

Science by Consensus: Eliciting Citizens' and Experts' R&D Spending Priorities*

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Abstract

Research and development (R&D) is thought to be an important determinant of improvements in living standards, health, and economic security. Yet, U.S. government spending on R&D has fallen over time, with further cuts proposed. Two standard rationalizations for such cuts are: (i) citizens support such cuts, and (ii) the marginal social return from R&D is low. We test these using surveys with U.S. citizens and experts. Our evidence rejects both: a large majority of citizens do not favor cuts and, on the contrary, prefer increasing R&D spending; and a large majority of experts judge the marginal social returns from increasing R&D spending to be high, with the average belief placing benefits at about \$3 per dollar invested. Experts underestimate public support, indicating that they misperceive the political feasibility of increasing R&D spending.

Keywords: R&D; Government Spending Priorities; Government Budget; Experts

JEL Classification: O30, H4, H5, D7

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1 Introduction

Research and Development (R&D) is widely thought to be an important determinant of societal improvement, including advancements in the standard of living (e.g., Solow, 1956; Mokyr, 1990; Jones and Summers, 2021), health and longevity (e.g., Cutler et al., 2006), and competitiveness and economic security (Partha and David, 1994). Because R&D benefits generate large spillovers (e.g., Bloom et al., 2013; Azoulay et al., 2019), government involvement in R&D may be particularly warranted to achieve the socially optimal level of R&D (Arrow, 1962). In recent years, the U.S. government has allocated about 0.6% of GDP (and 3% of the total budget) to research and development (R&D), and such spending is considered an important funding source for the vast majority of scientists (Pew Research Center, 2009; Babina et al., 2023).¹

Yet, U.S. federal government spending on R&D has declined over time: In 1964, R&D spending made up about 2% of GDP (or about 12% of the total budget), and has steadily decreased since. Recent declines in competitive grant disbursements and unprecedented proposed budget cuts, such as the nearly 40% reduction projected for the National Institutes of Health in 2026 (Azoulay et al., 2025; Health and Services, 2025; Tollefson et al., 2025), have intensified policy debates over appropriate R&D funding levels. Our paper explores two reasons why such cuts might be traditionally justified: (i) public support for R&D cuts—highlighting political feasibility—and (ii) low marginal social returns from R&D spending—indicating a low value of spending the marginal dollar in R&D. We conduct surveys with U.S. citizens and experts to test the relevance of each.

First, we test whether citizens’ support for decreasing R&D spending renders R&D spending cuts politically feasible. We elicit citizens’ views about R&D using a survey conducted with the U.S. general population ($N = 2008$). We find that 81% of citizens would favor increasing government R&D spending from current levels; the median citizen desires an allocation of 7% of the budget, which is more than double the current level. These results are robust across randomly-assigned variations in the approach to eliciting spending preferences which make the tradeoff in government spending salient or provide information about the composition of the government budget. Furthermore, the results are robust to accounting for individual-level response quality and experimental demand effects. When asked about how to allocate the R&D budget across domains such as health and defense, citizens want to guarantee at least some basic funding for each domain. Thus, we find no evidence that citizens prefer to decrease R&D spending (which would provide a justification for R&D spending cuts); on the contrary, there is

¹Government R&D spending accounts for roughly one fifth of total R&D spending in the U.S., while the remaining spending is financed privately (National Center for Science and Engineering Statistics, 2025).

evidence to suggest that citizens prefer to increase R&D spending at the margin.

Second, we test whether low marginal returns from R&D spending can rationalize R&D spending cuts. The literature finds generally high social returns to R&D spending, defined as the social benefits per dollar spent (for a review, see Jones, 2021; Hall et al., 2010). However, government funding decisions require a broad measure of social returns, capturing the overall welfare benefits. Moreover, the social returns may vary over time (Bloom et al., 2020); policy evaluation requires a current estimate of the social returns. We consider a “second-best” approach, which involves eliciting experts’ beliefs about them. An advantage of our approach is that experts’ judgments can not only incorporate existing evidence about social returns in the literature and their limitations, but can also incorporate judgments about the credibility of such inputs.

We conduct a study with experts ($N \approx 100$) to elicit their views about R&D. Our sample includes researchers working on topics of R&D and U.S. policymakers. We find that 87% of experts believe that the social benefits from increasing R&D spending at the margin exceed the costs, with average assessments of expected benefits of about \$3 per dollar invested. We also find that 73% believe that these benefits spill over well beyond the original innovator, providing a classic rationale for government involvement to achieve the socially optimal level of spending. Consistent with this, most experts (83%) favor increasing the R&D share of the government budget above the current 3%, with the median expert preferring about 5%. These results are consistent with evidence in the literature highlighting large social returns from R&D spending in various settings (e.g., Jones and Summers, 2021; Azoulay et al., 2019), and the large spillovers from such spending (e.g., Bloom et al., 2013; Azoulay et al., 2019). Taken together, we find no evidence that R&D spending cuts are justified on the grounds of low expected social returns.

Finally, we use our experts sample to explore whether second-order beliefs about citizens’ views are well-calibrated. While only a small minority of citizens actually favor decreasing R&D spending, it is ultimately the decision-makers’ beliefs about citizen views that dictate policy. We find that experts systematically underestimate citizens’ demand for R&D spending: 76% of experts believe that the median citizen would like to decrease R&D spending or keep it unchanged; however, 81% of citizens actually prefer to increase R&D spending. In terms of the R&D share, the median citizen prefers to allocate 7% of the budget to R&D, which is much higher than the average expert perception of 3%. These results are consistent with experts’ misperceptions documented in other contexts (e.g., Broockman and Skovron, 2018; Lucas et al., 2024; Sheffer et al., 2024). Thus, our evidence suggests that experts may misperceive the political feasibility of increased R&D spending.

Our paper contributes to several strands of literature. Our first contribution is to provide evidence on citizens’ demand for R&D spending, which remains comparatively scarce. Prior work identifies individual-level predictors of support (Goldfarb and Kriner, 2017; Sanz-Menéndez et al., 2014) and documents sentiment about the value of and trust in science (Cologna et al., 2025; Davern et al., 2025; Ophira et al., 2023; Pew Research Center, 2009), but robust evidence of citizens’ desired R&D spending is lacking. We provide such evidence while accounting for framing effects, experimenter demand, and low-quality responses. Furthermore, we replicate core correlates from the prior literature and probe mechanisms using both closed-ended and open-ended questions, as well as vignette experiments. Because citizens’ views shape the political feasibility of policy (Diamond and Saez, 2011; Bierbrauer et al., 2021; Capozza and Srinivasan, 2024; Carattini et al., 2024) and policymakers are often miscalibrated about those views (Dur et al., 2025; Broockman and Skovron, 2018; Sheffer et al., 2024; Lucas et al., 2024), our evidence helps bridge a key information gap.

Our second contribution concerns the social returns to government R&D spending. Our result of large social returns from R&D spending is consistent with the findings in the literature (e.g., Jones and Summers, 2021; Azoulay et al., 2019; Bloom et al., 2013; Alston et al., 2000), summarized in Jones (2021) and Hall et al. (2010). With the exception of Jones and Summers (2021), economy-wide estimates of social returns are lacking. Furthermore, our result of large spillovers is also consistent with the evidence in the literature (e.g., Hall et al., 2010; Bloom et al., 2013; Azoulay et al., 2019; Myers and Lanahan, 2022).

Third, we contribute to research on public participation in budget decisions. We provide evidence on how citizens would allocate government budgets across categories and R&D across domains, and, echoing Capozza and Srinivasan (2024), offer a portable approach for using citizens’ preferences to inform spending priorities. Our results also speak to how experts, including researchers and policymakers, form and update beliefs (Andre et al., 2025; Chopra et al., 2024; Andre et al., 2022; Toma and Bell, 2024; Vivalt and Coville, 2023; Hjort et al., 2021), highlighting misperceptions between experts and citizens as a potential constraint on designing socially acceptable R&D policies.

The paper proceeds as follows. Section 2 describes the sample and survey design. Section 3 presents the results. Section 4 concludes.

2 Sample and Survey Design

This section outlines the key design features of our citizen and expert studies. An overview of the survey flow for the citizen study is presented in Appendix Figure A1. The ex-

perimental design and sample restrictions were pre-registered.² Deviations from pre-registration are described in Appendix Section A.

2.1 Citizen Study

2.1.1 Sample

We recruited participants from the U.S. general population using Bilendi, a data collection provider widely used in the literature (e.g., Stantcheva, 2021; Jager et al., 2024). We set demographic quotas to achieve representation based on gender, income, education, age, and region, excluding participants once quotas were filled. We also included two attention checks and tests to identify the use of Large Language Models (LLMs), dropping participants who failed any check. Remaining participants were randomized into treatments in a between-subjects design.

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2.1.2 R&D Spending

Desired R&D Spending: We elicit citizens’ desired R&D spending as a share of the total federal government budget.⁴ Prior to answering, citizens received a brief R&D primer covering its definition, the types of innovators, and the funded domains. Additionally, we ask citizens to guess the median desired R&D spending of other respondents and provide a \$1 bonus for guesses within 2 percentage points of the correct answer.

We implemented randomized between-subject treatments following 2×2 factorial design to assess whether citizens’ preferences are influenced by the framing of the question. These treatments vary whether the opportunity costs inherent in budgetary allocation

²see <https://doi.org/10.1257/rct.16044-2.0>

³The data collection began on June 5, 2025, and lasted for around five weeks. Appendix Table A1 describes the attrition. The sample characteristics are balanced across the treatments (see Appendix Table A4).

⁴Citizens are asked about R&D as a share of government budget rather than GDP, as the former is likely easier for participants to understand.

decisions are salient and correct misperceptions about current funding levels. The first treatment dimension varies whether citizens either allocate the total government budget (of 100%) across multiple categories or only to R&D (Treatments *Full Allocation* vs. *R&D Allocation*). These categories included (i) R&D, (ii) income and social security, (iii) Medicare, (iv) health, (v) national defense, (vi) Veterans benefits and services, (vii) transportation, and (viii) “other,” with the first seven corresponding to the largest government budget categories and together accounting for roughly 85% of the total federal government budget.⁵ The second treatment dimension varies whether citizens are either informed or uninformed about actual budget allocations across the above-mentioned categories (Treatments *Full Context*: vs. *R&D Context*). In all treatments, citizens are informed that, in 2023, R&D made up 3% of the U.S. federal government budget.

Perceived R&D Spending: To explore how citizens’ preferences relate to their priors, before eliciting desired spending, we elicited their beliefs about current R&D spending. Citizens are randomly assigned to either indicate their perceived R&D share in isolation (in Treatment *R&D Allocation*) or indicate their perceived allocation of the budget across the eight above-mentioned budget categories, including R&D (in Treatment *Full Allocation*). We provide a \$1 bonus for guesses within 2 percentage points of the correct answer.

Quality of Responses: We took several steps to improve the quality of responses. First, we introduced financial incentives to ensure incentive compatibility for questions eliciting perceptions. Second, we informed citizens that their aggregate responses would be shared with US Congressional representatives and the general public (a similar approach was used by Elías et al. (2019) to make responses consequential). We also explore whether citizens want their views to influence policymaking, which sheds light on whether citizens hold meaningful views about R&D spending. We present them with several groups (citizens, elected representatives, federal-level civil servants, and scientists) and ask them to rate the importance of each group’s views. Third, to reduce concerns regarding experimental demand effects, we inform them that there are no right or wrong answers, and that we are simply interested in their opinion. We also test for experimental demand effects at the end of the survey following De Quidt et al. (2018): We inform participants that we believe that they would consider spending on R&D extremely important or not at all important (randomized across citizens) and then elicit their actual view. Finally, we also directly assess quality of responses using proxies for response quality including: (i) citizens’ self-reported certainty in their desired R&D spending, (ii) consistency between their

⁵2023 data on government budget authority by category (termed “budget function”) is obtained from the Office of Management and Budget (OMB), while data on R&D budget authority by category is taken from National Center for Science and Engineering Statistics (NCSES) (2024).

desired R&D spending and a follow-up question eliciting preferences to increase R&D spending, (iii) survey completion time, and (iv) correct responses on the first-attempt for a comprehension check.

2.1.3 Distribution of R&D:

In addition to indicating desired R&D spending, citizens also indicate their desired distribution of the R&D budget across domains, including (i) Agriculture, (ii) Energy, (iii) Health, (iv) General Science, (v) National Defense, (vi) Natural Resources, and (vii) Space, which collectively account for 96% of the government R&D budget.⁶ We also elicited priors on the R&D distribution across domains, with incentives for correct answers.

2.1.4 Mechanisms underlying Desired R&D Spending

To understand the predictors of citizens' desired R&D spending, we employ both open-ended and closed-ended survey items, as well as a vignette experiment. The open-ended questions invite citizens to explain their reasoning, while the closed-ended questions target specific mechanisms identified in the literature on R&D funding and public debates (Jones, 2021; Azoulay and Li, 2021). We also collect rich demographic data to understand the demographic correlates of preferences, including education, age, gender, employment, and political ideology. The vignette experiment elicits citizens' desired R&D spending under three counterfactual scenarios: (i) the social returns to R&D are twice as high as currently perceived (as elicited earlier in the survey), (ii) the R&D budget is distributed across domains according to each Citizen's preferences (also elicited earlier), and (iii) the incidence of the R&D benefits accrue to those whom citizens deem most deserving. Comparing preferences in the baseline scenario—based on true beliefs—to those in the counterfactual scenarios—based on assumed beliefs—helps uncover the drivers of citizens' beliefs.

2.2 Expert Study

2.2.1 Sample

Our expert study consists of researchers and policymakers. For our sample of researchers, we invited a total of 588 individuals, including authors of projects presented at NBER Innovation Summer Institute (from 2014 to 2024) and NBER Science of Science Funding Summer Institute (from 2019 to 2024) ($N = 476$); editors of Science and Nature journals ($N = 77$); and members of the Institute For Progress (IFP), a think tank for accelerating scientific, technological and industrial progress ($N = 35$). The data collection began on 22

⁶Data on government R&D budget by budget authority is obtained from the Survey of Federal Funds for Research and Development (National Center for Science and Engineering Statistics (NCSES), 2024).

May 2025, and lasted around two weeks. Our sample of U.S. policymakers consists primarily of civil servants in the U.S. federal government, recruited through the University of Warwick’s Policymakers Lab (Toma, 2024) and email introductions, primarily through J-PAL’s Science for Progress Initiative. The data collection began on 03 June 2025, and lasted around three weeks. Both researchers and policymakers were offered a \$10 Amazon voucher (or currency equivalent) as compensation. Our final sample of researchers includes 104 partial responses, with 79 complete responses and sample of policymakers includes 24 partial responses, with 18 complete responses. The median response time for the survey among those who finished is 5.9 minutes for the sample of researchers and 8.1 minutes for the sample of policymakers.

Pooling researchers and policymakers, our sample consists of 79-115 participants with responses to the various questions. Our sample size and attrition are comparable to numbers found in the literature.⁷ While our sample size is small, it is well targeted to individuals with experience in R&D: 75% of researchers have direct research experience in science funding, and 57% of researchers have research or funding experience in the U.S. About 38% of researchers and policymakers have science funding experience, which includes serving on a committee that decides on project funding, funding priorities of a funding organization, or government funding priorities.

2.2.2 Design

Social Returns: We elicit experts’ beliefs about the marginal social returns to increasing R&D spending above current levels, which is a crucial input for funding decisions (e.g., Hall et al., 2010). Experts estimate the average dollar benefit per U.S. citizen accrued from an increase in R&D spending costing the government \$10 per citizen—approximately 2% of total government outlays and 0.011% of GDP.⁸ Before answering, experts received an intuitive explanation about policy benefits and costs. Our measure corresponds to welfare benefits, as defined in the marginal value of public funds (MVPF) framework,

⁷Our sample size and attrition rate is comparable to levels found in the literature: Andre et al. (2025) survey 111 academic macroeconomists (5.8% participation), Andre et al. (2022) survey 375 economists and PhD students (8.6%), Andre et al. (2024) survey 116 finance and economics researchers (4.0%), Thaler et al. (2025) invite 145 social-science researchers (60.2%), Funk et al. (2024) survey economists with 14.3% participation in Wave 1 and 12.6% in Wave 2 (13.6% combined), Chopra et al. (2024) survey 95 academic economists (3.4%) and 108 PhD or early-career researchers (17.0%).

⁸Given the U.S. population on Dec 31, 2023 (338,497,247), the total cost of the policy is \$3.38 billion, which is 2% of total federal outlays in 2023 (\$171,691 million) and 0.011% of GDP in 2023 (\$29,184 billion). Sources: population—U.S. Census Bureau; federal government outlays—Office of Management and Budget (OMB) of the U.S. Government, FY 2023; GDP—Bureau of Economic Analysis (U.S. Bureau of Economic Analysis, 2025).

which is commonly used to evaluate policies (Hendren and Sprung-Keyser, 2020).⁹ Our measure of welfare benefits coincides with the “economic benefits” definition used in the literature (e.g., Jones and Summers, 2021) when benefits operate solely through changes in income. In addition to measuring experts’ beliefs about the social returns, we also elicit their beliefs about whether the social returns exceed the private returns to R&D.

Other Questions: The expert study includes several key questions used in our citizen study, including desired R&D spending (using the frame in which only the current level of R&D spending is referenced, without discussing other spending categories), open-ended reasoning for desired R&D spending, beliefs about the median citizens’ desired R&D spending, and socio-demographics such as education and field of study.¹⁰

3 Results

3.1 Citizens Study

We leverage results from the citizen study to test whether proposals to decrease R&D spending can be rationalized by citizens’ support for such cuts.

3.1.1 Citizens’ Desired R&D Spending

Figure 1a presents the distribution of citizens’ desired R&D spending, pooling across all treatments. We find that a large majority of citizens favor increasing government R&D spending from current levels. 81% of citizens would prefer to increase the R&D share of the total government budget above its current 3%. By contrast, only 8% would prefer to keep R&D spending unchanged, and 12% would decrease it. The median citizen prefers allocating 7% of the budget to R&D (see Figure 1b). The median preference corresponds to the aggregate under the median voter theorem (Downs, 1957). The median preference

⁹There are a few things to note about our measurement. First, we elicit assessment about the welfare benefit rather than the MVPF, since there would be little variation in responses if participants believed that the MVPF of the policy is infinite (the policy pays for itself). Second, we measure perceptions about citizens’ willingness-to-accept rather than willingness-to-pay, because the former is easier for participants to understand. Third, consistent with the R&D literature (e.g., Hall et al., 2010), our measure of welfare benefits incorporates benefits accrued to intended beneficiaries and spillovers; in contrast, the measure considered by Hendren and Sprung-Keyser (2020) does not incorporate spillovers. Finally, in line with Thaler (1981), we did not specify the time horizon in which the returns might materialize. We expect the respondents to engage in some form of net present value calculation.

¹⁰There is one wording difference across studies: the citizen survey uses “budget” (budget authority), while the expert survey uses “spending” (outlays). Because the citizen survey benchmarks a domain-allocation question to actual allocation data obtained from National Center for Science and Engineering Statistics (NCSES) (2024), which reports only budget authority by domain, we use budget throughout that survey. This distinction is irrelevant for the question on R&D share, since the R&D share of total budget authority is nearly identical to the share of total outlays.

is very similar (8%) when we apply sampling weights (see Figure 1b).¹¹

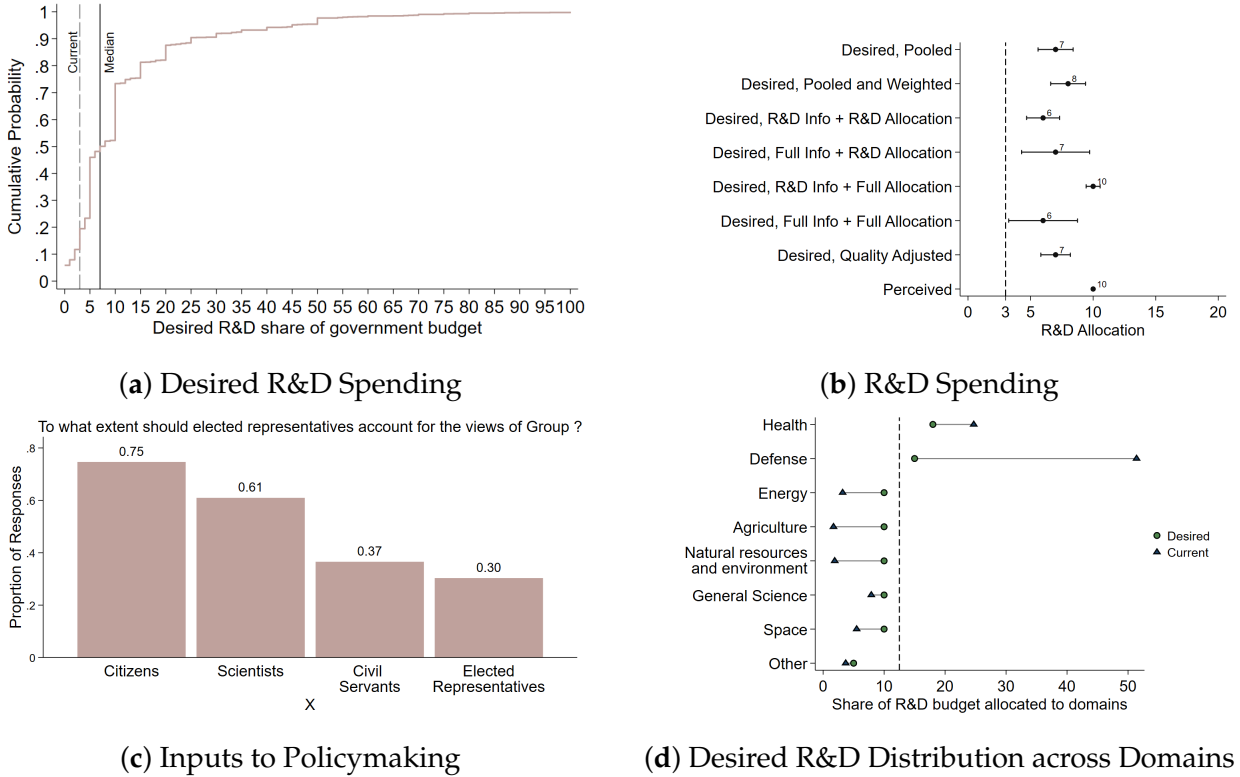


Figure 1: Citizens views about R&D spending (Citizens Study)

Notes: (a), Cumulative distribution of citizens' desired R&D share of government budget. The current R&D share (3%) is indicated by the vertical dashed line, and the median R&D share (7%) is indicated by the solid dashed line. (b), Median desired R&D spending across various samples and perceived R&D spending. The 95% normal confidence intervals around the median are obtained using bootstrap standard errors. (c), Share of citizens responding to the question "To what extent should elected representatives account for the views of Group 'X'?" with "somewhat" or "very much," with the group 'X' including citizens, scientists, federal-level civil servants, and elected representatives. (d), Median desired allocation and current allocation of R&D budget (of 100%) across domains. The dashed line represents the allocations if the funds were allocated evenly across domains. The current allocation is obtained from National Center for Science and Engineering Statistics (NCSES) (2024).

Robustness to Framing: We find that stated preferences are similar across our four randomized frames (*Full Allocation*, *R&D Allocation*, *Full Context*, and *R&D Context*): Across all frames, the median respondent prefers allocating between 6% and 10% of the government budget to R&D (Figure 1b). Furthermore, between 77% and 82% of citizens would prefer more R&D spending than current levels across frames (Appendix Figure A3). Results from quantile regressions confirm that the median desired R&D spending is not

¹¹We construct raking weights to match the population based on age, gender, education, income, and region of residence. After weighting, the differences between the sample and population characteristics are less than one percentage point for most characteristics and less than four percentage points for a few.

statistically significant across frames (Appendix Table A5). These results indicate that making the opportunity costs inherent in budgetary allocation decisions salient and correcting misperceptions about current funding levels does not change whether citizens prefer an increase in R&D spending above current levels.

Quality of Responses: We also explore several features of the quality of responses. First, we see mean differences in perceptions of the importance of R&D spending as an issue across our treatments that induce demand effects, but the effect sizes are small.¹² This finding mitigates concerns that our primary results are driven by experimenter demand, in line with the findings from De Quidt et al. (2018). Second, we correct for response quality using proxies of response quality, following Luttmer and Samwick (2018) and Capozza and Srinivasan (2024) (see Appendix Section E.1 for details); the median desired R&D spending after correcting for response quality is identical to the unadjusted estimate (Figure 1b). Third, we ask participants if they would like their views to be considered by policymakers. Figure 1c shows that citizens would like their views to be considered by elected representatives deciding about R&D funding. Furthermore, citizens think it is more important to incorporate their own views compared with those of scientists (second most-preferred), civil servants, and politicians.

3.1.2 Citizens’ Desired Distribution of R&D Spending

We also investigate citizens’ preferences for the distribution of R&D funding across domains, presented in Figure 1d. We find that citizens prefer a relatively balanced distribution: the allocation to the most-preferred domain (Health) is 18% and the allocation to the least-preferred domain besides “other” (Space) is 10%. These results are consistent with an explanation that citizens would like to allocate a “basic” level of funding to key domains, regardless of their social returns (additional supporting results in Section 3.1.3).

However, we once again observe a mismatch between citizens’ preferences and current allocations. Citizens would prefer that only 15% of the R&D budget is allocated to defense, whereas currently 51% is actually allocated (as of 2023), in line with Cologna et al. (2025). For all other domains, citizens’ desired spending slightly exceeds current levels, except for health, where current spending slightly exceeds desired spending.

3.1.3 Predictors of Desired R&D Spending

The general enthusiasm about R&D spending on the part of citizens masks important individual-level differences (see Figure 1a). To understand the predictors of this individ-

¹²Responses range on a 5-point scale from “Not at all important” to “Extremely important.” The difference in means is 0.10 (t-test = 2.16, p-value = 0.031), which is a 3% increase relative to the control group mean (3.40).

ual heterogeneity, we employed both open-ended and closed-ended survey items, as well as a vignette experiment.

We analyze citizens' open-ended responses for their reported desired R&D spending using a Large Language Model (LLM), following the methodology of Bartling and Srinivasan (2025) and Haaland et al. (2024), and map these reasons to standard economic models. Appendix Section E.3 presents the details of the analysis and Appendix Table A7 presents the results. Our analysis reveals a few key themes. First, citizens emphasized that R&D is crucial for the future, driving innovation, economic growth, and advancements in technology and healthcare. This view is coherent with the predictions of an endogenous-growth model where knowledge creation via R&D increases the long-run growth rate (Romer, 1990; Aghion and Howitt, 1992; Jones, 1995; Auerbach and Gorodnichenko, 2013). Another theme is more in line with the theory of public goods: citizens believe that R&D is a public good and should therefore not be supported by private investments alone (Arrow, 1962; Mazzucato, 2018). A more cautious view emphasize the opportunity cost of government spending, for R&D in this case, financed with distortionary taxes (Woodford, 2011; Galí, 2015), and that R&D is hard to define and to track knowledge investment consistently (Organisation for Economic Co-operation and Development, 2015). Our analysis also sheds light on why citizens might be less enthusiastic about R&D spending: some citizens emphasize that while R&D is important, other areas such as healthcare, social security, and national defense should receive more funding, and that funds are often misallocated or spent on unnecessary projects in line with public choice and principal-agent models (Buchanan and Tullock, 1962; Holmström, 1979).

Closed-ended survey responses allow for a more structured exploration of potential drivers behind preferences for R&D spending. Figure 2a presents a coefficient plot in which the dependent variable is an indicator variable indicating whether a citizen prefers to increase R&D spending and the explanatory variables include various mechanisms (Appendix Section B presents the definitions). The corresponding regressions tables are presented in Table A6. We find that citizens' willingness to increase R&D spending is significantly correlated with their beliefs that R&D improves societal well-being.¹³ We also find a positive correlation between citizens who believe that certain projects must be funded despite their low social returns and their willingness to increase R&D spending. This result mirrors the finding in Figure 1d, where citizens tend to equalize the share of funds across R&D domains. Finally, at the start of the survey, we ask citizens to indicate

¹³We also find that citizens' quantitative beliefs about the social benefits of increasing R&D are strongly correlated with desired R&D spending ($p < 0.01$). Figure A2b presents the distribution of citizens' beliefs about the social benefits of increasing R&D.

their perceived share of the federal government budget allocated to R&D funding. The median perception is 10% (Figure 1b), which is slightly higher than stated preferences for R&D spending. While we provide information on actual spending levels before eliciting preferences, we still see that those who perceived higher current spending levels at baseline are more likely to desire more R&D spending.

Turning to concerns about the welfare effects of R&D, we identify which specific concerns related to welfare predict R&D spending. Results from Figure A6 suggest that beliefs about the health improvements from R&D and the reduction in existential risks are statistically positively correlated with a willingness to increase R&D spending.

We are also able to analyze the individual-level predictors of R&D spending preferences as shown in Figure 2b. Consistent with the existing literature, we see that more highly-educated and higher-income citizens are more likely to desire increased spending, while ideologically conservative citizens are less likely to desire increased spending (Goldfarb and Kriner, 2017; Sanz-Menéndez et al., 2014).

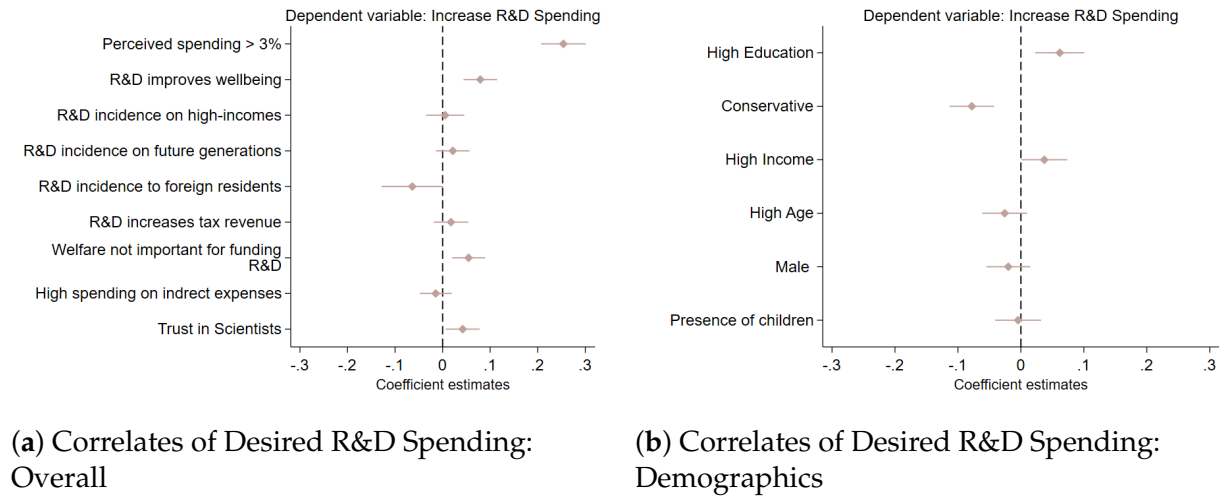


Figure 2: Mechanisms Explaining Citizens' Desired R&D Spending (Citizens Study)

Notes: (a), (b) Coefficient estimates from a linear regression. The dependent variable takes a value of 1 if a citizen wants to increase R&D spending relative to current levels (3%) and 0 otherwise. The explanatory variables are indicator variables capturing various concerns (See Appendix Section B for details).

Across all three counterfactuals in our vignette experiment, the pattern is strikingly consistent: when we (i) raise perceived social returns, (ii) align the funding profile with respondents' own normative allocations, or (iii) highlight benefits to groups respondents deem most deserving, the median desired R&D share rises by 62.5% relative to baseline (see Appendix Figure A4. These results provide causal evidence on the sensitivity of citizens' support both to expected efficiency (higher aggregate payoffs) and to perceived

fairness (who gains), and either channel alone is sufficient to meaningfully shift demand.

3.2 Experts' Beliefs about Social Returns and Citizens' Desired R&D Spending

We test whether proposals to decrease R&D spending can be rationalized by low social returns from R&D, measured using expert surveys. We also measure experts' beliefs about citizens' support for R&D to test whether such perceptions can rationalize R&D spending cuts.

3.2.1 Social Returns

We elicited experts' beliefs about the social benefits accrued to U.S. citizens from increasing R&D spending by \$10 per citizen beyond current levels. Figure 3a presents a histogram of experts' perceived social benefits. A large majority of experts (87%) believe that the benefits of such a policy exceed its costs. Only 8% believe that benefits are lower than costs, and 5% view them as roughly equal. The average estimate of benefits (\$31) implies that the benefits roughly triple the costs—the social rate of return is about three.¹⁴ These results are consistent with evidence in the literature highlighting large social returns from R&D spending in various settings (e.g., Alston et al., 2000; Mansfield et al., 1977; Tewksbury et al., 1980; Jones and Summers, 2021; Azoulay et al., 2019).

The average perceived social return remains high even among experts with (i) research experience, (ii) funding experience, or (iii) research and funding experience in the U.S. (see Appendix Table A2). While experts' assessments could plausibly be guided by self-interest motives, because they can potentially benefit from increased spending on R&D, the finding that beliefs about the returns are high in different groups of experts by research experience and funding experience mitigates such concerns.

3.2.2 Spillovers

While experts perceive large social returns, government spending on R&D is especially warranted if their benefits extend beyond the original innovators. In such cases, competitive markets alone are unlikely to provide the socially optimal level of R&D, creating a rationale for government spending on R&D (Arrow, 1962). Low spillovers from R&D can rationalize the decrease in government R&D spending.

We elicited experts' beliefs about whether the benefits from increasing R&D by \$10 per citizen beyond current levels accrue to the original innovators or others. Figure 3b presents a histogram of experts' beliefs about the spillovers. Experts perceive large spillovers

¹⁴The mean is the relevant summary statistic here because it can average out mean-zero measurement error in individual estimates. For individuals with top-coding (indicating "\$70 or more"), we assume a conservative estimate of \$70, and for those with bottom-coding (indicating "About \$0"), we assume an estimate of 0. The median estimate is \$20–\$24.

from R&D spending: 73% of experts believe that the private returns to the original innovators are “somewhat” or “much” smaller than those accrued to others. These perceptions of large spillovers are consistent with large spillovers documented in the literature in various settings (e.g., Hall et al., 2010; Bloom et al., 2013; Azoulay et al., 2019; Myers and Lanahan, 2022).

3.2.3 Desired R&D Spending

To understand whether experts’ perceptions about the social returns from R&D translate into prescriptions to increase R&D spending, we elicit their desired R&D spending at the margin. Figure 3c presents the cumulative distribution of experts’ desired R&D spending. A large majority of experts favor increasing government R&D spending at the margin. In particular, 83% of experts would prefer to increase the R&D share of the total government budget above its current 3%. By contrast, only 16% would prefer to keep R&D spending unchanged, and a mere 2% would prefer to decrease it. The median expert prefers allocating 5% of the government budget to R&D.

Open-ended responses justify their preferences based on the strong evidence of large social and economic returns; the public-good nature of basic research, and the consequent underfunding of private investments; decline in spending relative to the past; and comparisons with other countries. While most advocate an increase in R&D spending, some also emphasize the need to be aware of budgetary implications and to allocate R&D spending more efficiently.

3.3 Perceptions about Citizens’ Demand for R&D

Section 3.1.1 shows that a large majority of citizens would prefer increasing government R&D spending from current levels. However, what ultimately impacts policy decisions is not citizens’ actual views but decision-makers’ second-order beliefs about these views. We explore whether experts misperceive citizens’ desired R&D spending, which is a phenomenon documented in other contexts (Broockman and Skovron, 2018; Lucas et al., 2024; Sheffer et al., 2024). Figure 3d presents a cumulative distribution plot of experts’ beliefs about the median citizen’s desired R&D spending. Overall, experts expect that citizens desire less R&D spending compared to current levels: 76% of experts believe that the median citizen would like to decrease R&D spending or keep it unchanged; in contrast, 81% of citizens actually prefer to increase R&D spending. The average expert perception is that the typical (median) citizen would prefer 3% of the government budget to be allocated to R&D—a number far lower than the actual median among citizens of 7%.¹⁵

¹⁵Experts’ beliefs about citizens’ desired spending (mean of 3%) are also lower than their own desired R&D spending (median of 5%). Interestingly, citizens’ beliefs about their own desired R&D spending (me-

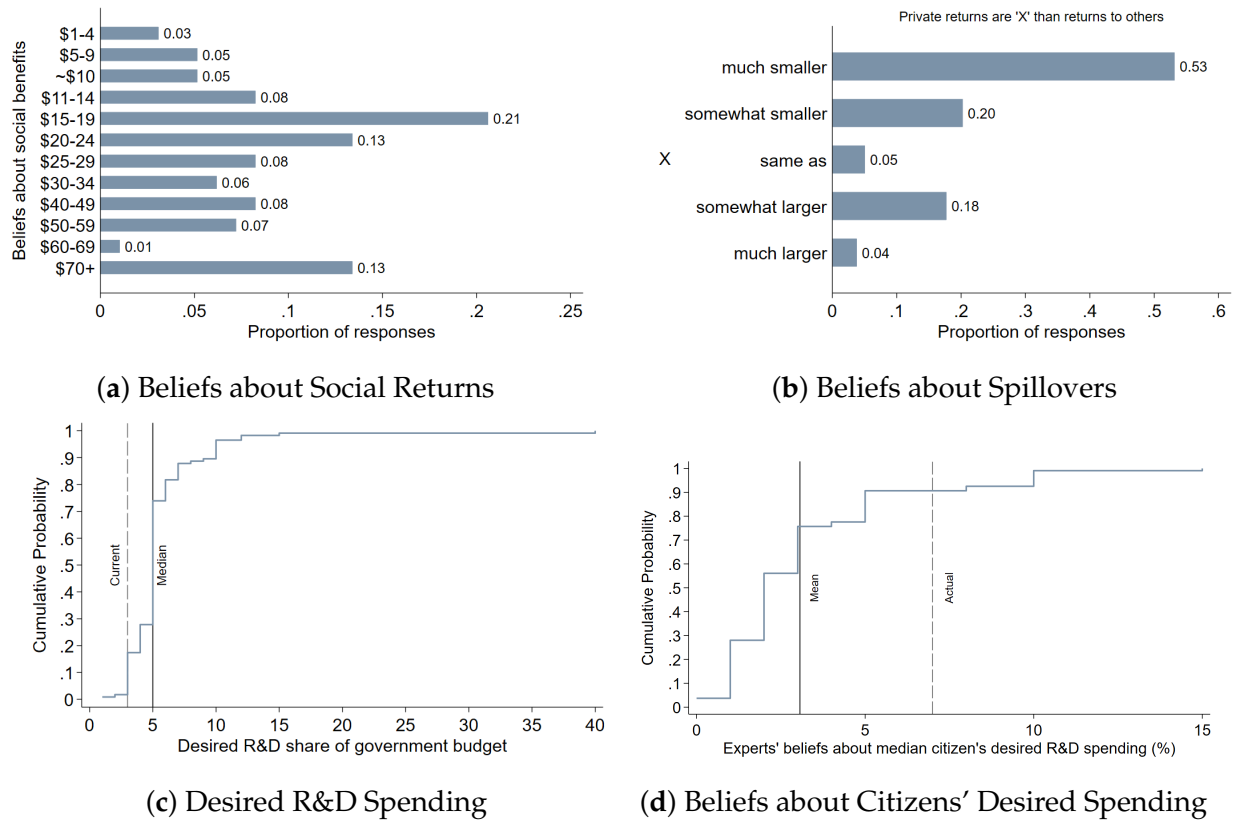


Figure 3: Expert Views about R&D (Expert study)

Notes: (a), Histogram of experts' beliefs about the per capita benefits accrued from increasing R&D spending costing \$10 per capita. The sample includes researchers and policymakers ($N = 97$). (b), Histogram of experts' beliefs about whether the private returns are smaller or larger than the returns to others. The sample includes researchers ($N = 79$). (c), Cumulative distribution of experts' desired R&D share of government budget. The current R&D share (3%) is indicated by the vertical dashed line, and the median R&D share (5%) is indicated by the solid dashed line. The sample includes researchers and policymakers ($N = 115$). (d), Cumulative distribution of experts' beliefs about the median citizen's desired R&D share of government budget. The actual median citizen's desired R&D share is indicated by the vertical dashed line (7%), and the mean belief (3%) is indicated by the solid dashed line. The sample includes researchers and policymakers ($N = 107$). Questions in the survey were not required, and as such, sample sizes vary across questions.

4 Discussion

Despite the importance of R&D, U.S. government spending on R&D has declined over time, with recent policy proposals aiming at further cuts. Two standard explanations that can justify such cuts are (i) public support for R&D cuts and (ii) low marginal social returns. We conduct surveys with U.S. citizens and experts to test these explanations. Our evidence offers little support for either explanation: Our citizen study shows that a ma-

dian of 8%) are very similar to their own desired R&D spending (median of 7%) (see Appendix Figure A5).

majority of citizens (81%) prefer increasing R&D spending above current levels, with the median citizen preferring to allocate 7% of the budget to R&D—more than twice the current level. Meanwhile, our expert study shows that most experts (87%) judge that increasing R&D spending from current levels can yield large social returns, with the average expert expecting benefits to amount to roughly three times the costs.

However, we also document that experts systematically underestimate citizens' support for R&D. While 81% of citizens favor increasing R&D, 76% of experts in our sample believe the median citizen would prefer to decrease R&D spending or keep it unchanged. This striking gap between beliefs about spending preferences and actual preferences suggests that decision-makers may misperceive the political feasibility of R&D spending. As such, in measuring citizens' R&D spending priorities, this paper aims to take a step towards further informing these beliefs.

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Online Appendix

Science by Consensus: Eliciting Citizens' and Experts' R&D Spending Priorities

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Krishna Srinivasan
Mattie Toma

A Deviations from Pre-Registration

We document the following deviations from the pre-registration:

1. In the Citizen study, after the soft-launch, we included a question on the use of AI to screen out users potentially using AI tools to fill in the survey and a qualitative question on whether R&D spending should be increased to be used as a consistency check in comparison to our main desired spending question.
2. The data provider delivered 8 respondents more than what we had pre-specified for the Citizens study.
3. In the citizen study, in addition to excluding participants based on our pre-registered criteria, we exclude participants based on additional criteria. We drop four participants who self-reported that they were below 18 years old, those who indicated being an AI (with the question added after the soft-launch), and those who were flagged by the Qualtrics bot detection. Some of the participants flagged by the Qualtrics bot detectors were also flagged by other checks (such as attention checks), which suggests that it may be a reliable check.
4. We retracted our expert survey meant for the National Science Foundation (NSF) and National Institute of Health (NIH) because we were informed that participation in the survey was not compatible with their working duties. We did not collect any data from this population.
5. We recruited fewer experts and policymakers than intended due to lower response rates than anticipated.
6. We dropped one expert in the analysis of open-ended responses because their response contained potentially identifying information

B Definitions of Variables

Prior on R&D Spending: Continuous variable from 0 to 100 allocated to R&D category. We also group the answers into two categorical variables: $\leq 3\%$ and $> 3\%$. If answer is $> 3\%$, a dummy called "High R&D Perception" takes value 1 and 0 otherwise.

Desired R&D Spending: Continuous variable from 0 to 100 allocated to R&D category. We also group the answers into three categorical variables: $< 3\%$, $= 3\%$, $> 3\%$. If answer is $> 3\%$, a dummy called "Increase R&D Spending" takes value 1 and 0 otherwise.

Confidence: Indicator variable equal to one if a participant reports to be “Very much” confident in the answers provided.

Open text responses: Respondents’ explanations of their desired R&D spending.

Second-Order Beliefs about R&D Spending: Continuous variable from 0 to 100.

Perceived distribution of R&D funds across domains: Continuous variable from 0 to 100 to allocate across Agriculture, Energy, Health, General Science, National Defense, Natural Resources and Environment, Space, Other.

Desired distribution of R&D funds across domains: Continuous variable from 0 to 100 to allocate across Agriculture, Energy, Health, General Science, National Defense, Natural Resources and Environment, Space, Other.

Quantitative returns to R&D: Categorical variable among the following values: \$0; \$1-\$4; \$5-\$9; About \$10; \$11-\$14; \$15-\$19; \$20-\$24; \$25-\$30; \$30-\$34; \$35-\$39; \$40-\$49; \$50-\$59; \$60-\$69; \$70 or more. We group the answers into three categorical variables: < \$10, \$10, > \$10.

R&D improves wellbeing: Indicator variable equal to one if a participant believes the well-being of U.S. citizens “Slightly improves” or “Strongly improves” because of R&D spending, and equal to zero otherwise.

R&D improves health: Indicator variable equal to one if a participant believes the health of U.S. citizens “Slightly improves” or “Strongly improves” because of R&D spending, and equal to zero otherwise.

R&D improves standards: Indicator variable equal to one if a participant believes the well-being standards of U.S. citizens “Slightly improves” or “Strongly improves” because of R&D spending, and equal to zero otherwise.

R&D improves safety: Indicator variable equal to one if a participant believes the safety of U.S. citizens “Slightly improves” or “Strongly improves” because of R&D spending, and equal to zero otherwise.

R&D decreases immigration: Indicator variable equal to one if a participant believes the immigration into U.S. citizens “Slightly decreases” or “Strongly decreases” because of R&D spending, and equal to zero otherwise.

R&D incidence on high-incomes: Indicator variable equal to one if a participant believes the high income groups in the U.S. “benefit a bit more” or “benefit much more” from R&D spending, and equal to zero otherwise.

R&D incidence on future generations: Indicator variable equal to one if a participant believes the future generations in the U.S. “benefit a bit more” or “benefit much more” from R&D spending, and equal to zero otherwise.

R&D incidence to foreign residents: Indicator variable equal to one if a participant believes the U.S. residents in the U.S. “benefit a bit more” or “benefit much more” from R&D spending, and equal to zero otherwise.

R&D reduces existential risks: Indicator variable equal to one if a participant believes the risks that humanity faces “Slightly reduce” or “Strongly reduce” because of R&D spending, and equal to zero otherwise.

R&D increases tax revenues: Indicator variable equal to one if a participant believes that tax revenues are “somewhat more than the costs” or “much more than the costs” of the project, and equal to zero otherwise.

Welfare not important for funding R&D: Indicator variable equal to one if a participant “somewhat agrees” or “strongly agrees” that projects with no impact should still be financed, and equal to zero otherwise.

High spending on indirect expenses: Continuous variable from 0 to 100 representing the indirect expenses financed by R&D. Then, we create an indicator that gets value 1 if the value is above 50 and 0 otherwise.

Trust in Science: Indicator variable equal to one if a participant “Extremely” or “Very” trusts scientists to find the truth, and equal to zero otherwise.

Desired R&D Spending with twice the returns: Continuous variable from 0 to 100 allocated to R&D category under the scenario that returns are twice larger than reported by the respondents.

Desired R&D Spending with desired allocation across domains: Continuous variable from 0 to 100 allocated to R&D category under the scenario that the allocations of R&D across domains follows the respondents’ preferences.

Desired R&D Spending favoring the most deserving: Continuous variable from 0 to 100 allocated to R&D category under the scenario that returns are favoring people who are deserving.

Input to Policymaking: Categorical variable about elected representatives relying on options from themselves, citizens, federal-level civil servants, and scientists when taking funding decisions. For all of these categories, we create a dummy that takes value 1 if the respondent thinks the inputs of that category should be “somewhat” or “very much” considered.

Spillovers of R&D investments: Indicator variable equal to one if an expert believes the benefits of R&D spending for the inventors are “much smaller”, “somewhat smaller”, or “about the same as” the total benefits to others.

C Additional Figures

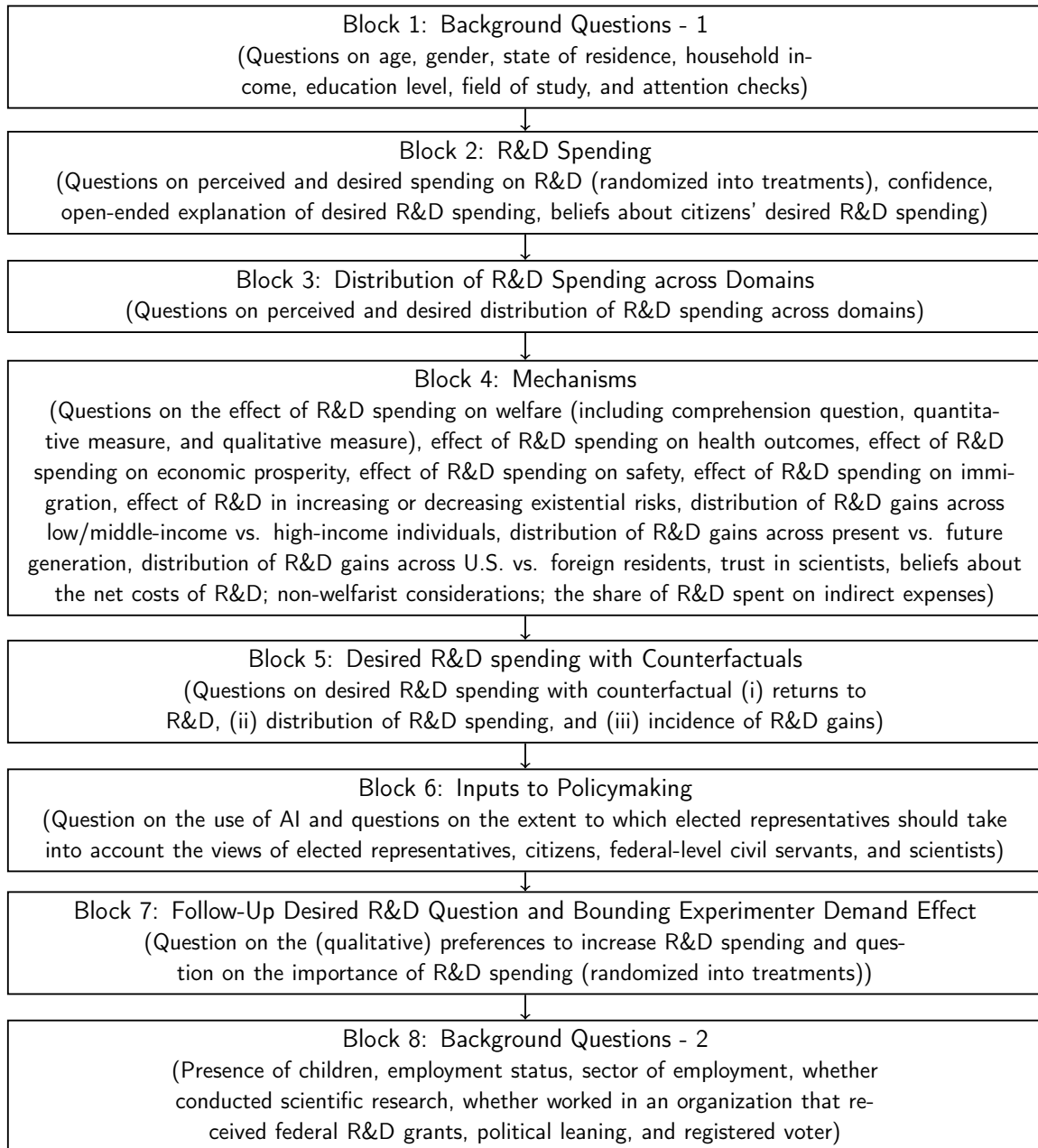
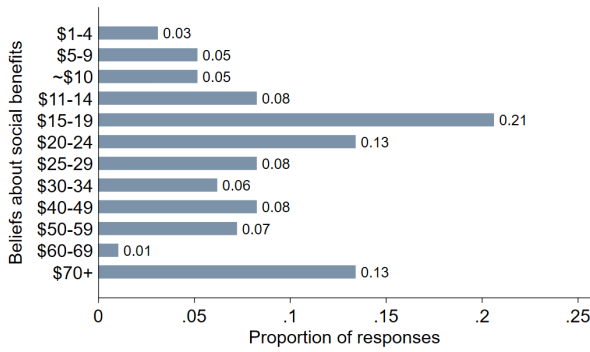
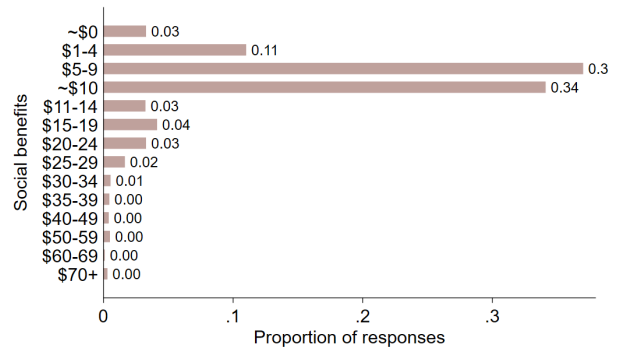


Figure A1: Overview of Experimental Design for Citizens Study



(a) Experts' Perceived Social Returns



(b) Citizens' Perceived Social Returns

Figure A2: Perceived Social Returns to R&D Spending (Citizen and Expert Studies)

Notes: Histogram of estimated per-capita social benefits from an increase in R&D spending averaging \$10 per citizen, as reported by (a), experts ($N = 97$) and (b), citizens ($N = 2008$).

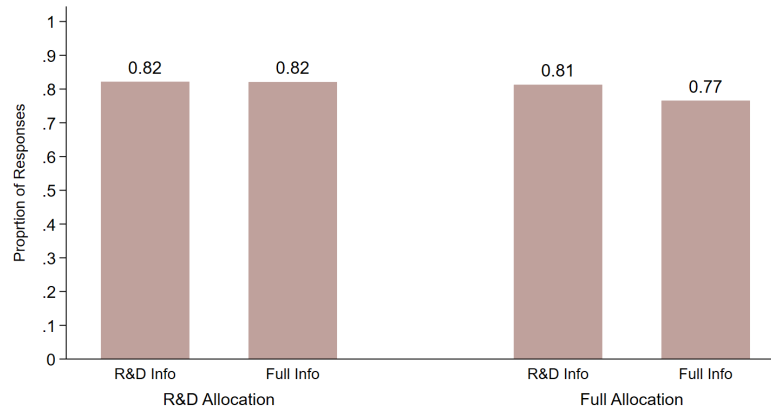


Figure A3: Proportion Desiring an Increase in R&D Spending (Citizen Study).

Notes: Proportion of respondents desiring an increase in R&D spending relative to the current levels (3%) across treatments R&D Context + R&D Allocation ($N = 510$), Full Context + R&D Allocation ($N = 513$), R&D Context + Full Allocation ($N = 486$), and Full Content + R&D Allocation ($N = 499$).

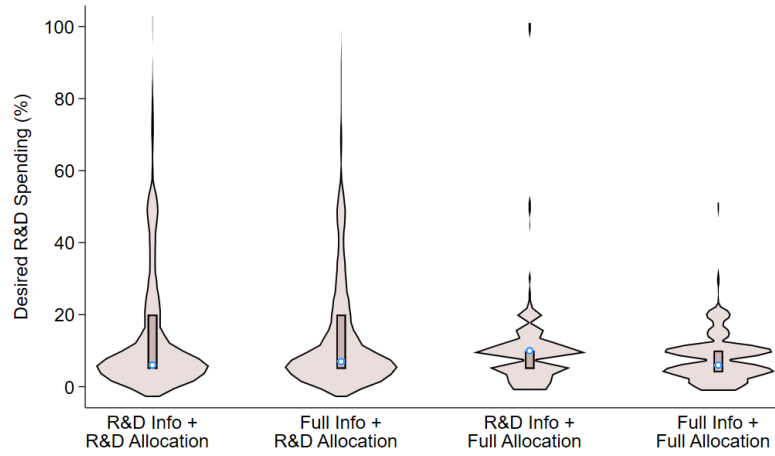


Figure A4: Desired R&D Spending across Counterfactual Scenarios (Citizen Study)

Notes: Violin plots of the desired R&D spending across the treatments R&D Context + R&D Allocation ($N = 510$), Full Context + R&D Allocation ($N = 513$), R&D Context + Full Allocation ($N = 486$), and Full Content + R&D Allocation ($N = 499$).

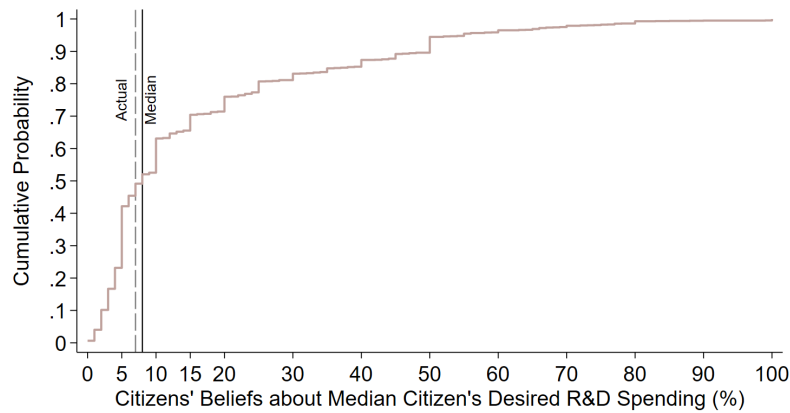


Figure A5: Citizens' Beliefs About Citizens' Desired R&D Spending (Citizen Study)

Notes: The figure presents the cumulative distribution of beliefs about the desired R&D spending of the median citizen, with the vertical dashed line representing the actual desired R&D spending among citizens (8%) and the vertical solid line representing the median belief.

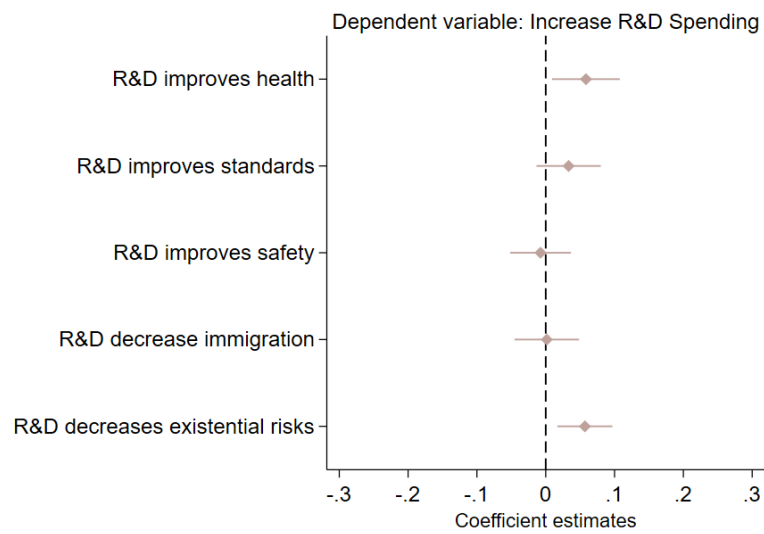


Figure A6: Correlates of Desired R&D Spending: Specific Returns (Citizen Study)

Notes: Coefficient estimates from a linear regression. The dependent variable takes a value of 1 if a citizen wants to increase R&D spending relative to current levels (3%) and 0 otherwise. The explanatory variables are indicator variables capturing various concerns (See Appendix Section B for details).

D Additional Tables

Table A1: Sample Selection and Attrition in citizen Study

	Number	Share
All Participants	4,843	100%
Duplicate ID	72	1.50 %
Duplicate IP	9	0.19%
Do not consent	121	2.5%
Dropped if quotas full	1,308	32.91%
Failed first attention check	279	7.95%
Failed second attention check	22	0.68%
Failed AI check	143	6.26%
Flagged as Bot by Qualtrics	107	5.06%
Final participants	2,008	41.46%

Table A2: Experts' Perceived Benefits from R&D and Experience

	(1)	(2)	(3)
Has U.S. research or funding experience	-5.448 (4.702)		
Has funding experience		10.240** (4.352)	
Has research experience			-10.411* (5.705)
Constant	37.503*** (7.059)	26.368*** (2.731)	37.971*** (5.026)
Observations	79	94	76

Notes: The table presents coefficient estimates from linear regressions. The dependent variable is experts' beliefs about the benefits from the returns to R&D, computed as the mid-point between the intervals in each answer option. Responses indicating "About \$0" are coded as 0, and responses indicating "\$70 or more" are coded as \$70. *Has U.S. experience* takes a value of 1 if an Expert indicates having research or funding experience in the U.S. (researchers sample only). *Has funding experience* takes a value of 1 for a policymaker who reports having funding experience and takes a value of 1 for a researcher who indicates serving on a committee that decides on project funding, funding priorities of a funding organization, or government funding priorities, and 0 otherwise. *Has research experience* takes a value of 1 if an expert indicates having research experience in R&D (researchers sample only).

* p < 0.10, ** p < 0.05, *** p < 0.01

Table A3: Summary Statistics

Variable	Sample	Population	p-val
Male	0.48	0.49	0.34
Income < 30,000	0.18	0.13	0.00
Income 30–59,999	0.23	0.18	0.00
Income 60–99,999	0.26	0.23	0.00
Income 100–149,999	0.20	0.20	0.41
Income \geq 150,000	0.12	0.26	0.00
Edu: Up to Highschool	0.33	0.37	0.00
Edu: Some college	0.21	0.20	0.13
Edu: Bachelor or Associate	0.31	0.30	0.22
Edu: Masters or above	0.14	0.13	0.17
Age 18–24	0.11	0.11	0.94
Age 25–34	0.13	0.17	0.00
Age 35–44	0.15	0.17	0.01
Age 45–54	0.16	0.16	0.55
Age 55–64	0.18	0.16	0.07
Age 65+	0.27	0.23	0.00
Conservative	0.38	0.35	0.00

Notes: The table compares the background characteristics of our sample of citizens (N=2008) with those of the U.S. population. The U.S. population demographics were computed using the 2023 American Community Survey 1-year estimates for individuals aged 18 and older (?). The sample share of conservatives is obtained from the General Social Survey (GSS) 2024 poll (Davern et al., 2025). The last column presents a one-sided t-test comparing the sample mean to the population mean.

Table A4: Randomization Check for Citizens

Variable	Context:				p-val
	R&D	Full	R&D	Full	
	Allocation:				
	R&D	R&D	Full	Full	
Male	0.49	0.47	0.46	0.48	0.73
Income < 30,000	0.21	0.17	0.17	0.19	0.34
Income 30–59,999	0.21	0.22	0.23	0.25	0.61
Income 60–99,999	0.26	0.28	0.26	0.24	0.62
Income 100–149,999	0.21	0.19	0.22	0.19	0.66
Income ≥ 150,000	0.11	0.13	0.11	0.12	0.51
Edu: Up to Highschool	0.33	0.31	0.33	0.36	0.37
Edu: Some college	0.21	0.22	0.23	0.19	0.36
Edu: Bachelor or Associate	0.32	0.30	0.31	0.32	0.84
Edu: Masters or above	0.14	0.17	0.13	0.13	0.12
Age 18–24	0.09	0.11	0.10	0.12	0.42
Age 25–34	0.14	0.13	0.12	0.14	0.83
Age 35–44	0.14	0.14	0.16	0.16	0.79
Age 45–54	0.15	0.18	0.17	0.15	0.49
Age 55–64	0.19	0.19	0.17	0.16	0.46
Age 65+	0.29	0.24	0.28	0.27	0.44
Conservative	0.38	0.39	0.38	0.38	0.98

Notes: The table presents the average sample characteristics across treatments in the citizen study ($N = 2008$). The treatments include R&D Context + R&D Allocation ($N = 510$), Full Context + R&D Allocation ($N = 513$), R&D Context + Full Allocation ($N = 486$), and Full Content + R&D Allocation ($N = 499$). The last column presents the p-value from an F-test from a regression of the particular characteristic on treatment indicators.

Table A5: Desired R&D Spending and Treatments

	(1)
Treatment Full Info	-0.001 (0.025)
Treatment Full Allocation	-0.009 (0.025)
Treatment Full Info x Full Allocation	-0.046 (0.035)
Constant	0.822*** (0.018)
Observations	2008

Notes: The table presents coefficient estimates from quantile regressions. The dependent variable is citizens' desired R&D spending. *Full Context* and *Full Allocation* are treatment indicators. The sample includes responses from the citizen study.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Mechanisms of Desired R&D Spending

	Increase R&D Spending		
	(1)	(2)	(3)
High Perceived R&D Share	0.106*** (0.017)		
R&D improves wellbeing	0.079*** (0.018)		
R&D incidence on high incomes	0.009 (0.021)		
R&D incidence on future generations	0.020 (0.018)		
R&D incidence to foreign residents	-0.065* (0.034)		
R&D increases tax revenue	0.021 (0.019)		
Non-welfarist view of R&D	0.053*** (0.018)		
High spending on indirect expenses	-0.013 (0.018)		
Trust in scientists	0.026 (0.018)		
R&D improves health		0.058** (0.025)	
R&D improves standards		0.033 (0.024)	
R&D improves safety		-0.008 (0.023)	
R&D decreases immigration		0.002 (0.024)	
R&D decreases existential risks		0.057*** (0.020)	
High Education			0.062*** (0.020)
Conservative			-0.078*** (0.018)
High Income			0.037** (0.019)
High Age			-0.026 (0.018)
Male			-0.020 (0.018)
Presence of children			-0.005 (0.019)
Constant	0.690*** (0.021)	0.746*** (0.016)	0.830*** (0.025)
Observations	2008	2008	2008

Notes: The table presents coefficient estimates from linear regressions. The dependent variable is an indicator variable that takes a value of 1 if a participant's desired R&D spending is higher than current levels (3%) and 0 otherwise. The explanatory variables are indicator variables capturing various mechanisms (See Appendix Section B for details). The sample includes responses from the citizen study. HC3 standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01

Table A7: Mapping Survey Themes to Economic-Theory Lenses

Survey theme (%)	Theoretical lens	Why that lens fits	Classic refs.
Importance of R&D for future growth (25)	Endogenous-growth models	Knowledge creation lifts the long-run growth rate; boosting R&D raises future output.	Romer (1990); Aghion and Howitt (1992); Jones (1995)
Need for increased funding (20)	Endogenous-growth spillovers & New-Keynesian fiscal multipliers	(i) Positive externalities mean under-investment; (ii) in recessions, high-multiplier R&D spending stimulates demand and potential output.	Arrow (1962); Romer (1990); Auerbach and Gorodnichenko (2013)
R&D for societal challenges (15)	Mission-oriented / public-good view	Government R&D tackles climate, health, etc., where social returns exceed private ones.	Arrow (1962); Mazzucato (2018)
Comparison with other budget items (15)	New-Keynesian trade-off	Highlights fiscal space and opportunity cost between growth spending and redistribution/stabilisation.	Woodford (2011); Galí (2015)
Concerns about waste (10)	Public-choice & principal-agent	Bureaucratic incentives and asymmetric information can misallocate funds.	Buchanan and Tullock (1962); Holmström (1979)
R&D as a public good (10)	Endogenous-growth & public-good theory	Knowledge is non-rival and partly non-excludable; market funding is sub-optimal.	Arrow (1962); Romer (1990)
Vagueness of “R&D” (5)	Measurement / national-accounts	Hard to define and track knowledge investment consistently.	Organisation for Economic Co-operation and Development (2015)
Need for transparency (5)	Principal-agent	Accountability lowers agency costs and improves allocation efficiency.	Holmström (1979); Buchanan and Tullock (1962)

Notes: The table summarizes the survey themes from citizens’ open-end answers and how they fit with theoretical models and the reasons why they fit.

E Additional Analysis

E.1 Response Quality Adjustment

To assess the quality of responses at the individual level, we estimate a median regression with desired R&D spending as the dependent variable and the following explanatory variables: (i) an indicator variable that takes value 1 if a participant's decisions are inconsistent (there is no concordance between their quantitative spending preferences and qualitative spending preferences elicited at the end of the survey), (ii) an indicator variable that takes a value 1 if the participant's time spent on the survey lies within 2 standard deviations of the mean time spent within each treatment, (iii) an indicator variable that take a value of 1 if a participant passed the comprehension questions in their first attempt, respectively, and (iv) a dummy variable that takes a value of 1 if a participant's confidence in their answer is lower than the highest value ("Very Much"). We will also include treatment indicators and demographic controls in the regression. Table A8 presents the coefficient estimates from the median regression. We provide corrected estimates of the desired R&D spending, correcting for the quality of response at the individual level. To do so, we subtract the coefficient estimate of each response quality indicator in Table A8 with a significant coefficient from the values of the desired R&D spending for those with low response quality (the indicator variable takes a value of 0).

Table A8: Desired R&D Spending and Quality Adjustment

Fail comprehension	1.250** (0.538)
Inconsistent	-1.750* (0.909)
Extreme time	-0.000 (1.241)
Low confidence	0.250 (0.527)
Observations	1800
Controls?	Yes

Notes: The table presents coefficient estimates from median regressions. The dependent variable is participant's desired R&D spending from 0 to 100. The explanatory variables are: "Inconsistent" is indicator variable that takes value 1 if a participant's decisions are inconsistent (there is no concordance between their quantitative spending preferences and qualitative spending preferences elicited at the end of the survey), "Extreme time" is indicator variable that takes a value 1 if the participant's time spent on the survey lies within 2 standard deviations of the mean time spent within each treatment, "Fail comprehension" is an indicator variable that take a value of 1 if a participant passed the comprehension questions in their first attempt, respectively, and "Low confidence" is a dummy variable that takes a value of 1 if a participant's confidence in their answer is lower than the highest value ("Very Much"). The sample includes responses from the citizen study. HC3 standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01.

E.2 Open-Ended Analysis of Experts' Reasons

Method

In this section, we explain our analysis of the open-ended responses provided by experts, in which they explain their desired R&D spending. This question was only employed in the survey for researchers. We employed OpenAI's GPT-4o-mini model via the OpenAI API to analyze the responses. To ensure deterministic output, we set the temperature parameter to 0. The exact code is part of the replication package.

Our analysis proceeded in two sequential steps. First, the model was directed to identify the main reason each participant cited, combine similar reasons into "high-level" reasons according to their underlying concerns, and report the frequency of occurrence of these high-level reasons. Since the model output can vary across iterations, the model was prompted to repeat the process ten times. Second, the model was prompted to consolidate the ten separately generated lists of reasons into a unified and comprehensive set, combining reasons that were similar.

To provide sufficient context for interpreting participants' responses, we included the following explanations in our prompt.

Context

This prompt is about analyzing text responses of individuals who participated in a study.

The sample consists of experts in the field of R&D.

First, participants were informed that in 2023, the federal government allocated approximately 3 percent of its total spending to R&D.

Second, participants were asked to indicate what percentage of the total federal government spending should be spent on R&D.

Finally, participants were invited to provide responses explaining their answer.

To obtain reasons in Step 1, we combined the prompt providing the context described above along with the following prompt:

*## Task Instructions: - Identify the ****participants' reasons for their allocation to R&D*****

*- ****Identify the one most important reason in each response****.*

- Combine similar reasons based on the underlying concerns.

*- Calculate the ****percentage of occurrence**** for each combined reason.*

*- ****The sum of the percentages of occurrences of all reasons should not add up to more than 100 percent****.*

*- Present your findings as a numbered list of combined reasons, each with its ****percentage of occurrences**** and a ****concise explanation****.*

- Do not include any additional explanations or summaries.

Below are the text responses:

To obtain the consolidated reasons in Step 2, we combined the prompt providing the context described above along with the following prompt:

Below are 10 outputs generated by GPT-4o-mini.

Each output contains a list of participants' reasons for their reasons and a concise summary.

Task Instructions:

- Combine similar reasons from the 10 outputs into a ****consolidated list****.*
- ****The sum of the percentages of occurrences of all reasons in the consolidated list should not add up to more than 100 percent****.*
- Present your findings in the following format: ****Reasons (average percentage of occurrences): concise explanation****.*
- Order the consolidated list of reasons by the average percentage of occurrences.*
- Do not include any additional explanations or summaries.*

Results

The resulting list of reasons provided by the model can be found below.

1. **Need for Increased Funding (30%):** Many participants emphasized the necessity of increasing R&D funding to drive innovation, address societal challenges, and maintain global competitiveness, reflecting a consensus that the current allocation is insufficient.
2. **High Returns on Investment (20%):** Several experts noted that R&D spending yields significant social and economic returns, suggesting that increased investment would be beneficial and that the benefits outweigh the costs.
3. **Public Good Characteristics of R&D (15%):** Responses highlighted that R&D often involves high-risk projects that the private sector may underfund, necessitating government support to ensure these public goods are developed.
4. **Concerns About Efficiency and Allocation (10%):** Some participants expressed the importance of not just increasing funding but also ensuring that it is allocated efficiently and strategically to maximize impact.
5. **Historical Context and Comparisons (10%):** A number of experts referenced historical funding levels and international comparisons, arguing that the U.S. should aim for higher spending relative to past levels and other countries.
6. **Balancing Other Budgetary Priorities (5%):** A few responses indicated the need to balance R&D funding with other critical areas of government spending, suggesting caution in how much to increase R&D.
7. **Skepticism About Current Levels (5%):** Some participants expressed doubt about whether the current funding levels are adequate, indicating a belief that more research is needed to determine the optimal allocation.
8. **Uncertainty in Optimal Funding Levels (5%):** A few experts acknowledged the difficulty in determining the exact optimal level of R&D funding, indicating that while an increase is warranted, the precise amount remains uncertain.

E.3 Open-Ended Analysis of Citizens' Reasons

Method

We repeat the procedure described in the previous section to analyze citizens' open-ended responses, in which they explain their desired R&D spending, behind their preferences for R&D. All participants provides responses since the questions required a response. The median number of words per response is 13.

To following prompt provides context to the model:

Context

This prompt is about analyzing text responses of individuals who participated in a study.

The sample consists of participants from the U.S. general population.

First, participants were informed that in 2023, the federal government allocated approximately 3 percent of its total federal budget to R&D.

Second, participants were asked to indicate what percentage of the total federal government budget should be allocated to R&D.

Finally, participants were invited to provide responses explaining their answers.

Participants were randomized into treatments in a 2x2 factorial design: citizens either allocated spending across multiple budget categories, which together make up 100% of the budget (R&D, income and social security, Medicare, health, national defense, Veterans benefits and services, transportation, and "other") or focused solely on R&D, and citizens were either informed or uninformed about actual budget allocations across categories. These categories correspond to the seven biggest budget categories, with the spending across them totaling 85% of the total government budget.

To obtain reasons in Step 1, we combined the prompt providing the context described above along with the following prompt:

Task Instructions:

- Identify the ****participants' reasons for their allocation to R&D****.*
- ****Identify the one most important reason in each response****.*
- Combine similar reasons based on the underlying concerns.*
- Calculate the ****percentage of occurrence**** for each combined reason.*
- ****The sum of the percentages of occurrences of all reasons should not add up to more than 100 percent****.*
- Present your findings as a numbered list of combined reasons, each with its ****percentage of occurrences**** and a ****concise explanation****.*
- Do not include any additional explanations or summaries.*

Below are the text responses:

To obtain the consolidated reasons in Step 2, we combined the prompt providing the context described above along with the following prompt:

Below are 10 outputs generated by GPT-4o-mini.

Each output contains a list of participants' reasons for their reasons and a concise summary.

Task Instructions:

- Combine similar reasons from the 10 outputs into a ****consolidated list****.*

- ***The sum of the percentages of occurrences of all reasons in the consolidated list should not add up to more than 100 percent**.*
- *Present your findings in the following format: **Reasons (average percentage of occurrences): concise explanation**.*
- *Order the consolidated list of reasons by the average percentage of occurrences.*
- *Do not include any additional explanations or summaries.*

Results

The resulting list of reasons provided by the model can be found below.

1. Importance of R&D for Future Growth (25%)

Many participants emphasized that R&D is crucial for the future, driving innovation, economic growth, and advancements in technology and healthcare.

2. Need for Increased Funding (20%)

A significant number of responses indicated that the current allocation of 3% is insufficient and that more funding is necessary to support R&D efforts.

3. R&D's Role in Addressing Societal Challenges (15%)

Participants noted that R&D is essential for solving pressing issues such as healthcare, climate change, and technological advancements, which benefit society as a whole.

4. Comparison to Other Budget Categories (15%)

Many responses highlighted that while R&D is important, other areas such as healthcare, social security, and national defense should receive higher priority and funding.

5. Concerns About Waste and Misallocation (10%)

Some participants expressed skepticism about how R&D funds are spent, suggesting that there is waste and that funds could be better allocated to more pressing needs.

6. R&D as a Public Good (10%)

Several responses indicated that R&D should be funded by the government as it serves the public interest and leads to societal benefits.

7. Vagueness of R&D Definition (5%)

A few participants mentioned that the term "R&D" is too broad and vague, making it difficult to determine how much funding is appropriate or necessary.

8. Desire for Transparency in Spending (5%)

Some participants expressed a need for greater transparency regarding how R&D funds are allocated and spent, indicating a lack of trust in the current system.