weapon causing an unintended nuclear explosion?

	NOT AT ALL LIKELY										HIGHLY LIKELY	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**6**	**8**	**8**	**10**	**8**	**19**	**6**	**10**	**9**	**3**	**13**	**5.2**
Pub 93	5	10	12	11	8	18	8	9	7	3	10	4.8
UCS 93	4	14	17	16	6	9	8	7	7	4	6	4.2
Labs 93	24	37	18	9	3	4	2	2	1	1	0	1.7

EXPLODE-21

B19/USwar Now on a scale from one to seven, where one means the chances have ***decreased greatly***, and seven means the chances have ***increased greatly***, how has the breakup of the Soviet Union affected the chances that the ***US*** will be involved in a war with ***any*** country in which nuclear weapons are used?

	DECREASED GREATLY						INCREASED GREATLY	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**14**	**11**	**16**	**15**	**19**	**9**	**16**	**4.1**
Pub 93	11	16	18	15	19	10	11	3.9
UCS 93	10	23	21	19	16	8	3	3.4
Labs 93	3	13	15	19	30	16	4	4.2

USWAR-22

B20/Nucwar Using the same scale, how do you think the breakup of the Soviet Union has affected the possibility that nuclear weapons will be used by ***any*** country against ***any*** other country?

	DECREASED GREATLY						INCREASED GREATLY	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**8**	**7**	**12**	**14**	**22**	**13**	**23**	**4.7**
Pub 93	6	8	14	18	22	14	18	4.5
UCS 93	3	7	13	21	27	21	8	4.6
Labs 93	1	3	7	17	31	30	12	5.1

NUCWAR-23

B21/Retain On a scale from one to seven, where one is ***not at all important***, and seven *is* ***extremely important***, how important is it for the US to retain nuclear weapons today?

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**7**	**6**	**10**	**11**	**18**	**12**	**36**	**5.1**
Pub 93	6	6	11	14	20	13	30	5.0
UCS 93	15	17	16	15	16	12	8	3.7
Labs 93	1	4	6	8	12	29	41	5.8

RETAIN-24

B22/Nsprd Now on a scale where zero means the likelihood for future spread of nuclear weapons is ***greatly reduced***, and ten means the likelihood is ***greatly increased***, how do you think the breakup of the Soviet Union affects the likelihood that nuclear weapons will spread to other countries?

	GREATLY REDUCED								GREATLY INCREASED			
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**2**	**4**	**4**	**8**	**9**	**18**	**9**	**16**	**10**	**4**	**16**	**6.0**
Pub 93	7	6	0	10	0	13	20	0	17	0	26	6.4
UCS 93	1	1	2	3	4	12	11	18	21	11	15	7.0
Labs 93	0	0	1	2	1	6	8	19	23	19	21	7.9

NSPRD-37

B23/USrisk On a scale where zero means the spread of nuclear weapons poses ***no risk***, and ten means the spread of nuclear weapons poses ***extreme risk***, how would you rate the risks to the US if more countries have nuclear weapons?

	NO RISK									EXTREME RISK		
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**1**	**1**	**1**	**2**	**4**	**10**	**9**	**15**	**18**	**8**	**32**	**7.7**
Pub 93	1	0	2	3	3	9	9	16	18	8	32	7.6
UCS 93	1	1	2	3	2	5	11	18	24	15	18	7.5
Labs 93	1	0	1	1	1	5	8	17	27	20	20	7.9

USRSK-38

B24/Ternow The next two questions deal with the possibility of nuclear terrorism. Use a scale where zero means there is ***no threat*** of nuclear weapons being used by terrorists, and ten means there is ***extreme threat***.

First, how would you rate ***today's*** threat of nuclear terrorism occurring anywhere in the world?

	NO THREAT										EXTREME THREAT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**1**	**1**	**2**	**3**	**5**	**13**	**9**	**13**	**17**	**9**	**27**	**7.3**
Pub 93	1	2	3	5	6	13	10	14	18	6	22	6.9
UCS 93	1	7	9	9	4	10	14	18	14	7	6	5.7
Labs 93	0	4	9	8	5	10	15	19	17	9	5	6.0

TERNOW-43

B25/Tenyrs Second, how would you rate the threat of nuclear weapons being used by terrorists anywhere in the world during the ***next ten years***?

	NO THREAT										EXTREME THREAT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**1**	**1**	**3**	**4**	**5**	**12**	**9**	**15**	**14**	**7**	**28**	**7.2**
Pub 93	0	1	3	5	5	15	9	16	17	6	23	7.0
UCS 93	1	2	5	7	5	7	11	16	17	16	14	6.8
Labs 93	0	1	3	5	3	6	8	18	21	19	15	7.3

TENYRS-44

The next three questions deal with broad issues of US leadership, using a scale where zero means ***not important***, and ten means ***extremely important***.

B26/Influ First, how important are US nuclear weapons for US influence over international events?

	NOT IMPORTANT										EXTREMELY IMPORTANT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**3**	**2**	**5**	**7**	**6**	**18**	**10**	**14**	**13**	**4**	**18**	**6.2**
Pub 93	4	3	5	7	7	18	10	15	12	5	16	6.1
UCS 93	9	11	13	11	5	10	10	12	9	5	5	4.5
Labs 93	1	4	8	7	4	7	11	18	19	11	10	6.4

INFLU-49

B27/Status How important are US nuclear weapons for maintaining US status as a world leader?

	NOT IMPORTANT										EXTREMELY IMPORTANT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**4**	**3**	**4**	**5**	**5**	**15**	**8**	**14**	**14**	**6**	**24**	**6.7**
Pub 93	3	4	5	6	7	15	8	16	11	6	19	6.3
UCS 93	13	12	12	11	7	10	9	10	7	3	4	4.1
Labs 93	2	4	6	8	4	9	11	17	16	12	11	6.3

STATUS-50

B28/Sprpwr How important is it for the US to remain a military superpower?

	NOT IMPORTANT										EXTREMELY IMPORTANT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**2**	**2**	**1**	**3**	**2**	**9**	**6**	**12**	**13**	**7**	**44**	**7.9**
Pub 93	1	2	2	3	3	8	7	15	10	8	39	7.6
UCS 93	10	6	8	9	5	8	12	14	11	7	11	5.3
Labs 93	1	1	2	3	2	5	6	13	18	18	31	7.9

SPRPWR-51

B29/Reduce The US has agreed to reduce the number of its nuclear weapons from more than 20,000 down to approximately 3,000. Using a scale where one means you ***strongly oppose***, and seven means you ***strongly support*** further reductions in US nuclear weapons, how do you feel about ***further*** reducing the number of US nuclear weapons below 3,000.*

	STRONGLY OPPOSE						STRONGLY SUPPORT	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**19**	**6**	**10**	**10**	**15**	**8**	**31**	**4.4**
Pub*93	13	7	10	13	22	11	24	4.5
UCS*93	1	2	2	6	10	26	53	6.1
Labs*93	12	16	13	14	18	16	10	4.0

REDUCE-57

* Wording in 1993: "The US has agreed to reduce the number of its nuclear weapons by about 30 to 40 percent. Some people argue that greater reductions are warranted because of the end of the Cold War. Others argue that international ethnic conflicts, revolutions, and other uncertainties make it risky to reduce below these levels. On a scale from 1 to 7, where 1 means you ***strongly oppose*** further reductions in US nuclear weapons, and 7 means you ***strongly support*** further reductions, please indicate how you feel about further reducing the number of US nuclear weapons below the levels of current agreements."

Using a scale where one means you ***strongly disagree***, and seven means you ***strongly agree***, please respond to the following statement:

B30/Tanks Having a nuclear arsenal means the US can spend less for national defense than would be necessary without nuclear weapons.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**25**	**11**	**11**	**13**	**15**	**9**	**15**	**3.7**
Pub 93	24	15	15	12	17	9	9	3.4
UCS 93	38	30	10	9	7	3	3	2.4
Labs 93	23	31	14	8	13	9	4	3.0

TANKS-58

The next two questions deal with the economic value of defense industry jobs and defense related technologies. Both use a scale where one means ***little economic value***, and seven means ***great economic value***.

B31/Jobs First, how do you rate the economic value of defense industry jobs in America?

	LITTLE ECONOMIC VALUE 1	2	3	4	5	6	GREAT ECONOMIC VALUE 7	MEAN
	%							
Pub 95	**7**	**6**	**10**	**17**	**23**	**14**	**23**	**4.8**
Pub 93	7	9	13	15	23	15	18	4.6
UCS 93	26	29	17	10	9	6	2	2.7
Labs 93	4	8	12	14	27	27	9	4.7

JOBS-59

B32/Tectran Next, how do you rate the economic value of technological advances in defense industries for other areas of the US economy?

	LITTLE ECONOMIC VALUE 1	2	3	4	5	6	GREAT ECONOMIC VALUE 7	MEAN
	%							
Pub 95	**4**	**3**	**8**	**13**	**24**	**19**	**30**	**5.3**
Pub 93	NA	NA	NA	NA	NA	NA	NA	NA
UCS 93	5	18	17	17	24	15	4	4.0
Labs 93	1	5	5	9	26	38	17	5.4

TECTRAN-91 (UCS and Labs only)

The next three questions are about nuclear deterrence, which means preventing someone from using nuclear weapons against us, because they expect that we would retaliate by using nuclear weapons against them.

B33/Pdeter First, on a scale where zero means ***not at all important***, and ten means ***extremely important***, how important was nuclear deterrence in preventing nuclear conflict during the cold war?

	NOT AT ALL IMPORTANT								EXTREMELY IMPORTANT			
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**1**	**1**	**1**	**2**	**3**	**10**	**7**	**13**	**16**	**9**	**36**	**7.8**

B34/Ndeter Using the same scale, how important are our nuclear weapons for preventing other countries from using nuclear weapons against us today?

	NOT AT ALL IMPORTANT								EXTREMELY IMPORTANT			
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**2**	**1**	**2**	**3**	**3**	**10**	**8**	**13**	**16**	**8**	**34**	**7.6**

B35/Fdeter For this question, zero means ***not at all effective***, and ten means ***extremely effective***. If more countries acquire nuclear weapons in the future, how effective will nuclear deterrence be in preventing nuclear wars from occurring anywhere in the world?

	NOT EFFECTIVE								EXTREMELY EFFECTIVE			
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**7**	**4**	**4**	**7**	**6**	**16**	**8**	**13**	**12**	**4**	**20**	**6.0**

B36/Amway On a scale where zero means nuclear weapons have been ***not at all important***, and ten means they have been ***extremely important***, how important do you think nuclear weapons have been to preserving America's way of life?

	NOT AT ALL IMPORTANT								EXTREMELY IMPORTANT			
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**5**	**3**	**4**	**6**	**7**	**15**	**9**	**12**	**14**	**5**	**20**	**6.3**
Pub 93	4	4	5	7	7	15	9	13	15	6	15	6.1
UCS 93	15	10	11	8	5	11	9	12	9	5	5	4.3
Labs 93	2	2	3	4	2	5	7	14	19	20	22	7.5

AMWAY-70

The next three questions are about arms control efforts. They all use the same scale where zero means you ***strongly oppose*** them, and ten means you ***strongly support*** them.

B37/CTBT First, how do you feel about the US participating in a treaty that bans all nuclear test explosions?

	STRONGLY OPPOSE										STRONGLY SUPPORT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**6**	**3**	**3**	**3**	**3**	**11**	**5**	**8**	**11**	**6**	**40**	**7.2**

B38/FMC Next, how do you feel about the US participating in a treaty that bans production of nuclear materials that could be used to make nuclear weapons?

	STRONGLY OPPOSE										STRONGLY SUPPORT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**6**	**3**	**3**	**4**	**4**	**13**	**6**	**10**	**10**	**6**	**36**	**7.0**

B39/Disarm Finally, how do you feel about the US agreeing to a provision that requires us to eventually eliminate all of our nuclear weapons?

	STRONGLY OPPOSE										STRONGLY SUPPORT	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**12**	**6**	**5**	**7**	**5**	**13**	**5**	**7**	**7**	**4**	**28**	**5.8**

Now we want to understand more about how you feel about American society. Shifting to a scale where one means you ***strongly disagree***, and seven means you ***strongly agree***, please respond to each of the following statements.

B40/Ahead The best way to get ahead in life is to work hard and do what you are told to do.

	STRONGLY DISAGREE					STRONGLY AGREE		
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**10**	**6**	**10**	**13**	**18**	**13**	**30**	**4.8**

B41/Fail Even if some people are at a disadvantage, it is best for society to let people succeed or fail on their own.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	9	6	10	14	18	12	31	4.9

B42/Fair What our society needs is a fairness revolution to make the distribution of goods more equal.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	24	11	11	10	15	8	21	3.9

B43/Random Most of the important things that take place in life happen by random chance.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	31	19	12	10	12	5	11	3.1

B44/Auth Our society is in trouble, because we don't obey those in authority.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	15	9	10	11	19	11	26	4.5

B45/Disadv Even the disadvantaged should have to make their own way in the world.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	14	8	16	15	18	10	19	4.2

B46/Pwr Society works best if power is shared equally.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	13	7	10	12	17	11	30	4.7

B47/Fate No matter how hard we try, the course of our lives is largely determined by forces beyond our control.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	25	15	12	9	13	7	19	3.6

B48/Rules Society would be much better off if we imposed strict and swift punishment on those who break the rules.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	5	3	6	7	13	15	50	5.7

B49/Rich People who get rich in business have a right to keep and enjoy their wealth.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	7	3	5	10	17	18	39	5.4

B50/Fair It is our responsibility to reduce the differences in income between the rich and the poor.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	24	11	11	12	15	8	19	3.8

B51/Chance For the most part, succeeding in life is a matter of chance.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	**34**	**18**	**13**	**9**	**10**	**5**	**11**	**3.0**

B52/Indiv We are all better off when we compete as individuals.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	**10**	**7**	**9**	**11**	**15**	**13**	**35**	**4.9**

Now I would like to ask you a few background questions.

B53/Edu First, what is the highest level of education you have completed?

%	UCS 93	LABS 93	PUBLIC 93	**PUBLIC 95**
Elementary or some high school	0	0	6	**6**
High school graduate	0	0	24	**28**
Trade or vocational certificate	3	6	32	**3**
Some college/Associate degree	N/A	N/A		**27**
College graduate	9	12	20	**20**
Graduate work (no degree)	10	10	5	**4**
Master's degree	20	34	9	**8**
Doctoral degree (any type)	55	38	3	**3**
Other	2	1	1	**N/A**

EDUCA-151

B54/Field Please indicate your most recent field of study in college or graduate school.

%	UCS 93	LABS 93	PUBLIC 93	**PUBLIC 95**
Physical sciences	36	32	6	**6**
Medicine	12	1	9	**9**
Engineering	13	52	9	**9**
Business	2	3	24	**23**
Law	1	1	4	**3**
Social sciences	9	1	11	**13**
Fine arts	2	1	4	**5**
Humanities	3	0	18	**10**
Other	22	10	15	**21**

FIELD-152

B55/Age How old are you?

(mean ages)

UCS 93	LABS 93	PUBLIC 93	**PUBLIC 95**
52.8	43.7	42.3	**42.2**

AGE-154

B56/Gend Are you female or male?

	%	FEMALE	MALE
Public	**95**	**54**	**46**
Public	93	51	49
UCS	93	23	77
Labs	93	18	82

GEND-157

B57/Ideol On a scale of political ideology, individuals can be arranged from strongly liberal to strongly conservative. Which of the following categories best describes your views? Would you say that you are: strongly liberal, liberal, slightly liberal, middle of the road, slightly conservative, conservative, or strongly conservative?

	STRONGLY LIBERAL					STRONGLY CONSERVATIVE		
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**2**	**10**	**11**	**28**	**21**	**20**	**7**	**4.5**
Pub 93	4	12	12	28	17	19	9	4.3
UCS 93	18	42	21	10	6	3	0	2.6
Labs 93	2	9	16	16	28	15	4	4.5

IDEOL-148

B58/Party With what political party do you identify?

	DEMOCRAT	REPUBLICAN	INDEPENDENT	OTHER
%	1	2	3	4
Public 95	**37**	**37**	**23**	**3**
Public 93	43	39	16	2
UCS 93	67	6	22	5
Labs 93	29	48	19	4

PARTY-149

B59/Partisan Do you identify completely, somewhat, or slightly with that political party?

%	SLIGHTLY 1	SOMEWHAT 2	COMPLETELY 3	MEAN
Public 95	**21**	**58**	**21**	**2.0**
Public 93	18	55	26	2.1
UCS 93	21	62	17	2.0
Labs 93	27	63	10	1.8

PARTISAN-150

B60/Income What was the estimated annual income for your ***household*** in 1994?

(mean ranges)

UCS 93	LABS 93	PUBLIC 93	**PUBLIC 95**
$60,000 - $75,000	$75,000 - $90,000	$35,000 - $40,00	**$30,000- $40,000**

INCOME-155

B61/Race From the following categories, do you consider yourself:

%	UCS 93	LABS 93	PUBLIC 93	**PUBIC 95**
1. White	94	89	84	**79**
2. Black	1	0	6	**7**
3. Hispanic	1	3	4	**4**
4. American Indian	0	0	2	**2**
5. Asian	1	4	2	**2**
6. Something Else	1	2	2	**6**
7. Don't Know	1	0	0	**0**

RACE-158

B62/Reside Including yourself, how many people currently live at your residence?

Public 95 (mean)	**2.8**

B63/Ovr18 How many of those are 18 or older?

Public 95 (mean)	**2.2**

B64/Wkdays How many days a week do you work outside your home?

%	0	1	2	3	4	5	6	7	MEAN
Pub 95	**22**	**1**	**3**	**4**	**5**	**48**	**12**	**4**	**3.8**

B65/Mvet Have you ever personally served in the US military?

%	NO	YES
Public 95	**83**	**17**

B66/Branch (For those answering yes) Which branch of service?

(multiple answers possible)

COUNT	ARMY	NAVY	MARINES	AIR FORCE	COAST GUARD	RESERVES/ NAT'L GUARD	OTHER
Public 95	**186**	**103**	**47**	**81**	**6**	**17**	**5**

B67/Cvet Have you ever personally served in military combat?

%	NO	YES
Public 95	**89**	**11**

B68/Theater (For those answering yes) Where did you serve in combat?
(multiple answers possible)

PUBLIC 95	COUNT
Persian Gulf	**21**
Panama	**2**
Grenada	**5**
Southeast Asia	**77**
Korea	**30**
World War II (Europe)	**16**
World War II (Pacific)	**25**
Other	**11**

B69/Famvet Has anyone in your immediate family ever served in the US Military?

%	NO	YES
Public 95	**39**	**61**

B70/Fambrch (For those answering yes) Which branch of service?

(multiple answers possible)

COUNT	ARMY	NAVY	MARINES	AIR FORCE	COAST GUARD	RESERVES/ NAT'L GUARD	OTHER
Public 95	**866**	**454**	**186**	**312**	**22**	**41**	**24**

B71/Zip What is your zip code?

B71a/Phones How many different residential phone lines do you have in your household? By this we mean phones with different numbers; do not include business lines.

	MEAN
Public 95	**1.2**

B72/Panel Would it be possible to call back in a couple of months to ask you some follow-up questions?

%	NO	YES
Public 95	**8**	**92**

B73/Reluc Thinking back to when I first contacted you, what were your feelings about participating with us? Would you say you were very reluctant, somewhat reluctant, slightly reluctant, or not at all reluctant to participate with our research?

%	NOT AT ALL RELUCTANT 0	SLIGHTLY RELUCTANT 1	SOMEWHAT RELUCTANT 2	VERY RELUCTANT 3
Public 95	**38**	**30**	**23**	**9**

Subsection C (N = 844)

Nuclear Proliferation and Terrorism Policies

On a scale where one means you ***strongly disagree***, and seven means you ***strongly agree***, please respond to the following statements:

C1/Milspt The US should consider providing guarantees of military support to other countries if necessary to prevent them from developing nuclear weapons of their own.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**12**	**6**	**10**	**14**	**21**	**14**	**22**	**4.6**
Pub 93	10	6	12	11	20	14	28	4.8
UCS 93	11	11	9	15	24	20	11	4.3
Labs 93	5	13	10	15	27	23	7	4.4

MILSPT-39

C2/Force In some cases, the US would be justified in using force to prevent other countries from acquiring nuclear weapons.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**9**	**5**	**9**	**11**	**21**	**17**	**29**	**5.0**
Pub 93	8	5	9	10	18	16	35	5.1
UCS 93	10	11	8	12	21	26	12	4.5
Labs 93	3	6	7	9	25	30	20	5.2

FORCE-40

C3/Nonucs It is feasible to eliminate all nuclear weapons world-wide within the next 25 years.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**26**	**9**	**10**	**9**	**13**	**8**	**24**	**4.0**
Pub 93	29	14	8	6	11	7	25	3.8
UCS 93	16	20	11	10	12	16	15	3.9
Labs 93	49	25	9	5	6	4	3	2.2

NONUCS-41

C4/Future Even if all the nuclear weapons could somehow be eliminated world-wide, it would be extremely difficult to keep other countries from building them again.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**5**	**2**	**3**	**6**	**14**	**17**	**52**	**5.8**
Pub 93	5	3	3	4	12	16	56	5.9
UCS 93	3	7	6	7	20	32	25	5.3
Labs 93	1	1	1	2	10	35	50	6.2

FUTURE-42

C5/Unilat The US should set the example by dismantling most of its nuclear weapons, even if some other countries do not reduce their nuclear weapons.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
	%							
Pub 95	**32**	**11**	**10**	**12**	**16**	**8**	**11**	**3.3**

C6-C10/NucXX Now I'm going to read you a list of five countries. Using a scale where zero means ***no threat***, and ten means ***extreme threat***, how much threat would each of the following countries pose if they had nuclear weapons?

	NO THREAT 0	1	2	3	4	5	6	7	8	9	EXTREME THREAT 10	MEAN
% Public 95												
N. Korea (C6/NucNK)	**2**	**1**	**3**	**6**	**6**	**16**	**11**	**16**	**12**	**6**	**21**	**6.6**
Iran (C7/NucIR)	**1**	**1**	**1**	**2**	**3**	**8**	**8**	**16**	**11**	**9**	**40**	**7.9**
Iraq (C8/NucIQ)	**0**	**1**	**1**	**1**	**2**	**5**	**7**	**17**	**12**	**10**	**44**	**8.2**
Japan (C9/NucJP)	**7**	**6**	**10**	**11**	**10**	**17**	**5**	**10**	**9**	**3**	**12**	**5.0**
Germany (C10/NucGR)	**10**	**7**	**14**	**12**	**10**	**17**	**8**	**9**	**6**	**1**	**6**	**4.3**

C11-C13/StpXX Now, using a scale where one means ***strongly oppose***, and seven means ***strongly support***, how would you feel about using US military forces, that ***do not*** include nuclear weapons, to stop each of the following countries from acquiring their own nuclear weapons?

	STRONGLY OPPOSE 1	2	3	4	5	6	STRONGLY SUPPORT 7	MEAN
% Public 95								
N. Korea (C11/StpNK)	**11**	**5**	**7**	**10**	**18**	**14**	**34**	**5.0**
Iran (C12/StpIR)	**10**	**4**	**5**	**6**	**15**	**15**	**45**	**5.4**
Iraq (C13/StpIQ)	**11**	**3**	**4**	**6**	**14**	**12**	**51**	**5.5**

C16-C20/MatXX Using a scale where zero means ***never happen***, and ten means ***certain to happen***, how likely to you think it is that nuclear materials from the following countries might fall into the wrong hands?

	NEVER HAPPEN 0	1	2	3	4	5	6	7	8	9	CERTAIN TO HAPPEN 10	MEAN
% Public 95												
France (C16/MatFR)	**5**	**5**	**12**	**12**	**12**	**20**	**7**	**11**	**6**	**2**	**8**	**4.8**
China (C17/MatCH)	**2**	**2**	**3**	**6**	**6**	**16**	**11**	**18**	**13**	**3**	**20**	**6.5**
Russia (C18/MatRU)	**1**	**1**	**2**	**4**	**3**	**14**	**10**	**21**	**14**	**7**	**24**	**7.2**
US (C19/MatUS)	**8**	**8**	**11**	**11**	**9**	**17**	**5**	**13**	**7**	**1**	**9**	**4.7**
Israel (C20/MatIS)	**5**	**5**	**8**	**10**	**8**	**16**	**10**	**13**	**8**	**3**	**12**	**5.3**

The bombings of the world trade center in New York and the federal building in Oklahoma City have raised questions about what can be done to stop terrorism. Using a scale where one means you ***strongly disagree***, and seven means you ***strongly agree***, please respond to the following statements:

C21/Stopter There is nothing the government can do to stop determined terrorists.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	31	11	10	6	13	8	20	3.7

C22/Nointrde The government could stop terrorists, but only with unacceptable intrusions on people's rights and privacy.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	16	10	8	9	17	12	28	4.5

C23/Yesintrde The government must try to stop terrorists, even if it intrudes on some people's rights and privacy.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	10	5	8	8	17	15	38	5.1

Using a scale where one means ***strongly oppose***, and seven means ***strongly support***, how would you feel about giving the federal government the following powers to prevent terrorism?

C24/Expel The power to quickly expel from the U.S. any citizen of another country who is suspected of planning a terrorist act, even if the person has not been convicted of any crime?

	STRONGLY OPPOSE 1	2	3	4	5	6	STRONGLY SUPPORT 7	MEAN
%								
Pub 95	9	5	6	9	14	16	41	5.3

C25/Spy The power to infiltrate and spy on organizations in this country that the government suspects of planning terrorist acts, even if the groups have not been convicted of any crime?

	STRONGLY OPPOSE 1	2	3	4	5	6	STRONGLY SUPPORT 7	MEAN
%								

Pub 95	**11**	**7**	**9**	**9**	**21**	**12**	**29**	**4.8**

C26/Seize The power to search for and seize weapons from groups that are suspected of planning terrorist acts, even if the groups have not been convicted of any crime?

	STRONGLY OPPOSE						STRONGLY SUPPORT	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**12**	**8**	**6**	**10**	**17**	**13**	**34**	**4.9**

C27/ID The power to require national identification cards for all U.S. citizens.

	STRONGLY OPPOSE						STRONGLY SUPPORT	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**27**	**6**	**7**	**8**	**13**	**7**	**32**	**4.2**

C28/Radio The power to ban people from speaking on radio or television if they advocate anti-government violence?

	STRONGLY OPPOSE						STRONGLY SUPPORT	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**28**	**11**	**10**	**7**	**9**	**10**	**25**	**3.8**

C29/Cnet The power to ban information about bomb-making from computer networks.

	STRONGLY OPPOSE						STRONGLY SUPPORT	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**10**	**4**	**5**	**6**	**9**	**12**	**54**	**5.5**

C30/Nresp How would you feel about the U.S. using nuclear weapons to attack a country that supported nuclear terrorism against the U.S.?

	STRONGLY OPPOSE						STRONGLY SUPPORT	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**22**	**8**	**9**	**9**	**18**	**9**	**26**	**4.2**
Pub 93	25	11	8	9	15	8	24	4.0
UCS 93	46	18	7	7	7	7	8	2.6
Labs 93	18	16	9	11	14	17	15	4.0

NRESP-48

C31/Chem The U.S. has stopped making chemical weapons and is destroying its remaining stocks. If another country used chemical weapons, such as poisonous gases or nerve agents, against our military forces, how would you feel about using nuclear weapons to retaliate?

	STRONGLY OPPOSE 1	2	3	4	5	6	STRONGLY SUPPORT 7	MEAN
%								
Pub 95	**19**	**8**	**7**	**8**	**17**	**12**	**29**	**4.5**

C32/Bio The U.S. has no biological weapons today. If another country used biological weapons, such as germs or viruses, against our military forces, how would you feel about using nuclear weapons to retaliate?

	STRONGLY OPPOSE 1	2	3	4	5	6	STRONGLY SUPPORT 7	MEAN
%								
Pub 95	**19**	**8**	**6**	**10**	**14**	**13**	**30**	**4.5**

C33/Advtech Some people think that decisions about the applications of advanced technologies, such as genetic engineering or nuclear energy, should be made primarily by the public. Others think that these decisions should be made primarily by technically trained experts. On a scale where one means that such decisions should be made mostly by the ***public***, and seven means that such decisions should be made mostly by ***experts***, what is your opinion?

	BY THE PUBLIC 1	2	3	4	5	6	BY EXPERTS 7	MEAN
%								
Pub 95	**11**	**4**	**8**	**15**	**18**	**14**	**30**	**4.9**
Pub 93	8	3	8	19	25	15	22	4.8
UCS 93	12	11	11	28	16	15	7	4.0
Labs 93	2	5	4	22	25	31	10	5.0

ADVTECH-60

C34/Truinfo On a scale where one means government information has been ***highly inaccurate***, and seven means it has been ***highly accurate***, how would you rate the accuracy of official government information to the public about environmental effects of U.S. nuclear weapons production?

	HIGHLY INACCURATE 1	2	3	4	5	6	HIGHLY ACCURATE 7	MEAN
%								
Pub 95	**21**	**16**	**19**	**18**	**16**	**4**	**6**	**3.3**
Pub 93	19	15	22	20	16	4	3	3.2
UCS 93	30	33	18	10	6	2	1	2.4
Labs 93	7	16	21	23	19	12	1	3.7

TRUINFO-61

C35*f*C38/XXX On a scale where zero means ***no trust***, and ten means ***complete trust***, how much do you trust the following organizations to safely manage nuclear resources such as nuclear weapons or radioactive materials?

% Public 95	NO TRUST 0	1	2	3	4	5	6	7	8	9	COMPLETE TRUST 10	MEAN
Dept. of Defense (C35/DOD)	**5**	**6**	**6**	**10**	**8**	**21**	**11**	**14**	**9**	**2**	**7**	**5.2**
Public Utilities (C36/Util)	**8**	**11**	**8**	**14**	**13**	**18**	**8**	**10**	**6**	**1**	**4**	**4.2**
Dept. of Energy (C37/DoE)	**5**	**6**	**7**	**11**	**11**	**22**	**11**	**12**	**8**	**2**	**5**	**4.9**
National Labs (C38/Labs)	**5**	**5**	**5**	**10**	**11**	**23**	**13**	**14**	**8**	**2**	**5**	**5.1**

C39/Low You rated _____ the lowest, giving them a score of _____ on the zero to ten scale. Would you tell me why you gave this evaluation?

(verbatim answers)

Subsection D (N = 834)

U.S. and Russian Scientific Cooperation

Using a scale where one means you ***strongly disagree***, and seven means you ***strongly agree***, please respond to the following statements regarding U.S. and Russian scientists.

D1/Coop Scientists at U.S. nuclear laboratories should promote scientific cooperation with scientists at nuclear laboratories in Russia.

	STRONGLY DISAGREE						STRONGLY AGREE	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	10	4	7	11	20	17	32	5.1

D2/Visit U.S. and Russian nuclear scientists should exchange visits to promote better understanding.

	STRONGLY DISAGREE						STRONGLY AGREE	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	5	2	5	7	14	15	53	5.8

D3/Rusmat U.S. scientists should work with scientists in Russia to help insure that Russian nuclear materials are properly protected.

	STRONGLY DISAGREE						STRONGLY AGREE	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	6	2	4	5	15	14	52	5.8

D4/Ruswpns U.S. scientists should work with scientists in Russia to help insure that they keep their nuclear weapons safe and secure, even if such assistance might also help preserve Russian abilities to develop new nuclear weapons in the future.

	STRONGLY DISAGREE						STRONGLY AGREE	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	9	4	6	14	22	15	29	5.0

D5/Nonwpn U.S. scientists should work with scientists in Russia to help them move from nuclear weapons research into other areas of research.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	6	4	4	8	15	15	48	5.6

D6/Payconv The U.S. government should help pay to convert Russian industries from producing nuclear weapons to producing other kinds of products.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	25	11	13	12	15	5	19	3.7

Using the same scale from one to seven, how do you feel about each of the following statements concerning nuclear security in Russia?

D7/Matsec The U.S. should work to improve the security of Russian nuclear materials through close scientific cooperation.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	8	3	8	11	19	17	35	5.2

D8/USpay The U.S. should help pay to correct dangerous nuclear security problems in Russia, even if the money is not repaid.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	25	10	13	12	16	8	16	3.7

D9/Store The U.S. should help the Russians safely dispose of nuclear materials from dismantled Russian warheads.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	10	4	8	8	18	13	38	5.1

D10/Wepay The U.S. should fund safe disposal of dismantled Russian nuclear warheads, even if the money is not repaid.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	23	8	12	12	18	8	19	3.9

D11/Sharesec If necessary to help prevent the illegal spread of nuclear weapons, it would be acceptable for U.S. and Russian scientists to share some nuclear secrets.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	MEAN
%								
Pub 95	16	6	8	11	18	15	26	4.6

The next two questions use a scale where zero means it will ***never happen***, and ten means it is ***certain to happen***.

D12/SmugRS First, how likely do you think it is that ***Russian*** nuclear weapons might be smuggled into the wrong hands?

	NEVER HAPPEN 0	1	2	3	4	5	6	7	8	9	CERTAIN TO HAPPEN 10	MEAN
%												
Pub 95	1	1	2	3	4	14	10	19	16	6	24	7.1

D13/SmugUS Second, how likely do you think it is that ***U.S.*** nuclear weapons might be smuggled into the wrong hands?

	NEVER HAPPEN 0	1	2	3	4	5	6	7	8	9	CERTAIN TO HAPPEN 10	MEAN
%												
Pub 95	**6**	**6**	**9**	**11**	**6**	**17**	**7**	**12**	**9**	**3**	**13**	**5.2**

D14–D17/XXX On a scale where zero means ***no trust***, and ten means ***complete trust***, how much do you trust each of the following Russian groups to support peaceful policies?

	NO TRUST 0	1	2	3	4	5	6	7	8	9	COMPLETE TRUST 10	MEAN
% Public 95												
Russian Govt. (D14/RSgovt)	**17**	**8**	**9**	**12**	**13**	**22**	**8**	**6**	**3**	**1**	**2**	**3.6**
Rus. Military (D15/RSmil)	**19**	**11**	**10**	**18**	**10**	**17**	**6**	**4**	**1**	**1**	**2**	**3.1**
Rus.Nuc.Scient. (D16/RSscien)	**12**	**6**	**6**	**8**	**9**	**24**	**9**	**11**	**9**	**3**	**4**	**4.6**
Russian People (D17/RSpeop)	**8**	**4**	**5**	**6**	**9**	**19**	**10**	**15**	**11**	**4**	**9**	**5.4**

D18–D21/XXX Now we would like you to rate the current relationship between the U.S. and each of the following countries. Use a scale where one means ***extremely hostile***, and seven means ***extremely friendly***.

	EXTREMELY HOSTILE 1	2	3	4	5	6	EXTREMELY FRIENDLY 7	MEAN
% Public 95								
U.S. & Russia (D18/RSnow)	**4**	**3**	**11**	**21**	**38**	**13**	**9**	**4.6**
U.S. & China (D19/CHnow)	**8**	**12**	**20**	**21**	**22**	**8**	**8**	**4.0**
U.S. & Japan (D20/JPnow)	**3**	**3**	**9**	**17**	**27**	**22**	**18**	**5.0**
U.S. & Germany (D21/GRnow)	**4**	**2**	**5**	**12**	**25**	**25**	**27**	**5.3**

D22–D25/XXX Using the same scale, how do you think the relationship between the U.S. and each of the following countries will be ***ten years from now***?

	EXTREMELY HOSTILE 1	2	3	4	5	6	EXTREMELY FRIENDLY 7	
% Public 95								MEAN
U.S. & Russia (D22/RSyrs)	**7**	**4**	**7**	**12**	**28**	**22**	**19**	**5.0**
U.S. & China (D23/CHyrs)	**9**	**7**	**14**	**15**	**25**	**14**	**15**	**4.5**
U.S. & Japan (D24/JPyrs)	**5**	**5**	**9**	**14**	**25**	**21**	**23**	**5.0**
U.S. & Germany (D25/GRyrs)	**4**	**2**	**5**	**9**	**24**	**26**	**30**	**5.5**

The problems of crime in American society have raised questions about what can be done to reduce them. Using a scale where one means you ***strongly disagree***, and seven means you ***strongly agree***, please respond to the following statement:

D26/Govstop The government must stop crime, even if it means limiting our constitutional rights.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	**28**	**12**	**10**	**10**	**17**	**10**	**13**	**3.6**

D27/Conrts Using a scale where one means ***not at all threatened***, and seven means ***very threatened***, how threatened would you feel if the government adopted policies that limited our constitutional rights in order to stop crime?

	NOT AT ALL THREATENED 1	2	3	4	5	6	VERY THREATENED 7	
%								MEAN
Pub 95	**8**	**6**	**7**	**9**	**16**	**17**	**36**	**5.1**

D28/Presvrts Using a scale where one means ***not at all threatened***, and seven means ***very threatened***, how threatened would you feel if the government did ***not*** adopt policies that limited our constitutional rights in order to stop crime?

	NOT AT ALL THREATENED						VERY THREATENED	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	17	12	12	11	19	10	19	4.1

D29/Govact Using a scale where one means ***not at all likely***, and seven means ***very likely***, how likely do you think it is that the government will adopt policies that limit our constitutional rights in order to stop crime?

	NOT AT ALL LIKELY						VERY LIKELY	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	13	9	11	14	24	13	16	4.3

The ongoing debate in Congress has highlighted the problems of continuing the Medicare and Social Security programs at present levels. Using a scale where one means you ***strongly disagree***, and seven means you ***strongly agree***, please respond to the following statement:

D30/RedSS The government should reduce the Medicare and Social Security programs.

	STRONGLY DISAGREE						STRONGLY AGREE	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	42	12	10	8	11	5	12	3.0

D31/ThrtSS Using a scale where one means ***not at all threatened***, and seven means ***very threatened***, how threatened would you feel if the government reduced the Medicare and Social Security programs?

	NOT AT ALL THREATENED						VERY THREATENED	
	1	2	3	4	5	6	7	
%								MEAN

Pub 95	**12**	**7**	**10**	**9**	**16**	**14**	**32**	**4.8**

D32/KeepSS Using a scale where one means ***not at all threatened***, and seven means ***very threatened***, how threatened would you feel if the government did ***not*** reduce the Medicare and Social Security programs?

	NOT AT ALL THREATENED						VERY THREATENED	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**29**	**13**	**15**	**9**	**14**	**7**	**13**	**3.4**

D33/FutSS Using a scale where one means ***not at all likely***, and seven means ***very likely***, how likely do you think it is that the government will reduce the Medicare and Social Security programs?

	NOT AT ALL LIKELY						VERY LIKELY	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**7**	**4**	**8**	**8**	**20**	**21**	**32**	**5.2**

Subsection E (N = 812)

Personal Security

E1/Crmelab On a scale where one means ***strongly oppose,*** and seven means ***strongly support***, how do you feel about federally funded national laboratories researching new technologies to fight crime and enhance our personal security?

	STRONGLY OPPOSE 1	2	3	4	5	6	STRONGLY SUPPORT 7	MEAN
%								
Pub 95	7	3	6	9	18	16	42	5.5

I'm going to read you a list of four areas where technologies might be developed to fight crime and increase personal security. Using a scale where zero means ***not at all important***, and ten means ***extremely important***, how important is each of the following?

E2/Card Technologies to reduce credit card fraud?

	NOT AT ALL IMPORTANT 0	1	2	3	4	5	6	7	8	9	EXTREMELY IMPORTANT 10	MEAN
%												
Pub 95	1	1	2	2	2	6	6	13	11	7	50	8.3

E3/Guns Technologies to prevent firearms from being fired by anyone not authorized to use them?

	NOT AT ALL IMPORTANT 0	1	2	3	4	5	6	7	8	9	EXTREMELY IMPORTANT 10	MEAN
%												
Pub 95	4	4	4	3	4	8	5	12	8	6	43	7.4

E4/Recrds Technologies to prevent unauthorized access to personal information about you, such as health and financial records?

	NOT AT ALL IMPORTANT 0	1	2	3	4	5	6	7	8	9	EXTREMELY IMPORTANT 10	MEAN
%												

Pub 95	**2**	**2**	**1**	**2**	**1**	**5**	**6**	**13**	**12**	**7**	**49**	**8.1**

E5/Stun Technologies for immobilizing criminals or violent individuals without permanently injuring them?

NOT AT ALL IMPORTANT — EXTREMELY IMPORTANT

	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**2**	**3**	**3**	**3**	**4**	**10**	**6**	**15**	**11**	**7**	**36**	**7.4**

E6/Secstds On a scale where one means ***strongly disagree***, and seven means ***strongly agree***, please respond to the following statement. Federally funded national laboratories should work with industry to establish standards for technologies whose purpose is to enhance personal security.

STRONGLY DISAGREE — STRONGLY AGREE

	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**5**	**2**	**5**	**9**	**20**	**15**	**43**	**5.6**

Using the same scale, how do you feel about each of the following statements dealing with new technologies for reducing crime and improving personal security?

E7/Govmkt New technologies should be developed and marketed by the U.S. government.

STRONGLY DISAGREE — STRONGLY AGREE

	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**22**	**13**	**11**	**12**	**18**	**9**	**17**	**3.9**

E8/Givtec New technologies should be given at no cost to private industry for marketing to the public.

STRONGLY DISAGREE — STRONGLY AGREE

	1	2	3	4	5	6	7	
%								MEAN
Pub 95	**20**	**12**	**11**	**15**	**17**	**7**	**16**	**3.8**

E9/Selltec New technologies should be sold by the federal government to private industry for marketing to the public.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	21	10	10	15	18	11	14	3.9

E10/Pard New technologies should be developed in partnership with industry, with some research investment coming from the private sector and some from the federal government.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	6	4	6	9	20	18	37	5.4

E11/Privsec New technologies should be developed and marketed entirely by the private sector, with no participation by government funded laboratories.

	STRONGLY DISAGREE 1	2	3	4	5	6	STRONGLY AGREE 7	
%								MEAN
Pub 95	18	14	14	15	16	9	13	3.8

E12/Escape Assume that a U.S. national laboratory developed a security system that was sold by a private company to a state prison. The system was designed to reduce the chance of escape. Although the security system was working properly, an inmate managed to escape from prison and murder someone. The victim's family wants to sue for their loss.

Any of four parties might be considered responsible: the convict; the prison; the company that sold the security system to the prison; or the national laboratory that developed the security system. What percent of the total responsibility, if any, would you assign to each of the parties?

PUBLIC 95	MEAN %
The convict	62.6
The prison	15.4
The company that sold the security system	8.1

The national lab that developed the technology	**8.2**

E13/Killed Assume that a U.S. national laboratory developed, and a private firm marketed, a new type of pistol designed to reduce the chance of being fired by anyone other than the authorized user. A label on the pistol warned that safety depends on maintaining strict control over the weapon. The safety feature failed, and the pistol was accidentally fired by the child of the gun owner, and someone was killed.

Any of four parties might be considered responsible: the store that sold the pistol; the firm that manufactured the pistol; the gun owner who failed to keep the pistol from the child; and the national laboratory that developed the technology to prevent unauthorized firing of the pistol. What percent of the total responsibility, if any, would you assign to each of the parties?

PUBLIC 95	MEAN %
The store that sold the pistol	**5.6**
The firm that manufactured the pistol	**18.7**
The gun owner	**59.8**
The national lab that developed the technology	**10.6**

Using a scale where zero means ***no risk***, and ten means ***extreme risk***, how would you rate the risk to ***you*** of the following criminal acts?

E14/Cjack Car-jacking?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	
%												MEAN
Pub 95	**6**	**8**	**9**	**9**	**6**	**16**	**7**	**9**	**6**	**3**	**21**	**5.5**

E15/Mugg Assault or mugging?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	
%												MEAN
Pub 95	**4**	**5**	**9**	**10**	**6**	**15**	**7**	**10**	**7**	**4**	**21**	**5.8**

E16/Burg Robbery or burglary in your home?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	
%												MEAN

Pub 95	**3**	**3**	**6**	**10**	**8**	**17**	**6**	**10**	**9**	**4**	**22**	**6.1**

E17/Shot Being intentionally shot?

	NO RISK										EXTREME RISK	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**10**	**16**	**14**	**9**	**5**	**10**	**3**	**6**	**4**	**2**	**21**	**4.6**

E18/Shop Someone using your credit card without your permission?

	NO RISK										EXTREME RISK	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**11**	**5**	**6**	**7**	**5**	**14**	**76**	**10**	**9**	**4**	**23**	**5.7**

E19/Medrec Someone illegally gaining access to personal information about you, such as health or financial records?

	NO RISK										EXTREME RISK	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**3**	**1**	**3**	**4**	**5**	**13**	**7**	**16**	**15**	**4**	**29**	**7.0**

Using the same scale, how do you rate the risk of crime to you or members of your family in each of the following settings?

E20/Home The risk of crime to you or your family at home?

	NO RISK										EXTREME RISK	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**7**	**11**	**17**	**16**	**10**	**17**	**5**	**5**	**4**	**1**	**6**	**3.9**

E21/Work The risk of crime to you at work?

	NO RISK										EXTREME RISK	
	0	1	2	3	4	5	6	7	8	9	10	
%												MEAN
Pub 95	**15**	**16**	**15**	**12**	**8**	**13**	**5**	**5**	**4**	**1**	**6**	**3.5**

E22/School The risk of crime to your child at school?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	
%												MEAN
Pub 95	11	10	12	13	11	15	5	10	5	1	7	4.1

E23/Auto The risk of crime to you when traveling in a private automobile?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	
%												MEAN
Pub 95	5	8	12	16	11	20	8	5	5	2	7	4.4

E24/Subway The risk of crime to you when using public transportation?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	
%												MEAN
Pub 95	8	5	9	11	8	19	9	10	9	3	8	4.9

E25/Cthouse The risk of crime to you when in a public building?

	NO RISK 0	1	2	3	4	5	6	7	8	9	EXTREME RISK 10	
%												MEAN
Pub 95	4	9	14	14	13	19	7	6	6	1	7	4.4

E26/Youcrme What types of crime, if any, have been committed against you in the past five years?

PUBLIC 95	%
None	**64**
Rape/Sexual Assault	**1**
Robbery	**12**
Assault	**6**
Burglary	**14**
Larceny/Fraud	**6**
Auto Theft	**4**
Arson	**0**
Kidnapping	**0**
Domestic Violence	**1**
Vandalism	**4**
Other	**3**

E27/Famcrme What types of crime, if any, have been committed against anyone in your family other than you in the past five years?

PUBLIC 95	%
None	**65**
Rape/Sexual Assault	**1**
Robbery	**12**
Assault	**8**
Burglary	**9**
Larceny/Fraud	**3**
Auto Theft	**4**
Arson	**0**
Kidnapping	**0**
Domestic Violence	**2**
Vandalism	**4**
Other	**3**

E28/Turf Using a scale where one means ***greatly decreased***, and seven means ***greatly increased***, how would you rate crime in your neighborhood today compared to five years ago?

GREATLY DECREASED						GREATLY INCREASED
1	2	3	4	5	6	7
%						MEAN

Pub 95	13	10	14	19	20	9	15	4.1

Because of the potential for drastic consequences, U.S. national laboratories have developed specialized methods for ensuring the safety, security, and reliability of nuclear weapons. These laboratories could apply their methods to increase the safety and reliability of technologies and processes whose failure can harm the public.

Examples might include heart pacemakers, highway bridges, and airliners. On a scale where one means ***strongly disagree***, and seven means ***strongly agree***, please respond to the following statement.

E29/Surety Federally funded nuclear weapons laboratories should apply their specialized expertise to increase the reliability of technologies and processes whose failure would pose extreme risks to public health and safety.

	STRONGLY DISAGREE						STRONGLY AGREE	
	1	2	3	4	5	6	7	
%								MEAN
Pub 95	4	3	5	9	19	17	43	5.6

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Appendix 2: Focus Groups

General

Focus groups are guided discussions about issues central to a survey and its analysis. By conducting them among representative members of the public, researchers gain insight about how key issues are perceived and how they may be related to public understanding. They provide insights that can inform the design and construction of survey instruments, and they provide a series of anecdotal impressions that can help researchers anticipate patterns of survey responses. Where appropriate, we have included key points from focus group discussions in the chapters of this report. This appendix characterizes participants and provides additional description of key discussions.

We conducted six focus groups in three cities during June 1995 to gain a perspective of public opinions about US national security issues, US–Russian relations, and personal security concerns. Two issue focus groups were conducted in New Orleans, Louisiana, two in Seattle, Washington, and two in San Diego, California. Two additional groups were conducted in Albuquerque, New Mexico in July for verbal protocol testing and survey instrument verification. One group in each city was selected to meet lower socioeconomic status (SES) indices and the other group at each location was selected to meet higher SES requirements. Participants in the lower SES groups had completed no educational degree beyond high school and had a household income of $25,000 or less annually. Each participant in the higher SES groups held a Bachelor's degree or higher and had a household income of $40,000 or more per year. Participants in all groups were between 25 and 65 years of age, and they were recruited from the general public at each locale. Approximately equal numbers of male and female participants were selected, and attempts were made to achieve minority representations approximating local population distributions.

Participants

New Orleans, 06/01/95: Low SES

	Gender	Occupation/Profession/Training	Ethnicity
1.	F	Retired receptionist	White
2.	F	Widow; homemaker	White
3.	M	Retired moving company employee	Black
4.	F	Printing company employee	White
5.	M	Construction worker	White
6.	M	Unemployed; motorcycle enthusiast	White

New Orleans, 06/01/95: High SES

	Gender	Occupation/Profession/Training	Ethnicity
1.	M	Construction supervisor	White
2.	F	Hospital director of medical records	White
3.	F	Banking supervisor	Black
4.	F	Kindergarten teacher	White
5.	F	Postal service customer representative	Black
6.	M	Tax accountant	White
7.	F	Public school teacher	Black
8.	F	Public school substitute teacher	White

Seattle, 06/07/95: Low SES

	Gender	Occupation/Profession/Training	Ethnicity
1.	M	Retired	White
2.	M	Retired	White
3.	F	Hospice care worker	White
4.	F	Retired	White
5.	M	Physically disabled	White
6.	M	Unemployed; college student	White
7.	F	Homemaker	White
8.	F	Homemaker	White
9.	F	Homemaker	White
10.	M	Retired auto mechanic	White

Seattle, 06/07/95: High SES

	Gender	Occupation/Profession/Training	Ethnicity
1.	F	Retired public school teacher	White
2.	M	Software engineer	White
3.	F	Juvenile corrections officer	Black
4.	M	Supervisor, computer data center	Hispanic
5.	F	Designer	White
6.	F	Clinical case manager for HMO	Asian
7.	M	Teacher and retail manager	White
8.	M	Police officer	White
9.	M	Electronics technician	Asian
10.	M	Computer programmer	Black

San Diego, 06/12/95: Low SES

	Gender	Occupation/Profession/Training	Ethnicity
1.	F	Homemaker	White
2.	M	US Navy enlisted	Black
3.	F	Homemaker	Hispanic
4.	M	P.I.; computer security specialist	White
5.	M	US Navy enlisted	White
6.	F	Physically disabled	White
7.	F	Homemaker	White
8.	F	Retired secretary	White
9.	F	Unemployed health aide	Black

San Diego, 06/12/95: High SES

	Gender	Occupation/Profession/Training	Ethnicity
1.	M	Ship superintendent; retired military	White
2.	M	Heavy equipment manager	White
3.	F	Homemaker	Asian
4.	F	Naval intelligence officer	White
5.	F	Naval intelligence officer and instructor	White
6.	F	University administrative analyst	Black
7.	F	Homemaker	White
8.	M	Retired medical school teacher	White
9.	F	Information system manager	Hispanic
10.	M	Management consultant	Black

Perceptions of Selected Issues

National and International Security Environment

Most participants perceived that the international security environment had profoundly changed since the end of the cold war, though group members saw different implications of those changes for US national security. Most perceived a lessened strategic nuclear threat, but were concerned about the lack of predictability in international relationships, and many felt uneasy about the prospects for conflict and war in various regions around the world. Participants complained that US relationships with other countries had changed so much and so often that they were hard to understand.

Lower socioeconomic status (SES) groups were generally more worried about domestic economic conditions and internal security than they were about military threats from other countries. Higher SES groups held more balanced concerns between domestic and foreign issues. Some members from both SES levels acknowledged confusion and lack of understanding of US interventions in Bosnia, Haiti, and Somalia. Some stated that they could not understand why US interests were at stake in what seemed to them to be internal political struggles or civil wars in places that were not vital to the US.

When asked whether the US as a nation is more or less secure than it was five years ago, most agreed that the country is less secure, though their rationales as to why they felt less secure varied considerably. Some cited worries about nuclear proliferation and terrorism; others were concerned about US willingness to intervene in foreign wars that they felt did not directly affect US interests; others cited fears about immigration problems; most identified societal violence as a key threat to personal security; and some considered societal violence a threat to

US national security. At both SES levels, there appeared to be indistinct differentiation between internal and external threats to national security. Participants perceived that American society is challenged by a wide range of threats that are becoming increasingly complex. Most thought that these threats were more confusing and worrisome than the threats of the latter years of the cold war. There were a few optimistic assessments about the country's security, but most ranged from doubtful to deeply concerned.

Bottom Line Impressions of the Security Environment

- The post-cold war security environment is both confusing and worrisome. It has become difficult to tell who are our friends and who are our enemies.
- National security and personal security are related, and the US can be threatened by domestic crime and violence just as it can be threatened by outside groups and other countries.
- The US is too quick to intervene in places where US interests are not threatened. The US means well, but it should stay out of civil wars in places like Bosnia, Somalia, and Haiti.
- As a country and as individuals, the US and its citizens are less secure today than five or ten years ago. The principal threats today are crime, terrorism, and economic conflict, and they may be harder to deal with than was the old Soviet Union.

Nuclear Security Issues

Most participants thought that the threat of a nuclear attack against the US today was lower than it was in the cold war years, but most were more fearful of nuclear weapons and nuclear materials falling into the wrong hands. Nuclear proliferation and the potential for nuclear terrorism were broadly perceived to be important threats to US and international security. The possibility that the bombings of the World Trade Center in New York and the Oklahoma City federal building could

potentially have been nuclear explosions was raised by more than one group. Participants were aware of apparent increases in international attempts to smuggle nuclear materials, and were concerned by the possibility that Russian nuclear weapons or materials might be sold on the international black market.

Little concern was expressed about the safety and security of US nuclear assets or the possibility that they might be used without authorization. When a developmental questionnaire was administered to one focus group of 10 participants, they rated the likelihood of US nuclear materials being illegally diverted to proliferating states or nuclear terrorists appreciably lower than they rated the likelihood of Russian nuclear materials being illegally diverted. Nevertheless, the potential for US nuclear materials to fall into unintended hands was placed roughly at mid-scale, and some members of one focus group did comment that if the rewards were high enough, smuggling of US materials might occur. But overall, the majority of participants in all the groups were generally confident about the safety, security, and control of US nuclear weapons and nuclear materials.

When asked whether nuclear deterrence worked during the cold war, there was strong consensus that it was instrumental in preventing open conflict between the US and the Soviet Union. When asked whether the US continues to need nuclear weapons, there was even stronger agreement that nuclear weapons remain important to US security. However, most participants felt that the number of US nuclear weapons could be safely reduced. They were unsure what minimum levels were necessary, but when asked whether START II levels of 3,000 to 3,500 nuclear warheads seemed prudent, most thought those numbers were acceptable. A few members argued for much lower levels, but only one participant (out of 53) argued for completely eliminating the US nuclear stockpile. When asked why nuclear weapons remain important for US security, most were of the opinion that as long as other countries have nuclear weapons, the US must also have them.

Participants were also asked whether they thought other countries, such as North Korea, Iran, and Iraq were actively seeking nuclear weapons capabilities, and most thought those countries were indeed attempting to acquire nuclear weapons. When asked whether the US should use conventional military force to prevent those countries from getting nuclear weapons, group members were divided. Most indicated that they would have to know a great deal more about the circumstances before they could support the use of force by the US; others were more willing to use force to prevent nuclear proliferation by certain states. A potentially nuclear Iran was considered to be of most concern.

Bottom Line Impressions About Nuclear Security

- Fear of an all-out nuclear attack against the US has been replaced by the fear that nuclear weapons will fall into the wrong hands and be used against the US by some smaller country or by extremists and terrorists.
- US nuclear assets are safe, secure, and well managed, but we should be careful of the potential for bribery. Many people can be bought for a high enough price, and some of them may work with nuclear weapons or materials.
- Nuclear deterrence worked during the cold war, and it still works in general, but it may not prevent nuclear terrorism. Getting rid of all nuclear weapons would be desirable, but it is not likely to happen in the foreseeable future. The US must have some number of nuclear weapons as long as anyone else in the world has them.
- There are some countries that are trying to get nuclear weapons that the US may have to eventually fight, and it would be better to do it before rather than after they get nuclear capabilities. But deciding when and where to use force to prevent nuclear proliferation requires a case-by-case evaluation and a great deal of justification.

US–Russian Relations

Many members of the groups were fearful that Russian nuclear assets might not be adequately secured, but some did not seem willing to help pay to improve the security of Russian nuclear weapons and materials. When presented with a hypothetical scenario in which a team of US scientists observe dangerously lax security precautions at a Russian nuclear research facility, opinion was divided as to whether or not US funding should be used to improve security. The reservations of those opposed seemed based on the likelihood that if security was lax at one facility, it was probably lax at others, and they assumed that correcting one security problem would not make much of a difference unless security was improved at other facilities as well. While a few group members favored US financial assistance for correcting systemic Russian nuclear security problems, most did not. Almost all participants favored providing US advice and technical assistance, but many were reluctant to commit US funding to correct inadequate Russian security of nuclear assets.

Participants were generally supportive of US–Russian scientific cooperation and exchanging visits. There was also support for working with Russian nuclear scientists to enhance nuclear surety. However, there were reservations about sharing some US nuclear technologies with the Russians, because some group members suspected Russian officials of having ulterior motives. Using a scale of 0 to 10, where 0 represents no trust and 10 represents complete trust, one group was asked to rate their trust in several elements of Russian society to work toward normal and friendly relations with the US. Trust in President Yeltsin and the Russian government was rated about mid-scale at 4–5. Trust in the Russian military was lower, averaging about 2. Trust in the Russian people was well above mid-scale. When asked how much trust they placed in the Russian nuclear science community, members were more ambivalent, indicating that they did not have much information about Russian scientists, and did not know whether they could be trusted to work for peaceful relations or not. Participants were sure they did not

want US scientists providing information that would allow Russians to build new and improved nuclear weapons, but they were generally supportive of cooperating to improve issues of nuclear safety and security.

Bottom Line Impressions About US Russian Relations

- It is too early to tell whether or not Russia will implement lasting reforms, and it is too early to tell whether they will be our friends or enemies in the future.
- The responsibility for securing Russian nuclear assets is theirs, not ours. It is wise to give them advice and minor assistance, but their nuclear security problems will cost far too much for US taxpayers to fix.
- Cooperating with Russian nuclear scientists can be useful, and it is O.K. to make friends and exchange scientific visits, but be careful not to give them information or technology that they can use against the US.
- The Russian people are trying hard to make a living, and they are generally trustworthy, but the Russian government is weak and may not survive, and the Russian military is not to be trusted.

Personal Security and Technology

No issue discussed with the focus groups had higher saliency than personal security. With few exceptions, participants considered their personal security today to be seriously threatened by violence and crime at home, in the work place, and in their children's schools. Most acknowledged using personal security preventive measures such as home, car, and office security systems, owning personal firearms, and modifying their patterns of behavior to reduce exposure to potential crime and violence. Many participants described patterns of business and leisure behavior that have been limited or otherwise modified to reduce risks to personal security

When asked whether or not US national laboratories should direct part of their scientific expertise and technical capabilities to research and development of technologies for enhancing personal security, many participants indicated that they would welcome such investments. A few group members had reservations about government intrusion, but most were very supportive of a wide range of potential technologies from immobilizing foam, to smart weapons, to reducing credit card and check fraud. Strong interest was expressed in electronic devices for locating stolen cars.

The issue of responsibility and potential legal liability for how technologies developed by national laboratories might be marketed by commercial interests and ultimately used by consumers was difficult to assess. Participants seemed to distinguish between technologies whose potential failure posed little risk of personal injury and those whose failures have more serious implications for personal safety. For example, a device intended to prevent credit card fraud was perceived to be very different in terms of responsibility and potential liability from a handgun designed not to discharge unless fired by the authorized user. Some felt that a laboratory might be held more accountable for failures of technologies that have large consequences for public safety. They also advised against overpromising the benefits of security technologies.

Several participants differentiated between the implications of mishaps related to security technologies that were being used for criminal behavior and those being used for legitimate purposes. They were much more reluctant to attribute responsibility and liability for technology failures to the developers if those technologies were being used to commit a crime. They were less reluctant to hold developers of technologies partially responsible for systems whose failures led to the death or injury of law-abiding consumers.

There was also a general feeling by some participants that technologies designed to enhance security will eventually be countered by other technologies. They noted how easily automobile alarms and even

simple devices like the club used to immobilize a steering wheel can be defeated. Automobile alarms were cited in particular as examples of ineffective technologies that have become nuisances rather than reliable security devices.

Two issues of trust emerged. First, some participants were hesitant to trust government agencies to develop certain security technologies such as positive identification systems, because they considered them to have potential for being used by the government to intrude on personal privacy. The author George Orwell and terms like "Big Brother" were mentioned by a few participants to characterize their concerns about technologies that might threaten their sense of privacy. Though most participants did not express reservations in those particular terms, many evidenced sensitivity to issues of privacy.

Second, some participants voiced their lack of confidence in government agencies to evolve affordable security technologies, and indicated that they trusted private industry to lead the way. Others thought the government could play a useful role if it acted in partnership with industry. Several noted the importance of developing security technologies and systems that would be affordable to most people. They indicated that expensive systems that could only be afforded by wealthier citizens would do little to help citizens with lower incomes whose needs for protection from crime can be among the highest.

Bottom Line Impressions About Personal Security and Technology

- Fear of crime and violence are very high and increasing. Crime in the US directly or indirectly affects almost every citizen.
- While some technologies to enhance personal security would be welcome, the problems of crime and violence cannot be solved by technology alone. Ultimately, social change is required.

- Government intrusiveness into personal privacy is already high, and new technologies that make it easier for the government to pry will be met with skepticism.
- Private industry can develop technologies to meet consumer needs more efficiently than can government agencies, but it can be beneficial for private industry and government to work together.
- Fancy technologies that increase personal security will mean little if they are not affordable by most citizens.
- National laboratory technical expertise that can enhance personal security is welcome if it does not result in higher taxes.

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