

Supplementary information (SI) tables and figures

**New methods in creating transdisciplinary science-policy research agendas:
The case of legislative science advice**

SI Table 1. Fifty research questions on legislative science advice (*Please note: The numbering in this list is not the same as in the ranking, for which the statements were placed in random order.*)

Information/evidence use (*Influence, use, or uptake of scientific information/science advice in policy—its impact or barriers—including measurement and evaluation*)

1. What types of scientific information are used in legislatures?
2. How do the formal and informal practices of legislatures influence the consideration and use of scientific information?
3. What are the ways in which scientific information is "used" in legislatures?
4. What metrics can be used to assess the use of scientific information across different legislative contexts?
5. What incentives motivate or compel legislatures to use scientific information?
6. Under which conditions does use of scientific information change the framing of policy debates in legislatures?
7. Does legislative use of evidence improve the implementation and outcome of social programs and policies?

Evidence development (*The creation of scientific information for the purposes of evidence*)

8. How can the scientific topics most relevant to the public and policymakers be determined to inform research?
9. How is social relevance weighed in the production of academic research?
10. How do policymakers and researchers work together in defining problems and processes for generating evidence?

Policymakers (*Policymakers, legislators, decision-makers*)

11. What value do legislators and staff place on scientific evidence, as opposed to other types?
12. How do legislator and staff preferences for scientific evidence compare between countries?
13. How do legislators and their staff assess the credibility of scientific information?
14. What are the characteristics of the producers of scientific information most preferred by legislators and their staff? (e.g., are they partisan, make policy recommendations?)
15. How do the Internet and social media affect the information-seeking behavior of legislators and staff?
16. Under what conditions do legislators and staff seek out scientific information or use what is presented to them?
17. What are the factors that legislators weigh in deciding whether to accept or reject a scientific recommendation?
18. Can training for legislators and/or staff increase their use of scientific information, especially in lower-middle income countries (LMICs)?

Scientists (*Scientists, scientific advisers, scientific researchers*)

19. What information, skills, and training are needed for scientists to work with legislators and their staff?
20. What individual and institutional factors motivate scientists to share their research with legislators and their staff?

21. How do scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures?
22. Which behaviors of scientists and other advisers increase the likelihood of evidence use?

Brokers (*Intermediaries, brokers*)

23. What role do intermediaries and research brokers play in getting scientific information before legislators and their staff? (e.g., helping shape research questions, communicate research, and/or serve as an engagement facilitator)
24. What forms of evaluation can be used to measure the effect of "brokering" scientific information?

Institutions (*Organizations, legislatures, governments, committees*)

25. How can the institutions that deliver legislative science advice be characterized?¹
26. How do culture, and political and economic context, affect the development of legislative science advice institutions? (e.g., new and emerging democracies, more authoritarian systems, levels of economic development)
27. How do different institutional approaches to legislative science advice influence its nature, quality and relevance?
28. What institutional approaches for legislative science advice are instructive for other countries?
29. How do legislative research departments synthesize and translate scientific information for legislators?
30. How can we measure the impact of legislative science advisory bodies on legislative processes using indicators?
31. How does the staffing, budgetary, and political capacity of committees affect their ability to use scientific information in legislatures?
32. How do internal and external organizations assess and meet the needs of legislatures for in-depth analysis?

The public (*Citizens, public*)

33. How does public participation affect legislative processes in which scientific information may be considered, including potential reductions in corruption?
34. How can the impact of current citizen initiatives in legislative science advice be measured?
35. What is the extent to which the public is aware of, and places value in, the scientific information being used in legislatures?

Communication (*Communication of science through engagement, access to information, effective information/knowledge transfer, relationships*)

36. What is the frequency of communication between legislative staff and scientists from inside and outside government?

¹ Examples include: type of entity conducting the research; source of financing; demand or supply driven; organized by a legislative entity or another party; level of involvement of the legislative entity; public access to information; measure of stakeholder participation; political system; governmental level (international–municipal); institutionalized or project-based initiative.

37. How does political polarization affect information flows to legislators and their staff?
38. Does iterative engagement between researchers, legislators, and staff improve evidence use?
39. How do different communication channels—hearings, face-to-face meetings, email, social media, etc.— affect informational trust and use?
40. How can risk and uncertainty be communicated comprehensibly to legislators and staff?
41. Which communication tools facilitate working with legislative decision-makers on scientific topics?
42. How is scientific information embedded in policy debate rhetoric?

System design (*Structure, design, and implementation of LSA systems/processes/models both in developed and developing nations*)

43. How do the requirements and needs of a science advice system for policymaking differ across countries?
44. How can the design of new structures, processes, and systems increase legislative capacity for science use?
45. What lessons can be learned about how to manage scientific advice to legislatures from a systems approach?
46. How do racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems?
47. In societies without established science advice systems, how is scientific information used—if at all—by legislatures?
48. What are examples of improvements to legislative science advisory systems in heavily resource-constrained countries?

Ethics (*Ethics of use of science in policy; appropriate role of scientists/scientific information providers in policy*)

49. What ethical principles for providing legislative science advice can be derived?
50. How can values be made transparent in providing science advice?

SI Box 1. The structure of forced-normal distribution used in the Q sort is displayed. Participants sorted the research statements across nine categories. They could place only a certain number into each of the boxes, ranging from four (extremely interested/uninterested) to eight (neither uninterested or interested). They were instructed to rank the statements relative to each other, even if the labels on the categories did not necessarily match their sentiment.

| Extremely uninterested (-4) | Very uninterested (-3) | Moderately uninterested (-2) | Slightly uninterested (-1) | Neither uninterested nor interested (0) | Slightly interested (1) | Moderately interested (2) | Very interested (3) | Extremely interested (4) |
|-----------------------------|------------------------|------------------------------|----------------------------|---|-------------------------|---------------------------|---------------------|--------------------------|
| -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
| -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
| -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
| -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
| | -3 | -2 | -1 | 0 | 1 | 2 | 3 | |
| | | -2 | -1 | 0 | 1 | 2 | | |
| | | | | 0 | | | | |
| | | | | 0 | | | | |

SI Box 2. In the first sorting step, conducted online, respondents were asked to move each of the 50 statements of research needs into one of three categories based on their level of interest in learning the information.

The following list consists of 50 statements derived from the research questions that you and your colleagues submitted. Each statement describes information we could potentially learn from studying legislative science advice.

**Which information would you be interested, uninterested, or neither uninterested or interested in learning?
Please drag each statement on the left into one of the boxes on the right.**

When you have moved all the statements into one of the three boxes, please click on the arrow to take you to the next page.

Note: Please move all the statements into one of the boxes on the right. The next questions build on this rating. You will not be able to move forward until the rating is complete. If you wish to end the survey, simply exit the webpage. You will be able to comment on the process after completing the rating.

| | |
|---|---|
| <p>Statements</p> <div style="border: 1px solid #ccc; background-color: #f0f0f0; padding: 10px; min-height: 150px;"><p>* Whether iterative engagement between researchers, legislators, and staff improves evidence use</p></div> | <p>Uninterested in learning this information</p> <div style="border: 1px solid #ccc; background-color: #f0f0f0; height: 70px; width: 350px;"></div> <p>Neither uninterested nor interested</p> <div style="border: 1px solid #ccc; background-color: #f0f0f0; height: 70px; width: 350px;"></div> <p>Interested in learning this information</p> <div style="border: 1px solid #ccc; background-color: #f0f0f0; height: 70px; width: 350px;"></div> |
|---|---|

SI Box 3. In the second sorting step, respondents were given instructions on how to place the research needs statements into one of nine categories, ranging from “extremely uninterested” to “extremely interested.”

Thank you for telling us which information you would be interested and uninterested in learning. Please help us in understanding *how* interested or uninterested you would be in learning this information.

Further divide the statements from your first sort into each of the boxes below. The categories range from “extremely uninterested” to “extremely interested,” with “neither uninterested nor interested” in the middle.

Please move all the statements into one of the boxes on the right, making sure that the correct number of statements is in each box (4, 5, 6, or 8). You can easily see which statements are in each box by clicking on “expand all.” As you move the statements, the total count will be reflected on the label above the box (e.g., “1 of 4 statements”). You may move statements between boxes on the right as you make your final choices. If you need to move a statement to a location that is not visible on the screen, pull it into the box closest to your desired location, then scroll the screen to make the statement and new box visible, and finally pull the statement into position.

Note: We understand that it may be hard to make distinctions between some of the statements. You also may wish you could place more statements into some of the boxes than allowed. Please rate the statements to the best of your ability. You will be able to comment on the process at the end. You will not be able to move forward until the rating is complete. If you wish to end the survey, simply exit the webpage.

SI Box 4. In the second sorting step, respondents completed the ranking by moving the previously categorized statements into nine groups with more specific labels.

| | |
|---|--|
| | Extremely uninterested to learn this <i>(0 of 4 statements)</i> |
| | <input type="text"/> |
| | Very uninterested <i>(0 of 5 statements)</i> |
| | <input type="text"/> |
| Uninterested in learning this information | Moderately uninterested <i>(0 of 6 statements)</i> |
| <input type="text"/> * How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures | <input type="text"/> |
| | Slightly uninterested <i>(0 of 6 statements)</i> |
| | <input type="text"/> |
| Neither uninterested nor interested | Neither uninterested nor interested <i>(0 of 8 statements)</i> |
| <input type="text"/> * What lessons can be learned about how to manage scientific advice to legislatures from a systems approach | <input type="text"/> |
| | Slightly interested <i>(0 of 6 statements)</i> |
| | <input type="text"/> |
| | Moderately interested <i>(0 of 6 statements)</i> |
| | <input type="text"/> |
| | Very interested <i>(0 of 5 statements)</i> |
| Interested in learning this information | <input type="text"/> |
| <input type="text"/> * How legislators and their staff assess the credibility of scientific information | Extremely interested to learn this <i>(0 of 4 statements)</i> |
| | <input type="text"/> |

SI Table 2. Factor loading matrices for developed and developing nation respondents

| | DD1 | DD2 | DD3 | | DG1 | DG2 | DG3 |
|------------|------------|------------|------------|------------|------------|------------|------------|
| X1030DDPRV | -0.519 * | 0.145 | 0.088 | x1003DG2PP | 0.07 | 0.216 | -0.051 |
| X1036DD2PU | 0.624 * | -0.023 | 0.234 | x1014DG2PP | -0.417 * | -0.178 | 0.079 |
| X1058DD3WY | 0.373 | -0.13 | 0.594 * | x1027DG3WY | -0.076 | 0.608 * | 0.108 |
| X1069DDPRV | 0.296 | 0.183 | 0.465 * | x1047DG2PP | -0.193 | 0.155 | 0.069 |
| X1082DDPRD | 0.181 | 0.482 * | -0.216 | x1052DG3WY | 0.66 * | 0.113 | 0.284 |
| X1102DD2PP | 0.429 * | 0.015 | 0.026 | x1054DGPRV | 0.143 | 0.155 | 0.422 * |
| X1126DDPRV | -0.015 | 0.218 | 0.335 * | x1060DGPRV | 0.508 * | 0.261 | 0.276 |
| X1130DDPRD | 0.154 | 0.39 | 0.539 * | x1080DG3WY | 0.39 | 0.43 * | -0.019 |
| X1147DDUSR | -0.132 | 0.531 * | 0.258 | x1114DG3WY | -0.3 | 0.322 | 0.238 |
| X1150DD3WY | 0.661 * | 0.147 | -0.231 | x1116DGPRV | -0.016 | 0.652 * | -0.18 |
| X1161DD3WY | 0.317 | 0.009 | 0.374 * | x1132DG3WY | -0.036 | 0.081 | -0.5 * |
| X1174DD2PU | 0.386 * | 0.378 | 0.068 | x1135DGPRD | -0.233 | -0.031 | 0.114 |
| X1175DDPRV | 0.358 | 0.427 * | -0.175 | x1162DGPRD | 0.128 | 0.376 * | 0.094 |
| X1199DDUSR | 0.619 * | 0.326 | -0.063 | x1190DGPRV | -0.031 | -0.04 | 0.652 * |
| X1213DDXXX | 0.116 | 0.073 | -0.504 * | x1194DGPRD | 0.06 | 0.331 * | 0.136 |
| X1233DDPRD | 0.583 * | 0.081 | -0.137 | x1208DGPRV | -0.295 * | -0.096 | 0.099 |
| X1260DD2PP | 0.4 * | 0.095 | 0.267 | x1254DGPRV | -0.242 | -0.304 | 0.38 |
| X1305DD3WY | 0.001 | 0.044 | 0.356 * | x1256DGPRD | 0.542 * | 0.217 | -0.249 |
| X1313DDPRD | 0.243 | 0.162 | -0.363 * | x1318DGPRV | 0.233 | 0.354 * | -0.065 |
| X1323DDPRD | 0.22 | 0.643 * | -0.286 | x1321DG2PP | -0.055 | -0.414 * | 0.082 |
| X1331DDPRV | 0.438 | 0.276 | -0.393 | x1347DG3WY | -0.367 | 0.433 * | -0.212 |
| X1349DDPRD | -0.01 | 0.554 * | -0.505 | x1380DGPRD | -0.285 * | -0.024 | -0.007 |
| X1352DDUSR | 0.277 | -0.349 * | 0.003 | x1392DGPRV | 0.349 | -0.355 | -0.221 |
| X1417DD2PU | 0.583 * | -0.007 | 0.034 | x1418DGPRV | 0.067 | 0.077 | 0.469 * |
| X1428DDPRD | -0.27 | 0.437 * | 0.303 | x1439DG2PU | 0.455 * | -0.205 | 0.177 |
| X1497DD3WY | -0.015 | 0.52 * | 0.058 | x1440DG2PU | 0.121 | 0.199 | -0.631 * |
| X1501DDPRV | 0.157 | 0.695 * | 0.12 | x1442DGPRV | 0.233 | 0.407 | 0.423 |
| X1540DDUSR | 0.241 | 0.272 | 0.199 | x1550DGPRV | 0.177 | 0.048 | 0.091 |
| X1558DDPRV | -0.048 | 0.336 * | 0.279 | x1551DGPRV | -0.356 | 0.384 * | -0.044 |
| X1560DD3WY | 0.346 | 0.537 * | 0.069 | x1569DGUSR | 0.175 | 0.397 | 0.403 |
| X1603DDPRD | -0.125 | 0.039 | 0.546 * | x1600DGPRV | 0.624 * | -0.113 | 0.153 |
| | | | | x1607DG3WY | 0.022 | -0.172 | -0.156 |
| | | | | x1609DGPRV | -0.116 | -0.01 | -0.065 |

Asterisks indicate statistically significant coefficients ($p < .05$). Roles: USR, user; PRV, provider; PRD, producer; 2PU, provider and user; 2PP, producer and provider; 3WY, producer, provider, and user.

SI Table 3. Factor loading matrix for the combined analysis of all respondents

| | ALL1 | ALL2 | ALL3 | ALL4 | | ALL1 | ALL2 | ALL3 | ALL4 |
|------------|---------|---------|----------|---------|------------|----------|----------|---------|----------|
| x1030DDPRV | -0.283 | 0.173 | -0.263 | 0.432 * | x1014DG2PP | -0.253 | -0.177 | 0.43 * | -0.037 |
| x1036DD2PU | 0.317 | 0.155 | 0.408 * | -0.182 | x1027DG3WY | 0.426 | 0.154 | 0.201 | 0.464 |
| x1058DD3WY | 0.01 | 0.022 | 0.635 * | 0.135 | x1047DG2PP | -0.032 | 0.021 | 0.26 | -0.248 |
| x1069DDPRV | 0.194 | 0.176 | 0.545 * | 0.012 | x1052DG3WY | 0.361 | 0.456 * | -0.079 | -0.072 |
| x1082DDPRD | 0.442 * | -0.157 | -0.077 | 0.142 | x1054DGPRV | 0.299 | 0.309 | 0.356 | -0.208 |
| x1102DD2PP | 0.349 * | -0.047 | 0.233 | -0.129 | x1060DGPRV | 0.183 | 0.639 * | 0.046 | 0.164 |
| x1126DDPRV | 0.095 | 0.218 | 0.046 | 0.284 * | x1080DG3WY | 0.106 | 0.437 * | 0.087 | 0.123 |
| x1130DDPRD | 0.196 | 0.049 | 0.36 | 0.438 * | x1114DG3WY | 0.111 | -0.049 | 0.505 * | -0.005 |
| x1147DDUSR | 0.164 | 0.073 | 0.064 | 0.629 * | x1116DGPRV | -0.008 | 0.252 | -0.1 | 0.425 * |
| x1150DD3WY | 0.534 * | 0.23 | 0.077 | -0.205 | x1132DG3WY | 0.035 | -0.24 | 0.15 | 0.066 |
| x1161DD3WY | 0.102 | 0.143 | 0.478 * | 0.13 | x1135DGPRD | 0.151 | -0.294 | 0.448 * | 0.05 |
| x1174DD2PU | 0.519 * | 0.073 | -0.036 | 0.135 | x1162DGPRD | 0.239 | 0.052 | -0.062 | 0.299 * |
| x1175DDPRV | 0.509 * | -0.105 | 0.033 | 0.191 | x1190DGPRV | 0.227 | 0.189 | 0.047 | -0.393 * |
| x1199DDUSR | 0.699 * | 0.067 | 0.194 | -0.134 | x1194DGPRD | 0.49 * | 0 | 0.165 | 0.092 |
| x1213DDxxx | 0.256 | 0.193 | -0.599 * | -0.131 | x1208DGPRV | 0.232 | -0.351 * | 0.089 | -0.156 |
| x1233DDPRD | 0.529 * | 0.133 | 0.13 | -0.424 | x1254DGPRV | -0.251 | 0.026 | 0.009 | -0.432 * |
| x1260DD2PP | 0.232 | 0.108 | 0.238 | 0.233 | x1256DGPRD | 0.075 | 0.423 * | -0.301 | 0.166 |
| x1305DD3WY | -0.076 | 0.367 * | 0.325 | 0.092 | x1318DGPRV | 0.225 | 0.159 | 0.095 | 0.062 |
| x1313DDPRD | 0.32 * | 0.143 | -0.266 | -0.055 | x1321DG2PP | 0.013 | -0.195 | 0.028 | -0.139 |
| x1323DDPRD | 0.623 * | -0.166 | -0.204 | 0.253 | x1347DG3WY | -0.108 | -0.021 | -0.179 | 0.442 * |
| x1331DDPRV | 0.554 * | 0.128 | -0.195 | -0.086 | x1380DGPRD | 0.014 | -0.196 | 0.169 | 0.203 |
| x1349DDPRD | 0.385 | -0.064 | -0.446 * | 0.193 | x1392DGPRV | 0.085 | -0.108 | 0.275 | -0.108 |
| x1352DDUSR | -0.033 | 0.37 * | 0.02 | -0.17 | x1418DGPRV | -0.185 | 0.455 * | 0.151 | -0.093 |
| x1417DD2PU | 0.334 | 0.592 * | 0.118 | -0.111 | x1439DG2PU | 0.177 | 0.146 | -0.006 | -0.237 |
| x1428DDPRD | -0.009 | 0.108 | -0.004 | 0.406 * | x1440DG2PU | 0.024 | -0.131 | 0.03 | 0.381 * |
| x1497DD3WY | 0.354 | -0.354 | 0.099 | 0.257 | x1442DGPRV | 0.103 | 0.654 * | 0.001 | 0.113 |
| x1501DDPRV | 0.594 * | -0.021 | 0.115 | 0.247 | x1550DGPRV | -0.151 | 0.409 * | -0.247 | -0.064 |
| x1540DDUSR | 0.313 * | 0.004 | 0.158 | 0.203 | x1551DGPRV | 0.011 | -0.037 | 0.049 | 0.097 |
| x1558DDPRV | 0.166 | -0.333 | 0.173 | 0.37 | x1569DGUSR | 0.271 | 0.42 * | 0.265 | -0.014 |
| x1560DD3WY | 0.616 * | 0.04 | 0.186 | 0.09 | x1600DGPRV | 0.312 | 0.315 | -0.168 | -0.31 |
| x1603DDPRD | -0.245 | 0.186 | 0.323 | 0.324 | x1607DG3WY | -0.167 | 0.059 | 0.117 | -0.039 |
| x1003DG2PP | 0.066 | 0.041 | 0.016 | 0.384 * | x1609DGPRV | -0.302 * | -0.017 | -0.007 | 0.103 |

Asterisks indicate statistically significant coefficients ($p < .05$). Roles: *USR*, user; *PRV*, provider; *PRD*, producer; *2PU*, provider and user; *2PP*, producer and provider; *3WY*, producer, provider, and user.

SI Table 4. This factor array represents the three perspectives of developed nation respondents.

| | Category | Statements of research needs | DD1 | DD2 | DD3 |
|----|--------------------------------|---|------------|------------|------------|
| 1 | Policymakers | The characteristics of the producers of scientific information most preferred by legislators and their staff | 2 | 1 | 3 |
| 2 | Institutions and organizations | How institutions that deliver legislative science advice can be characterized | -4 | -2 | -1 |
| 3 | Institutions and organizations | How culture, and political and economic context, affect the development of legislative science advice institutions | -3 | -2 | 0 |
| 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use | -1 | -1 | 0 |
| 5 | Evidence Development | How social relevance is weighed in the production of academic research | -4 | -4 | 1 |
| 6 | Intermediaries and brokers | What role intermediaries and research brokers play in getting scientific information before legislators and their staff | 3 | 3 | 2 |
| 7 | Communication | Which communication tools facilitate working with legislative decision-makers on scientific topics | 2 | 2 | 3 |
| 8 | Evidence Use | How the formal and informal practices of legislatures influence the consideration and use of scientific information | 1 | 3 | -1 |
| 9 | Institutions and organizations | How legislative research departments synthesize and translate scientific information for legislators | 0 | 0 | -2 |
| 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries | -2 | -1 | -4 |
| 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use | 2 | 0 | -2 |
| 12 | Evidence Use | What metrics can be used to assess the use of scientific information across different legislative contexts | 2 | -3 | 2 |
| 13 | Institutions and organizations | What institutional approaches for legislative science advice are instructive for other countries | 3 | -4 | -3 |
| 14 | Evidence Development | How policymakers and researchers work together in defining problems and processes for generating evidence | -2 | 0 | 3 |
| 15 | Evidence Use | Under which conditions the use of scientific information changes the framing of policy debates | 3 | 3 | 1 |
| 16 | Policymakers | How the Internet and social media affect the information-seeking behavior of legislators and staff | -1 | 3 | 3 |
| 17 | Policymakers | Whether training for legislators and/or staff can increase their use of scientific information | 1 | -2 | 1 |
| 18 | Intermediaries and brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information | 0 | -3 | 4 |
| 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use | -1 | 1 | 4 |
| 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government | 0 | -2 | -4 |
| 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries | 0 | -4 | -3 |
| 22 | Communication | How scientific information is embedded in policy debate rhetoric | -4 | 1 | 1 |
| 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them | 4 | 4 | 0 |
| 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types | -1 | 4 | 1 |
| 25 | Institutions and organizations | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures | -1 | 2 | -2 |

SCIENCE-POLICY RESEARCH AGENDAS 12

| | | | | | |
|----|--------------------------------|--|----|----|----|
| 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures | -3 | -1 | -4 |
| 27 | Evidence Use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies | 1 | 2 | 4 |
| 28 | Scientists | What individual and institutional factors motivate scientists to share their research with legislators and their staff | 0 | 1 | 0 |
| 29 | Communication | How different communication channels—hearings, face-to-face meetings, email, social media, etc.—affect informational trust and use | 3 | 2 | 2 |
| 30 | The public | How the impact of current citizen initiatives in legislative science advice can be measured | -3 | -3 | 2 |
| 31 | Ethics | What ethical principles for providing legislative science advice can be derived | -3 | -3 | 0 |
| 32 | Policymakers | How legislators and their staff assess the credibility of scientific information | 4 | 4 | 0 |
| 33 | Scientists | What information, skills, and training are needed for scientists to work with legislators and their staff | 2 | -1 | 1 |
| 34 | Institutions and organizations | How the impact of legislative science advisory offices on legislative processes can be measured using indicators | 4 | -4 | 4 |
| 35 | The public | The extent to which the public is aware of, and places value in, the scientific information being used in legislatures | -2 | -1 | -1 |
| 36 | Institutions and organizations | How internal and external organizations assess and meet the needs of legislatures for in-depth analysis | 0 | 0 | -2 |
| 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries | -2 | -2 | -3 |
| 38 | The public | How public participation affects legislative processes in which scientific information may be considered | -2 | 1 | 0 |
| 39 | Policymakers | The factors that legislators weigh in deciding whether to accept or reject a scientific recommendation | 2 | 1 | 2 |
| 40 | Ethics | How values can be made transparent in providing science advice | -2 | 0 | 3 |
| 41 | System design | What lessons can be learned about how to manage scientific advice to legislatures from a systems approach | 1 | -1 | -2 |
| 42 | Evidence Development | How the scientific topics most relevant to the public and policymakers can be determined to inform research | 0 | 0 | 2 |
| 43 | Evidence Use | Identification of the ways in which scientific information is "used" in legislatures | 1 | 2 | 0 |
| 44 | Institutions and organizations | How different institutional approaches to legislative science advice influence its nature, quality and relevance | 4 | 0 | -3 |
| 45 | Evidence Use | What types of scientific information are used in legislatures | -1 | 0 | -1 |
| 46 | Communication | How political polarization affects information flows to legislators and their staff | -3 | 4 | -3 |
| 47 | Evidence Use | What incentives motivate or compel legislatures to use scientific information | 1 | 3 | -1 |
| 48 | System design | How racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems | -4 | -2 | -2 |
| 49 | Communication | How risk and uncertainty can be communicated comprehensibly to legislators and staff | 3 | 2 | -1 |
| 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures | 0 | -3 | -4 |

SI Table 5. This factor array represents the three perspectives of developing nation respondents.

| | Category | Statements of research needs | DG1 | DG2 | DG3 |
|----|----------------------|---|------------|------------|------------|
| 1 | Polymakers | The characteristics of the producers of scientific information most preferred by legislators and their staff | -3 | -1 | -1 |
| 2 | Institutions | How institutions that deliver legislative science advice can be characterized | -4 | -2 | 4 |
| 3 | Institutions | How culture, and political and economic context, affect the development of legislative science advice institutions | 1 | 3 | 0 |
| 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use | 0 | -2 | -4 |
| 5 | Evidence development | How social relevance is weighed in the production of academic research | -3 | -2 | -3 |
| 6 | Brokers | What role intermediaries and research brokers play in getting scientific information before legislators and their staff | 0 | 1 | 0 |
| 7 | Communication | Which communication tools facilitate working with legislative decision-makers on scientific topics | 3 | 1 | 0 |
| 8 | Evidence use | How the formal and informal practices of legislatures influence the consideration and use of scientific information | -1 | 3 | -2 |
| 9 | Institutions | How legislative research departments synthesize and translate scientific information for legislators | 0 | 2 | 3 |
| 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries | 4 | -2 | 3 |
| 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use | -1 | 4 | 0 |
| 12 | Evidence use | What metrics can be used to assess the use of scientific information across different legislative contexts | -2 | 2 | 1 |
| 13 | Institutions | What institutional approaches for legislative science advice are instructive for other countries | 2 | 1 | 1 |
| 14 | Evidence development | How policymakers and researchers work together in defining problems and processes for generating evidence | 3 | 3 | 2 |
| 15 | Evidence use | Under which conditions the use of scientific information changes the framing of policy debates | 4 | 0 | -2 |
| 16 | Polymakers | How the Internet and social media affect the information-seeking behavior of legislators and staff | -3 | -3 | 2 |
| 17 | Polymakers | Whether training for legislators and/or staff can increase their use of scientific information | 2 | 1 | 0 |
| 18 | Brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information | -1 | -4 | 3 |
| 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use | -2 | 0 | -3 |
| 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government | 0 | -4 | -2 |
| 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries | 3 | -3 | 0 |
| 22 | Communication | How scientific information is embedded in policy debate rhetoric | -2 | -2 | -4 |
| 23 | Polymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them | 2 | -3 | 4 |
| 24 | Polymakers | What value legislators and staff place on scientific evidence, as opposed to other types | -1 | 2 | -4 |
| 25 | Institutions | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures | 1 | 2 | -4 |
| 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures | -3 | 4 | -3 |

SCIENCE-POLICY RESEARCH AGENDAS 14

| | | | | | |
|----|----------------------|--|----|----|----|
| 27 | Evidence use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies | 4 | 4 | -1 |
| 28 | Scientists | What individual and institutional factors motivate scientists to share their research with legislators and their staff | 1 | -3 | -2 |
| 29 | Communication | How different communication channels—hearings, face-to-face meetings, email, social media, etc.—affect informational trust and use | -2 | 3 | 1 |
| 30 | The public | How the impact of current citizen initiatives in legislative science advice can be measured | -4 | 2 | 1 |
| 31 | Ethics | What ethical principles for providing legislative science advice can be derived | 0 | 0 | -3 |
| 32 | Policymakers | How legislators and their staff assess the credibility of scientific information | 1 | 4 | 1 |
| 33 | Scientists | What information, skills, and training are needed for scientists to work with legislators and their staff | 0 | 0 | 1 |
| 34 | Institutions | How the impact of legislative science advisory offices on legislative processes can be measured using indicators | 3 | 1 | 4 |
| 35 | The public | The extent to which the public is aware of, and places value in, the scientific information being used in legislatures | -3 | -1 | -1 |
| 36 | Institutions | How internal and external organizations assess and meet the needs of legislatures for in-depth analysis | 0 | -4 | 3 |
| 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries | 4 | -1 | 2 |
| 38 | The public | How public participation affects legislative processes in which scientific information may be considered | -4 | -1 | -2 |
| 39 | Policymakers | The factors that legislators weigh in deciding whether to accept or reject a scientific recommendation | -1 | 1 | -2 |
| 40 | Ethics | How values can be made transparent in providing science advice | 2 | -3 | -1 |
| 41 | System design | What lessons can be learned about how to manage scientific advice to legislatures from a systems approach | -1 | 0 | -1 |
| 42 | Evidence development | How the scientific topics most relevant to the public and policymakers can be determined to inform research | 2 | -1 | -3 |
| 43 | Evidence use | Identification of the ways in which scientific information is "used" in legislatures | 0 | -2 | 4 |
| 44 | Institutions | How different institutional approaches to legislative science advice influence its nature, quality and relevance | -2 | -1 | 3 |
| 45 | Evidence use | What types of scientific information are used in legislatures | 1 | 0 | 2 |
| 46 | Communication | How political polarization affects information flows to legislators and their staff | 3 | 3 | 2 |
| 47 | Evidence use | What incentives motivate or compel legislatures to use scientific information | -2 | 0 | 0 |
| 48 | System design | How racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems | -4 | 0 | 0 |
| 49 | Communication | How risk and uncertainty can be communicated comprehensibly to legislators and staff | 2 | 2 | 2 |
| 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures | 1 | -4 | -1 |

SI Table 6. Consensus statements among developed nation participants

| Array scores | # | Category | Statements of research needs |
|---------------------|----------|----------------------------|--|
| -1, -1, 0 | 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use |
| 3, 3, 2 | 6 | Intermediaries and brokers | What role intermediaries and research brokers play in getting scientific information before legislators and their staff |
| 0, 1, 0 | 28 | Scientists | What individual and institutional factors motivate scientists to share their research with legislators and their staff |
| 3, 2, 2 | 29 | Communication | How different communication channels—hearings, face-to-face meetings, email, social media, etc.—affect informational trust and use |
| -2, -2, -3 | 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries |

SI Table 7. Developed nation respondents: DD1 highest and lowest statements, and higher and lower rankings

| Highest ranked statements | | | |
|--|----|--------------------------------|---|
| 4 | 44 | Institutions and organizations | How different institutional approaches to legislative science advice influence its nature, quality and relevance |
| 4 | 34 | Institutions and organizations | How the impact of legislative science advisory offices on legislative processes can be measured using indicators |
| 4 | 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them |
| 4 | 32 | Policymakers | How legislators and their staff assess the credibility of scientific information |
| Lowest ranked statements | | | |
| -4 | 48 | System design | How racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems |
| -4 | 22 | Communication | How scientific information is embedded in policy debate rhetoric |
| -4 | 5 | Evidence Development | How social relevance is weighed in the production of academic research |
| -4 | 2 | Institutions and organizations | How institutions that deliver legislative science advice can be characterized |
| Ranked higher than other perspectives | | | |
| 2 | 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use |
| 3 | 13 | Institutions and organizations | What institutional approaches for legislative science advice are instructive for other countries |
| 0 | 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government |
| 0 | 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries |
| 3 | 29 | Communication | How different communication channels—hearings, face-to-face meetings, email, social media, etc.— affect informational trust and use |
| 2 | 33 | Scientists | What information, skills, and training are needed for scientists to work with legislators and their staff |
| 1 | 41 | System design | What lessons can be learned about how to manage scientific advice to legislatures from a systems approach |
| 4 | 44 | Institutions and organizations | How different institutional approaches to legislative science advice influence its nature, quality and relevance |
| 3 | 49 | Communication | How risk and uncertainty can be communicated comprehensibly to legislators and staff |
| 0 | 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures |

| Ranked lower than other perspectives | | | |
|---|----|--------------------------------|--|
| -4 | 2 | Institutions and organizations | How institutions that deliver legislative science advice can be characterized |
| -3 | 3 | Institutions and organizations | How culture, and political and economic context, affect the development of legislative science advice institutions |
| -2 | 14 | Evidence Development | How policymakers and researchers work together in defining problems and processes for generating evidence |
| -1 | 16 | Policymakers | How the Internet and social media affect the information-seeking behavior of legislators and staff |
| -1 | 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use |
| -4 | 22 | Communication | How scientific information is embedded in policy debate rhetoric |
| -1 | 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types |
| 1 | 27 | Evidence Use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies |
| -2 | 35 | The public | The extent to which the public is aware of, and places value in, the scientific information being used in legislatures |
| -2 | 38 | The public | How public participation affects legislative processes in which scientific information may be considered |
| -2 | 40 | Ethics | How values can be made transparent in providing science advice |
| -4 | 48 | System design | How racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems |

SI Table 8. Developed nation respondents: DD2 highest and lowest statements, and higher and lower rankings

| Highest ranked statements | | | |
|--|----|--------------------------------|---|
| 4 | 32 | Policymakers | How legislators and their staff assess the credibility of scientific information |
| 4 | 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them |
| 4 | 46 | Communication | How political polarization affects information flows to legislators and their staff |
| 4 | 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types |
| Lowest ranked statements | | | |
| -4 | 13 | Institutions and organizations | What institutional approaches for legislative science advice are instructive for other countries |
| -4 | 5 | Evidence Development | How social relevance is weighed in the production of academic research |
| -4 | 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries |
| -4 | 34 | Institutions and organizations | How the impact of legislative science advisory offices on legislative processes can be measured using indicators |
| Ranked higher than other perspectives | | | |
| 3 | 8 | Evidence Use | How the formal and informal practices of legislatures influence the consideration and use of scientific information |
| -1 | 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries |
| 4 | 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types |
| 2 | 25 | Institutions and organizations | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures |
| -1 | 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures |
| 1 | 28 | Scientists | What individual and institutional factors motivate scientists to share their research with legislators and their staff |
| 1 | 38 | The public | How public participation affects legislative processes in which scientific information may be considered |
| 2 | 43 | Evidence Use | Identification of the ways in which scientific information is "used" in legislatures |
| 0 | 45 | Evidence Use | What types of scientific information are used in legislatures |
| 4 | 46 | Communication | How political polarization affects information flows to legislators and their staff |
| 3 | 47 | Evidence Use | What incentives motivate or compel legislatures to use scientific information |

| Ranked lower than other perspectives | | | |
|---|----|--------------------------------|---|
| 1 | 1 | Policymakers | The characteristics of the producers of scientific information most preferred by legislators and their staff |
| -3 | 12 | Evidence Use | What metrics can be used to assess the use of scientific information across different legislative contexts |
| -4 | 13 | Institutions and organizations | What institutional approaches for legislative science advice are instructive for other countries |
| -2 | 17 | Policymakers | Whether training for legislators and/or staff can increase their use of scientific information |
| -3 | 18 | Intermediaries and brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information |
| -4 | 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries |
| -1 | 33 | Scientists | What information, skills, and training are needed for scientists to work with legislators and their staff |
| -4 | 34 | Institutions and organizations | How the impact of legislative science advisory offices on legislative processes can be measured using indicators |
| 1 | 39 | Policymakers | The factors that legislators weigh in deciding whether to accept or reject a scientific recommendation |

SI Table 9. Developed nation respondents: DD3 highest and lowest statements, and higher and lower rankings

| Highest ranked statements | | | |
|--|----|--------------------------------|---|
| 4 | 34 | Institutions and organizations | How the impact of legislative science advisory offices on legislative processes can be measured using indicators |
| 4 | 18 | Intermediaries and brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information |
| 4 | 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use |
| 4 | 27 | Evidence Use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies |
| Lowest ranked statements | | | |
| -4 | 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures |
| -4 | 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries |
| -4 | 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government |
| -4 | 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures |
| Ranked higher than other perspectives | | | |
| 3 | 1 | Policymakers | The characteristics of the producers of scientific information most preferred by legislators and their staff |
| -1 | 2 | Institutions and organizations | How institutions that deliver legislative science advice can be characterized |
| 0 | 3 | Institutions and organizations | How culture, and political and economic context, affect the development of legislative science advice institutions |
| 0 | 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use |
| 1 | 5 | Evidence Development | How social relevance is weighed in the production of academic research |
| 3 | 7 | Communication | Which communication tools facilitate working with legislative decision-makers on scientific topics |
| 3 | 14 | Evidence Development | How policymakers and researchers work together in defining problems and processes for generating evidence |
| 4 | 18 | Intermediaries and brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information |
| 4 | 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use |
| 4 | 27 | Evidence Use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies |
| 2 | 30 | The public | How the impact of current citizen initiatives in legislative science advice can be measured |

SCIENCE-POLICY RESEARCH AGENDAS 21

| | | | |
|---|----|--------------------------------|---|
| 0 | 31 | Ethics | What ethical principles for providing legislative science advice can be derived |
| 3 | 40 | Ethics | How values can be made transparent in providing science advice |
| 2 | 42 | Evidence Development | How the scientific topics most relevant to the public and policymakers can be determined to inform research |
| Ranked lower than other perspectives | | | |
| -1 | 8 | Evidence Use | How the formal and informal practices of legislatures influence the consideration and use of scientific information |
| -2 | 9 | Institutions and organizations | How legislative research departments synthesize and translate scientific information for legislators |
| -4 | 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries |
| -2 | 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use |
| 1 | 15 | Evidence Use | Under which conditions the use of scientific information changes the framing of policy debates |
| -4 | 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government |
| 0 | 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them |
| -2 | 25 | Institutions and organizations | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures |
| -4 | 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures |
| 0 | 32 | Policymakers | How legislators and their staff assess the credibility of scientific information |
| -2 | 36 | Institutions and organizations | How internal and external organizations assess and meet the needs of legislatures for in-depth analysis |
| -3 | 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries |
| -2 | 41 | System design | What lessons can be learned about how to manage scientific advice to legislatures from a systems approach |
| 0 | 43 | Evidence Use | Identification of the ways in which scientific information is "used" in legislatures |
| -3 | 44 | Institutions and organizations | How different institutional approaches to legislative science advice influence its nature, quality and relevance |
| -1 | 47 | Evidence Use | What incentives motivate or compel legislatures to use scientific information |
| -1 | 49 | Communication | How risk and uncertainty can be communicated comprehensibly to legislators and staff |
| -4 | 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures |

SI Table 10. Consensus statements among developing nation participants

| Array scores | Statement # | Category | Statements of research needs |
|---------------------|--------------------|----------------------|---|
| 3, 3, 2 | 14 | Evidence Development | How policymakers and researchers work together in defining problems and processes for generating evidence |
| 0, 0, 1 | 33 | Scientists | What information, skills, and training are needed for scientists to work with legislators and their staff |
| -1, 0, -1 | 41 | System design | What lessons can be learned about how to manage scientific advice to legislatures from a systems approach |
| 3, 3, 2 | 46 | Communication | How political polarization affects information flows to legislators and their staff |
| 2, 2, 2 | 49 | Communication | How risk and uncertainty can be communicated comprehensibly to legislators and staff |

SI Table 11. Developing nation respondents: DG1 highest and lowest statements, and higher and lower rankings

| Highest ranked statements | | | |
|--|----|---------------|--|
| 4 | 27 | Evidence use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies |
| 4 | 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries |
| 4 | 15 | Evidence use | Under which conditions the use of scientific information changes the framing of policy debates |
| 4 | 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries |
| Lowest ranked statements | | | |
| -4 | 48 | System design | How racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems |
| -4 | 2 | Institutions | How institutions that deliver legislative science advice can be characterized |
| -4 | 38 | The public | How public participation affects legislative processes in which scientific information may be considered |
| -4 | 30 | The public | How the impact of current citizen initiatives in legislative science advice can be measured |
| Ranked higher than other perspectives | | | |
| 0 | 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use |
| 3 | 7 | Communication | Which communication tools facilitate working with legislative decision-makers on scientific topics |
| 4 | 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries |
| 2 | 13 | Institutions | What institutional approaches for legislative science advice are instructive for other countries |
| 4 | 15 | Evidence use | Under which conditions the use of scientific information changes the framing of policy debates |
| 2 | 17 | Policymakers | Whether training for legislators and/or staff can increase their use of scientific information |
| 0 | 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government |
| 3 | 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries |
| 1 | 28 | Scientists | What individual and institutional factors motivate scientists to share their research with legislators and their staff |
| 4 | 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries |

SCIENCE-POLICY RESEARCH AGENDAS 24

| | | | |
|---|----|----------------------|---|
| 2 | 40 | Ethics | How values can be made transparent in providing science advice |
| 2 | 42 | Evidence development | How the scientific topics most relevant to the public and policymakers can be determined to inform research |
| 1 | 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures |
| Ranked lower than other perspectives | | | |
| -3 | 1 | Policymakers | The characteristics of the producers of scientific information most preferred by legislators and their staff |
| -4 | 2 | Institutions | How institutions that deliver legislative science advice can be characterized |
| 0 | 9 | Institutions | How legislative research departments synthesize and translate scientific information for legislators |
| -1 | 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use |
| -2 | 12 | Evidence use | What metrics can be used to assess the use of scientific information across different legislative contexts |
| -2 | 29 | Communication | How different communication channels—hearings, face-to-face meetings, email, social media, etc.— affect informational trust and use |
| -4 | 30 | The public | How the impact of current citizen initiatives in legislative science advice can be measured |
| -3 | 35 | The public | The extent to which the public is aware of, and places value in, the scientific information being used in legislatures |
| -4 | 38 | The public | How public participation affects legislative processes in which scientific information may be considered |
| -2 | 44 | Institutions | How different institutional approaches to legislative science advice influence its nature, quality and relevance |
| -2 | 47 | Evidence use | What incentives motivate or compel legislatures to use scientific information |
| -4 | 48 | System design | How racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems |

SI Table 12. Developing nation respondents: DG2 highest and lowest statements, and higher and lower rankings

| Highest ranked statements | | | |
|--|----|----------------------|---|
| 4 | 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use |
| 4 | 27 | Evidence use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies |
| 4 | 32 | Policymakers | How legislators and their staff assess the credibility of scientific information |
| 4 | 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures |
| Lowest ranked statements | | | |
| -4 | 18 | Brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information |
| -4 | 36 | Institutions | How internal and external organizations assess and meet the needs of legislatures for in-depth analysis |
| -4 | 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government |
| -4 | 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures |
| Ranked higher than other perspectives | | | |
| 3 | 3 | Institutions | How culture, and political and economic context, affect the development of legislative science advice institutions |
| -2 | 5 | Evidence development | How social relevance is weighed in the production of academic research |
| 1 | 6 | Brokers | What role intermediaries and research brokers play in getting scientific information before legislators and their staff |
| 3 | 8 | Evidence use | How the formal and informal practices of legislatures influence the consideration and use of scientific information |
| 4 | 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use |
| 2 | 12 | Evidence use | What metrics can be used to assess the use of scientific information across different legislative contexts |
| 0 | 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use |
| 2 | 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types |
| 2 | 25 | Institutions | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures |

| | | | |
|---|----|---------------|--|
| 4 | 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures |
| 3 | 29 | Communication | How different communication channels—hearings, face-to-face meetings, email, social media, etc.—affect informational trust and use |
| 2 | 30 | The public | How the impact of current citizen initiatives in legislative science advice can be measured |
| 4 | 32 | Policymakers | How legislators and their staff assess the credibility of scientific information |
| -1 | 38 | The public | How public participation affects legislative processes in which scientific information may be considered |
| 1 | 39 | Policymakers | The factors that legislators weigh in deciding whether to accept or reject a scientific recommendation |
| 0 | 41 | System design | What lessons can be learned about how to manage scientific advice to legislatures from a systems approach |
| Ranked lower than other perspectives | | | |
| -2 | 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries |
| -4 | 18 | Brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information |
| -4 | 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government |
| -3 | 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries |
| -3 | 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them |
| -3 | 28 | Scientists | What individual and institutional factors motivate scientists to share their research with legislators and their staff |
| 1 | 34 | Institutions | How the impact of legislative science advisory offices on legislative processes can be measured using indicators |
| -4 | 36 | Institutions | How internal and external organizations assess and meet the needs of legislatures for in-depth analysis |
| -1 | 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries |
| -3 | 40 | Ethics | How values can be made transparent in providing science advice |
| -2 | 43 | Evidence use | Identification of the ways in which scientific information is "used" in legislatures |
| 0 | 45 | Evidence use | What types of scientific information are used in legislatures |
| -4 | 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures |

SI Table 13. Developing nation respondents: DG3 highest and lowest statements, and higher and lower rankings

| Highest ranked statements | | | |
|--|----|---------------|---|
| 4 | 34 | Institutions | How the impact of legislative science advisory offices on legislative processes can be measured using indicators |
| 4 | 43 | Evidence use | Identification of the ways in which scientific information is "used" in legislatures |
| 4 | 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them |
| 4 | 2 | Institutions | How institutions that deliver legislative science advice can be characterized |
| Lowest ranked statements | | | |
| -4 | 22 | Communication | How scientific information is embedded in policy debate rhetoric |
| -4 | 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use |
| -4 | 25 | Institutions | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures |
| -4 | 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types |
| Ranked higher than other perspectives | | | |
| 4 | 2 | Institutions | How institutions that deliver legislative science advice can be characterized |
| 3 | 9 | Institutions | How legislative research departments synthesize and translate scientific information for legislators |
| 2 | 16 | Policymakers | How the Internet and social media affect the information-seeking behavior of legislators and staff |
| 3 | 18 | Brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information |
| 4 | 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them |
| 1 | 33 | Scientists | What information, skills, and training are needed for scientists to work with legislators and their staff |
| 4 | 34 | Institutions | How the impact of legislative science advisory offices on legislative processes can be measured using indicators |
| 3 | 36 | Institutions | How internal and external organizations assess and meet the needs of legislatures for in-depth analysis |
| 4 | 43 | Evidence use | Identification of the ways in which scientific information is "used" in legislatures |
| 3 | 44 | Institutions | How different institutional approaches to legislative science advice influence its nature, quality and relevance |
| 2 | 45 | Evidence use | What types of scientific information are used in legislatures |
| Ranked lower than other perspectives | | | |

SCIENCE-POLICY RESEARCH AGENDAS 28

| | | | |
|----|----|----------------------|---|
| 0 | 3 | Institutions | How culture, and political and economic context, affect the development of legislative science advice institutions |
| -4 | 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use |
| 0 | 7 | Communication | Which communication tools facilitate working with legislative decision-makers on scientific topics |
| -2 | 8 | Evidence use | How the formal and informal practices of legislatures influence the consideration and use of scientific information |
| 2 | 14 | Evidence development | How policymakers and researchers work together in defining problems and processes for generating evidence |
| -2 | 15 | Evidence use | Under which conditions the use of scientific information changes the framing of policy debates |
| 0 | 17 | Policymakers | Whether training for legislators and/or staff can increase their use of scientific information |
| -3 | 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use |
| -4 | 22 | Communication | How scientific information is embedded in policy debate rhetoric |
| -4 | 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types |
| -4 | 25 | Institutions | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures |
| -1 | 27 | Evidence use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies |
| -3 | 31 | Ethics | What ethical principles for providing legislative science advice can be derived |
| -2 | 39 | Policymakers | The factors that legislators weigh in deciding whether to accept or reject a scientific recommendation |
| -3 | 42 | Evidence development | How the scientific topics most relevant to the public and policymakers can be determined to inform research |
| 2 | 46 | Communication | How political polarization affects information flows to legislators and their staff |

SI Table 14. The factor array represents the four perspectives of all respondents.

| | Category | Statements of research needs | ALL1 | ALL2 | ALL3 | ALL4 |
|----|----------------------|---|-------------|-------------|-------------|-------------|
| 1 | Policymakers | The characteristics of the producers of scientific information most preferred by legislators and their staff | 1 | -2 | 3 | -1 |
| 2 | Institutions | How institutions that deliver legislative science advice can be characterized | -3 | -2 | -1 | -3 |
| 3 | Institutions | How culture, and political and economic context, affect the development of legislative science advice institutions | -3 | 3 | -4 | 4 |
| 4 | Communication | Whether iterative engagement between researchers, legislators, and staff improves evidence use | -2 | -2 | -3 | 1 |
| 5 | Evidence development | How social relevance is weighed in the production of academic research | -4 | -2 | 1 | 1 |
| 6 | Brokers | What role intermediaries and research brokers play in getting scientific information before legislators and their staff | 2 | 1 | 3 | -1 |
| 7 | Communication | Which communication tools facilitate working with legislative decision-makers on scientific topics | 2 | 3 | 4 | 1 |
| 8 | Evidence use | How the formal and informal practices of legislatures influence the consideration and use of scientific information | 3 | 1 | -4 | 4 |
| 9 | Institutions | How legislative research departments synthesize and translate scientific information for legislators | 1 | 3 | -2 | 2 |
| 10 | System design | How the requirements and needs of a science advice system for policymaking differ across countries | 0 | 2 | -3 | -1 |
| 11 | System design | How the design of new structures, processes, and systems can increase legislative capacity for science use | 2 | 2 | -1 | -1 |
| 12 | Evidence use | What metrics can be used to assess the use of scientific information across different legislative contexts | 0 | -1 | 4 | 0 |
| 13 | Institutions | What institutional approaches for legislative science advice are instructive for other countries | 2 | 1 | -1 | -3 |
| 14 | Evidence development | How policymakers and researchers work together in defining problems and processes for generating evidence | -2 | 4 | -2 | 2 |
| 15 | Evidence use | Under which conditions the use of scientific information changes the framing of policy debates | 4 | 1 | 0 | 4 |
| 16 | Policymakers | How the Internet and social media affect the information-seeking behavior of legislators and staff | 2 | -4 | 1 | 2 |
| 17 | Policymakers | Whether training for legislators and/or staff can increase their use of scientific information | 0 | 3 | 2 | -2 |
| 18 | Brokers | What forms of evaluation can be used to measure the effect of "brokering" scientific information | -4 | 3 | 3 | -3 |
| 19 | Scientists | Which behaviors of scientists and other advisers increase the likelihood of evidence use | 0 | -4 | 3 | 2 |
| 20 | Communication | The frequency of communication between legislative staff and scientists from inside and outside government | -2 | -2 | -3 | -3 |
| 21 | System design | What examples exist of improvements to legislative science advisory systems in heavily resource-constrained countries | -1 | 0 | -3 | -4 |

SCIENCE-POLICY RESEARCH AGENDAS 30

| | | | | | | |
|----|----------------------|---|----|----|----|----|
| 22 | Communication | How scientific information is embedded in policy debate rhetoric | -1 | -1 | 0 | 1 |
| 23 | Policymakers | Under what conditions legislators and staff seek out scientific information or use what is presented to them | 3 | 2 | 1 | -2 |
| 24 | Policymakers | What value legislators and staff place on scientific evidence, as opposed to other types | 1 | -1 | 0 | 3 |
| 25 | Institutions | How the staffing, budgetary, and political capacity of committees affects their ability to use scientific information in legislatures | 1 | 2 | -4 | 2 |
| 26 | Scientists | How scientists and issue advocates try to manage the quality of scientific information and expertise used in legislatures | -3 | -3 | 0 | 1 |
| 27 | Evidence use | Whether legislative use of scientific evidence improves the implementation and outcome of social programs and policies | 3 | 4 | 1 | 4 |
| 28 | Scientists | What individual and institutional factors motivate scientists to share their research with legislators and their staff | 0 | 0 | 2 | 1 |
| 29 | Communication | How different communication channels—hearings, face-to-face meetings, email, social media, etc.—affect informational trust and use | 3 | 0 | 1 | 3 |
| 30 | The public | How the impact of current citizen initiatives in legislative science advice can be measured | -4 | -3 | 3 | 0 |
| 31 | Ethics | What ethical principles for providing legislative science advice can be derived | -3 | -3 | 1 | -1 |
| 32 | Policymakers | How legislators and their staff assess the credibility of scientific information | 4 | 0 | -1 | 0 |
| 33 | Scientists | What information, skills, and training are needed for scientists to work with legislators and their staff | 0 | 4 | 4 | -2 |
| 34 | Institutions | How the impact of legislative science advisory offices on legislative processes can be measured using indicators | -1 | 4 | 4 | 0 |
| 35 | The public | The extent to which the public is aware of, and places value in, the scientific information being used in legislatures | -3 | -4 | 0 | 0 |
| 36 | Institutions | How internal and external organizations assess and meet the needs of legislatures for in-depth analysis | 0 | 1 | -1 | -4 |
| 37 | Policymakers | How legislator and staff preferences for scientific evidence compare between countries | -1 | 0 | -3 | -2 |
| 38 | The public | How public participation affects legislative processes in which scientific information may be considered | -1 | -2 | 2 | -1 |
| 39 | Policymakers | The factors that legislators weigh in deciding whether to accept or reject a scientific recommendation | 1 | -1 | 2 | 3 |
| 40 | Ethics | How values can be made transparent in providing science advice | -2 | -1 | 0 | -2 |
| 41 | System design | What lessons can be learned about how to manage scientific advice to legislatures from a systems approach | 0 | -3 | 0 | 0 |
| 42 | Evidence development | How the scientific topics most relevant to the public and policymakers can be determined to inform research | -2 | 2 | 2 | 3 |

SCIENCE-POLICY RESEARCH AGENDAS 31

| | | | | | | |
|----|---------------|---|----|----|----|----|
| 43 | Evidence use | Identification of the ways in which scientific information is "used" in legislatures | 2 | -1 | 2 | -2 |
| 44 | Institutions | How different institutional approaches to legislative science advice influence its nature, quality and relevance | 4 | 2 | -2 | -4 |
| 45 | Evidence use | What types of scientific information are used in legislatures | -1 | 0 | -2 | 2 |
| 46 | Communication | How political polarization affects information flows to legislators and their staff | 1 | 1 | -2 | 3 |
| 47 | Evidence use | What incentives motivate or compel legislatures to use scientific information | 3 | -4 | -1 | 0 |
| 48 | System design | How racial and gender biases affect researchers' and practitioners' activities and influence policy advisory systems | -4 | 0 | -2 | 0 |
| 49 | Communication | How risk and uncertainty can be communicated comprehensibly to legislators and staff | 4 | 0 | 0 | -4 |
| 50 | System design | In societies without established science advice systems, how scientific information is used—if at all—by legislatures | -2 | -3 | -4 | -3 |