

## How Respondent Demographics and Survey Design Interact to Affect Item Nonresponse\*

*Natalie Jackson*

*JUST Capital*

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This brief paper serves as a preliminary report on a perplexing pattern of item nonresponse that appears to be dependent on the type and content of the question asked. We know from previous literature that item nonresponse is not a random phenomenon (e.g., deLeeuw, Hox & Huisman 2003). Item nonresponse rates will differ by respondent type and question type (e.g., Messer, Edwards, & Dillman 2012; Krosnick 2002). Different types of respondents will be more or less likely to answer questions based on their education level, age, race, and attitudes relevant to the question. Survey design also matters in how the question is presented, mode, the presence (or absence) of an explicit “don’t know” option, and the overall burden of the survey. The complexity added here is that question content and type can actually reverse the effects of respondent characteristics that we typically see across all questions.

### **Data**

The survey data consist of 4,113 responses collected in June, 2017, using NORC’s AmeriSpeak panel. AmeriSpeak is a mixed-mode probability-based panel that recruits respondents using address-based sampling, then directs panelists to complete surveys online, or by telephone if they prefer. This survey consists of 81 percent online responses and 19 percent telephone responses. Mode is included in all models to account for this mixed implementation.

The topic of the survey was business behavior generally, and more specifically “just” business behavior – the primary deliverable from the survey was a set of weights from questions designed for “maxdiff” scaling that would provide the basis of JUST Capital’s “America’s Most Just” corporate rankings. As such, many of the questions dealt with “just” behavior, which we defined to respondents as: “A just company does the right thing when it comes to its employees, customers, the environment, and investors, as well as the communities it impacts locally and around the world.” Out of 46 substantive questions, 28 were about “just”

business behavior, including 14 maxdiff questions, 7 points allocation entries, and 7 rankings entries. The remaining 18 questions were straightforward single-choice items and did not refer to the term “just.” (Survey questions and programming are included below in an appendix.)

### *Goals of the analysis*

My goals in conducting an item nonresponse analysis were as follows:

1. To establish the rates of item nonresponse in the survey
2. To determine whether item nonresponse varies by the typical respondent characteristics as might be expected
3. To determine whether the higher burden question types – those dealing with “just” and in non-standard question format – have different rates or correlates of item nonresponse

### **Item nonresponse rates**

Overall, 71.7 percent of respondents provided a substantive response to every single question on the survey (cumulative item nonresponse n=1164). The remaining portion said “don’t know” (on telephone) or skipped (on web – no explicit “don’t know option was provided) at least one question of the 46 substantive questions. Across all the standard questions – those *not* using the term “just” or any special question formats – 77.5 percent of respondents gave a substantive answer to every question (cumulative item nonresponse n=925). Among the “just” questions, we had much higher response due to prompts on the maxdiff questions that asked respondents to please provide an answer. We added this prompt due to the critical nature of the maxdiff and its resulting weights to our key project deliverable. We did not add the prompt to the points allocation or ranking questions, however. Overall, 90.3 percent of respondents answered all of the “just” questions (cumulative item nonresponse n=397).

I created variables for each respondent’s percentage of items unanswered based on these three categories: Percent item nonresponse among all 46 questions, percent item nonresponse among only the 28 “just” questions, and percent item nonresponse among only the 18 standard questions. Most of the range for those variables is between 0 and 15 percent,

but it does range up to 100 percent in three rare cases in the question subsets. These percent item nonresponse variables serve as the outcome in the following models.

### **Modeling item nonresponse**

A huge advantage here is that NORC AmeriSpeak has all of the demographics on its panelists, which means there are no missing values in the critical respondent characteristic explanatory variables: Gender, race/ethnicity, age, education, income, and ideology. The dataset is also complete for survey mode and survey time to completion. This means that no cases are deleted from these analyses, and the full universe of item nonresponse in this survey is being counted.

The effects of all variables are shown in Figure 1 for all 46 survey questions. The correlates of item nonresponse in a standard regression model are as expected. Black and Hispanic respondents have higher item nonresponse rates (“all else” on Fig. 1 refers to all other races, and is not a strong factor), as do older respondents, less well-educated respondents, telephone respondents, and those who are ideologically moderate. Ideology could be considered surprising, except that what one believes about business behavior is often correlated with political ideology, and if one does not have firm ideological views toward liberal or conservative, it makes sense that one might also not have strong views on business behavior.

Figure 2 shows what happens when the question types are split. All three models are shown: All 46 questions, the 28 “just” questions, and the 18 standard questions. Many of the effects remain quite stable, with the exception of female respondents, black respondents, and moderates. The effect differences for moderates, while interesting, are all in the same direction. The fascinating finding here is that the effects for black respondents and female respondents completely reverse directions depending on the question subset.

In the model of all questions, being a female respondent does not increase or decrease the percentage of item nonresponse relative to male respondents. Among the “just” complex questions, being female is associated with a *decrease* in item nonresponse relative to male respondents. But among the standard questions, female respondents show an *increase* in item nonresponse relative to male respondents.

Black respondents have the opposite pattern. In all of the questions, identifying as black is associated with more item nonresponse relative to non-black respondents. Among the “just” complex questions, the coefficient gets larger in that direction. But among the standard questions, black respondents show a *decrease* in item nonresponse relative to non-black respondents.

*Why does this difference occur among only these two demographics?*

At this early stage, this project provides more questions than answers. There are some obvious possible explanations for the changes in the model based on question type. Indeed, one would expect a very different style of question using a specifically-defined concept in more burdensome ways to show different patterns of item nonresponse. But the interesting factor is that most coefficients remain stable, while a few move drastically – and two of those completely reverse direction.

One hypothesis regarding women could be the prompt on the maxdiff “just” questions: Perhaps women are particularly responsive to that type of probe. This supposition would make theoretical sense, as women are often more likely to not respond (or say “don’t know”), but would also be more open to the push to respond. The confounding issue is that the points allocation and ranking questions did not use the prompt, and the effects are the same for women if those questions are separated out from the maxdiff. The opposite could be said for black respondents, who could be less responsive to prompts, but again, the effect remains even without the maxdiff questions. And, unlike with women, there is not a compelling theoretical reason to think black respondents would ignore a prompt.

Perhaps the biggest issue is that, given the questions, it is impossible to determine whether the change in the questions that results in these patterns is the complex topic of “just” business behavior, or the complex question styles of maxdiff, points allocation, and rankings.

Fortunately, this survey is repeated annually, and we just got the data back from 2018. I will probably not have the models run in time for this conference but will be able to corroborate the findings and dig deeper soon. One major concern this brings up is the possibility that previously recommended treatments for item nonresponse, both to prevent it

and methods of dealing with it post-data collection, do not apply consistently across demographics and question types. In that case, we will need to reassess how to customize our item nonresponse treatments for these differential effects.

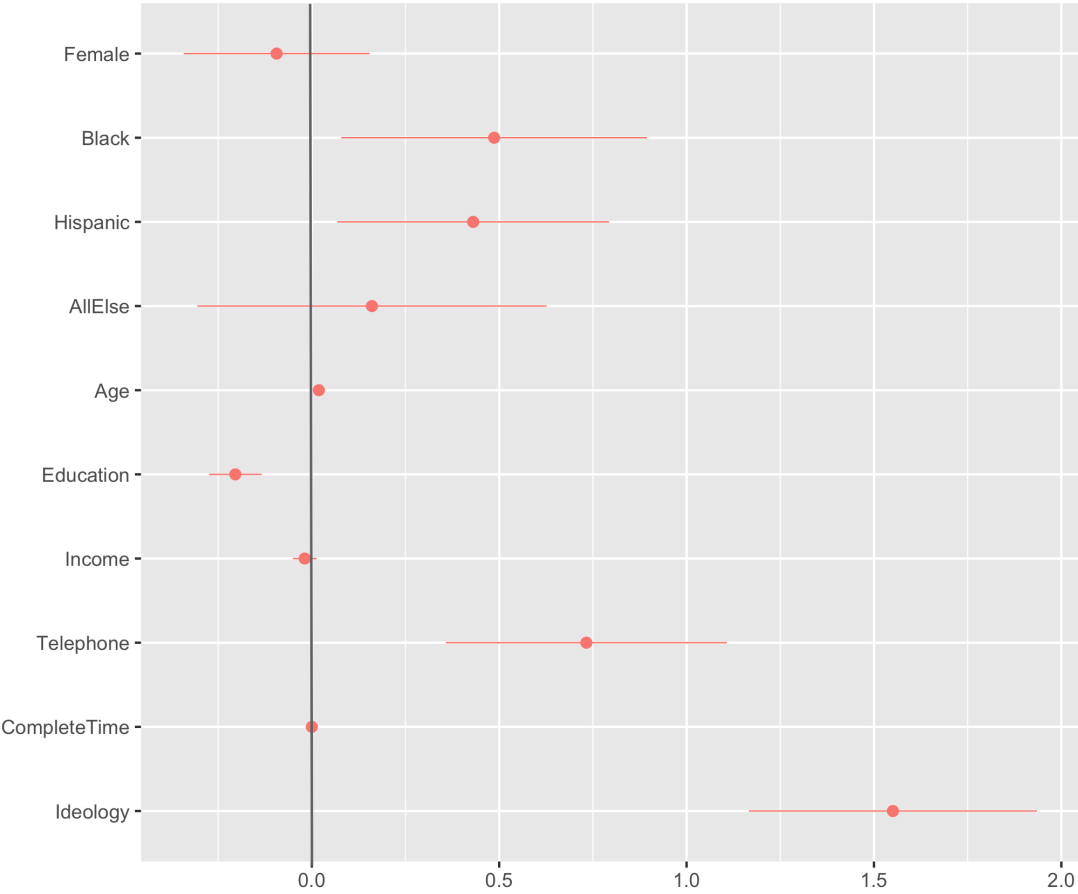
**References:**

De Leeuw, E., J. Hox, & M. Huisman (2003). Prevention and Treatment of Item Nonresponse. *Journal of Official Statistics* 19:2, p. 153-176.

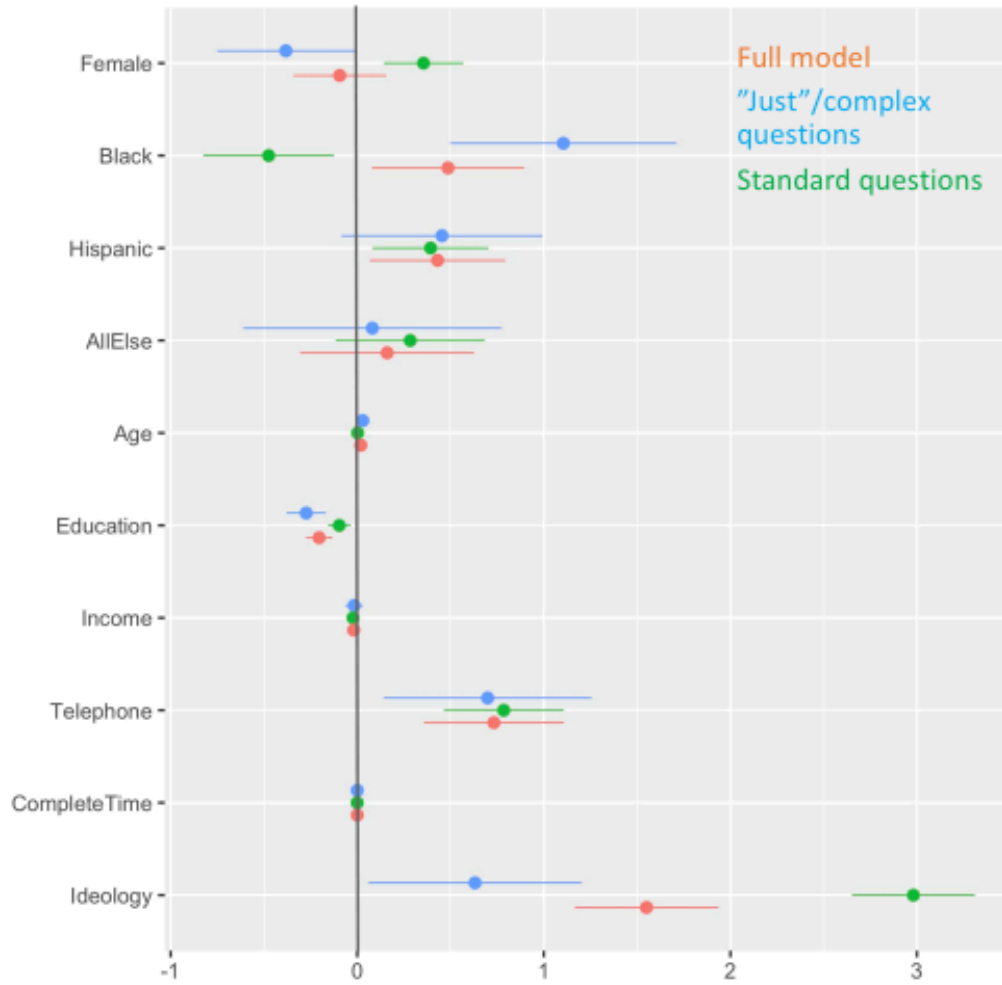
Krosnick, J.A. (2002). The Causes of No-Opinion Responses to Attitude Measures in Surveys: They Rarely Are What They Appear to Be. In *Survey Nonresponse*. R. M. Groves, D.A. Dillman, J.L. Eltinge, and R.J.A. Little (eds.). New York: Wiley, 88-100.

Messer, B., M. Edwards, & D. Dillman (2012). Determinants of Item Nonresponse to Web and Mail Respondents in Three Address-based Mixed-Mode Surveys of the General Public. *Survey Practice* 5:2.

**Figure 1: Effects of Respondent and Survey Characteristics on Item Nonresponse Rates**



**Figure 2: Effects of Respondent and Survey Characteristics on Item Nonresponse Rates by Question Type**



## Appendix: Survey questions as programmed

Is your overall opinion of companies very favorable, mostly favorable, mostly unfavorable, or very unfavorable?

[SHOW IF RND\_05=0]

1. Very favorable
2. Mostly favorable
3. Very unfavorable
4. Mostly unfavorable

[SHOW IF RND\_05=1]

1. Mostly unfavorable
  2. Very unfavorable
  3. Mostly favorable
  4. Very favorable
- 

How satisfied or dissatisfied are you with the size and influence of companies in the U.S.?

[SHOW IF RND\_06=0]

1. Very satisfied
2. Somewhat satisfied
3. Somewhat dissatisfied
4. Very dissatisfied

[SHOW IF RND\_06=1]

1. Very dissatisfied
  2. Somewhat dissatisfied
  3. Somewhat satisfied
  4. Very satisfied
- 

Do you think the top priority for companies in this country right now is their stockholders, their employees, or their customers?

ROTATE RESPONSE OPTIONS:

1. Their stockholders
  2. Their employees
  3. Their customers
- 

[DISPLAY – IntroMaxdiff]

In this survey, we'll ask you questions about what makes a company just. A just company does the right thing when it comes to its employees, customers, the environment, and investors, as well as the communities it impacts locally and around the world.

[SPACE]

In the next section, you will be shown several categories of ways a company can exhibit just behavior. For each question, please indicate which of the three categories of behaviors is most important in evaluating how just a company is, and which category is least important in evaluating how just a company is.



[SPACE]

There are 7 questions in this section. While these questions might seem repetitive, please review each one carefully. Thank you.

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MAXDIFF DESIGN – see [driver\\_maxdiff\\_maxdiff\\_Design.csv](#)

10 VERSIONS – Stats will preload P\_VERSION however CS team needs to have testing-only page

Each version has 7 sets (questions Q4A-Q4N)

Each of the 7 sets will insert 3 of the 7 drivers below:

**WORKERS:** How a company treats its employees, including pay, benefits and working conditions

**CUSTOMERS:** How a company treats its customers, including protecting their privacy and providing a positive experience

**MANAGEMENT & SHAREHOLDERS:** How leadership manages the company and treats its investors

**ENVIRONMENT:** A company’s impact on the environment, including pollution and overall environmental responsibility

**COMMUNITIES:** How a company supports communities in the US and how it behaves internationally on human rights and working with overseas suppliers

**PRODUCTS:** Characteristics of the company’s products and services, including price, quality, benefit or harm to the consumer, and importance to their daily life

**JOB:** The effect a company has on the number of jobs in the US

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**NOTE: THE BELOW IS AN EXAMPLE OF HOW THE MAXDIFF QUESTION SHOULD LOOK ON SCREEN**

[GRID, SP VERTICAL; prompt twice for each Q4A\_Most/Q4A\_Least]

[custom prompt if “most important” column is left blank: “We would really like your answer for the most important behavior question.”]

[custom prompt if “least important” column is left blank: “We would really like your answer for the least important behavior question.”]

[custom prompt if both columns are left blank: “We would really like your answer to this question.”]

Q4 (example).

In your opinion, which of these behavior categories is most important in evaluating how JUST a company is, and which of these behavior categories is least important?

[CAWI – remove bold] *Select one response in each column.*

Q4A_Most Most important	Which item is <u>most</u> important and which item is <u>least</u> important?	Q4A_Least Least important
<input type="radio"/>	<b>WORKERS:</b> How a company treats its workforce, including pay, benefits and working conditions	<input type="radio"/>

o	<b>SHAREHOLDERS &amp; MANAGEMENT:</b> How leadership manages the company and treats its investors	o
o	<b>CUSTOMERS:</b> How a company treats its customers, including protecting their privacy and overall experience	o

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Imagine that you're considering [INSERT IF RND\_04=0: accepting a job] [INSERT IF RND\_04=1: buying a product] from a company. Does it matter to you that:

**GRID ITEMS:**

- A. The company is environmentally responsible
- B. The company focuses on creating jobs in the U.S.
- C. The company has a mission you believe in
- D. The [INSERT IF RND\_04=0: job] [INSERT IF RND\_04=1: product] makes a positive difference in your community
- E. The [INSERT IF RND\_04=0: job] [INSERT IF RND\_04=1: product] makes a positive difference in the world

**CAWI RESPONSE OPTIONS:**

- 1. Yes
- 2. No

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Which one of the following statements comes closest to your view:

**ROTATE RESPONSE OPTIONS:**

- 1. Most companies make too much profit
- 2. Most companies make a fair and reasonable amount of profit [ANCHOR AS RESPONSE OPTION 2]
- 3. Most companies make too little profit

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[SP]  
Q34.

Do you think that companies operate today with more concern or less concern for average Americans than they did in previous generations, or about the same?

**[SHOW IF RND\_08=0]**

- 1. More concern
- 2. About the same
- 3. Less concern

**[SHOW IF RND\_08=1]**

- 1. Less concern
  - 2. About the same
  - 3. More concern
-

Which one of the following statements comes closest to your view?

ROTATE RESPONSE OPTIONS:

1. Companies do not share enough of their success with their employees
  2. Companies generally share a fair amount of their success with their employees
  3. Companies share too much of their success with their employees
- 

How effective do you think ordinary citizens can be when they act together to try to change companies' behaviors?

[SHOW IF RND\_09=0]

1. Very effective
2. Somewhat effective
3. Not very effective
4. Not effective at all

[SHOW IF RND\_09=1]

1. Not effective at all
  2. Not very effective
  3. Somewhat effective
  4. Very effective
- 

Remember that a just company does the right thing when it comes to its employees, customers, the environment, investors, as well as the communities it impacts locally and around the world.

[SPACE]

Imagine that you're considering [INSERT IF RND\_03=0: accepting a job] [INSERT IF RND\_03=1: buying a product] from two different companies. How much [INSERT IF RND\_03=0: less pay are you willing to accept ] [INSERT IF RND\_03=1: more are you willing to pay] in order to [INSERT IF RND\_03=0: work for] [INSERT IF RND\_03=1: buy from] the company that is more just – that is, the company that is *more* consistently fair and does the right thing *more* often?

1. I'm not willing to [INSERT IF RND\_03=0: accept less pay] [INSERT IF RND\_03=1: pay more]
  2. A little [INSERT IF RND\_03=0: less pay] [INSERT IF RND\_03=1: higher price]
  3. A moderate amount [INSERT IF RND\_03=0: less pay] [INSERT IF RND\_03=1: higher price]
  4. A lot [INSERT IF RND\_03=0: less pay] [INSERT IF RND\_03=1: higher price]
- 

Remember that a just company does the right thing when it comes to its employees, customers, the environment, investors, as well as the communities it impacts locally and around the world.

[SPACE]

Imagine that you're considering [INSERT IF RND\_03=0: accepting a job] [INSERT IF RND\_03=1: buying a product] from two different companies. How much [INSERT IF RND\_03=0: more would you have to be paid] [INSERT IF RND\_03=1: less would the product have to cost] in order to [INSERT IF RND\_03=0: work for] [INSERT IF RND\_03=1: buy from] the company that is less just – that is, the company that is *less* consistently fair and does the right thing *less* often?

1. I'm not willing to [INSERT IF RND\_03=0: accept less pay] [INSERT IF RND\_03=1: pay more]
2. A little [INSERT IF RND\_03=0: more pay] [INSERT IF RND\_03=1: lower price]
3. A moderate amount [INSERT IF RND\_03=0: more pay] [INSERT IF RND\_03=1: lower price]
4. A lot [INSERT IF RND\_03=0: more pay] [INSERT IF RND\_03=1: lower price]

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Which one of the following statements comes closest to your view?

[SHOW IF RND\_11=0]

1. Companies have a responsibility to advocate for policies that would improve society as a whole.
2. Companies have a responsibility to advocate for policies that would improve the company, but not society as a whole.
3. Companies have a responsibility to advocate for policies that would improve their operations and society as a whole.
4. None of the above

[SHOW IF RND\_11=1]

1. None of the above
  2. Companies have a responsibility to advocate for policies that would improve their operations and society as a whole.
  3. Companies have a responsibility to advocate for policies that would improve the company, but not society as a whole.
  4. Companies have a responsibility to advocate for policies that would improve society as a whole.
- 

If you were able to vote in the recent presidential election that occurred in 2016, did you vote for:

ROTATE RESPONSE OPTIONS:

1. The Republican candidate, Donald Trump
  2. The Democratic candidate, Hillary Clinton
  3. Someone else [ANCHOR]
  4. Unable to vote in the election [ANCHOR]
- 

Under the new presidential administration, some of the policy changes President Donald Trump has been advocating affect how companies operate, including how they treat employees, customers, investors, and the environment. As far as you know, would those policies mostly help companies, mostly hurt companies, or have no effect on companies?

CAWI RESPONSE OPTIONS:

1. Mostly help
  2. Mostly hurt
  3. No effect
- 

What does it mean to you for a company to be <u>just</u>?

[MEDIUM TEXTBOX]

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[NUMBOXES][RANDOMIZE ORDER OF ITEMS]

[ADD IN TOTAL DOLLAR ALLOCATION AT THE BOTTOM OF THE GRID][ALLOW 777/999 TO BE ENTERED INTO NUMBOX IF R SAYS DON'T KNOW OR REFUSED FOR THE QUESTION; TOTAL WILL NOT SUM TO \$100, BUT ALLOW TO CONTINUE]

Custom prompt; force response if total does not sum to \$100: "Please check that your total allocation entries sum to \$100.

[CATI CUSTOM PROMPT: MUST ADD TO \$100.]

If you could spend \$100 to make a company more just, how would you divide that money across the following categories?

1. WORKERS: How a company treats its employees, including pay, benefits and working conditions \$ \_\_\_\_\_ [NUMBOX]
  2. CUSTOMERS: How a company treats its customers, including protecting their privacy and providing a positive experience \$ \_\_\_\_\_ [NUMBOX]
  3. MANAGEMENT & SHAREHOLDERS: How leadership manages the company and treats its investors \$ \_\_\_\_\_ [NUMBOX]
  4. ENVIRONMENT: A company's impact on the environment, including pollution and overall environmental responsibility \$ \_\_\_\_\_ [NUMBOX]
  5. COMMUNITIES: How a company supports communities in the US and how it behaves internationally on human rights and working with overseas suppliers \$ \_\_\_\_\_ [NUMBOX]
  6. PRODUCTS: Characteristics of the company's products and services, including price, quality, benefit or harm to the consumer, and importance to their daily life \$ \_\_\_\_\_ [NUMBOX]
  7. JOBS: The effect a company has on the number of jobs in the US \$ \_\_\_\_\_ [NUMBOX]
- Total Spent: \$ \_\_\_\_\_ [SUM THE AMOUNT AS R ENTERS RESPONSES]
- 

[NUMBOXES ACCEPT 1-7][RANDOMIZE ORDER OF ITEMS]  
[DO NOT ALLOW MORE THAN 1 SELECTION TO BE RANKED THE SAME NUMBER, 1-7 ARE EXCLUSIVE]  
Custom prompt; force response if ranked numbers are not exclusive: "You ranked two behaviors with the same importance. Please review your answers"

Please rank the following from 1-7, with 1 being most important to just company behavior and 7 being least important to just company behavior.

1. WORKERS: How a company treats its employees, including pay, benefits and working conditions [NUMBOX]
  2. CUSTOMERS: How a company treats its customers, including protecting their privacy and providing a positive experience [NUMBOX]
  3. MANAGEMENT & SHAREHOLDERS: How leadership manages the company and treats its investors [NUMBOX]
  4. ENVIRONMENT: A company's impact on the environment, including pollution and overall environmental responsibility NUMBOX]
  5. COMMUNITIES: How a company supports communities in the US and how it behaves internationally on human rights and working with overseas suppliers NUMBOX]
  6. PRODUCTS: Characteristics of the company's products and services, including price, quality, benefit or harm to the consumer, and importance to their daily life [NUMBOX]
  7. JOBS: The effect a company has on the number of jobs in the US [NUMBOX]
-