Attachment F: Analysis Plan for DIS Pilot Study

Research Questions

1. Does the use of dependent interviewing reduce the time to administer the SDR?
   a. Compare overall timing, section timing, and timing on individual questions on DI-1, DI-2, and INDI conditions (from paradata)
   b. Compare DI-1, DI-2, and INDI conditions on perceived survey speed at which they moved through the survey (from item RAS1)
2. Does the use of dependent interviewing affect response quality?
   a. Compare DI-1, DI-2, and INDI conditions on rates of reported change in employment status, employer, or occupation (Literature suggests DI approaches reduce reports of spurious change), overall and by specific characteristics (as sample size permits):
      1. By cohort (defined as categories based on year since degree)
      2. By other demo characteristics (e.g., gender, citizenship, etc)
   b. Compare internal consistency of reported changes in employer and occupation between DI-1, DI-2, and INDI conditions (e.g., responses to A9 vs B1/B2 in DI instruments)
   c. Compare number of characters in verbatim responses for principal job title, and job duties between DI-1, DI-2, and INDI.
   d. Compare DI-1, DI-2, and INDI conditions on item nonresponse rates
   e. Evaluate negative response patterns suggestive of poor data quality, specific to each DI version:
      1. For D1-2, changing the answer to first part after presented with screen to enter updated information
      2. For D1-1, editing prefilled data indicating a change, but also checking "no change" box
3. What do respondents think of the experience of dependent interviewing (in comparison to independent interviewing)? (These questions are answered by analyzing RAS response data.)
   a. (For all conditions) Overall, was this survey experience similar to most other web survey experiences? (RAS2)
   b. (For all conditions) How enjoyable was the survey experience? (RAS3)
   c. (For all conditions) Perceived sensitivity of the survey (RAS4)
   d. (For all conditions)) Confidence in the protection of the data on the survey (RAS5)
   e. (For DI conditions) Have respondents participated in a survey (web or other) where the vendor had historical information from them or another source? (RAS8)
   f. (For DI conditions) Reactions to seeing their historical information displayed on the survey/(For INDI condition) How they might react if they saw their historical information displayed on the survey (RAS9)
   g. (For DI conditions) Do they remember doing the SDR in the past? (RAS6)
   h. (For DI conditions) Did they remember their responses from last time they completed the SDR? (RAS7)
   i. (For DI conditions) Did displaying their historical information help them to provide more accurate data?/(For INDI condition) Would displaying their historical information help them to provide more accurate data? (RAS11)
   j. (For DI conditions) How did respondents decide when to update information versus leave it as-is? (RAS12, RAS13)
   k. (For DI conditions) Did displaying their historical information change the perceived burden of the survey experience/(For INDI condition) Would displaying their historical information change the perceived burden of the survey experience (RAS14)

   l. (For all conditions) Do they think dependent interviewing is a good or bad idea (RAS16)

Method: Small-scale DIS Pilot Study

- Embed an experiment that randomly assigns sampled cases to one of three questionnaire conditions: dependent interviewing with a one-stage approach (DI-1), dependent interviewing with a two-stage approach (DI-2) or independent interviewing (INDI).
  - The DI conditions will display data from a subset of items from the most recent SDR completed and ask for confirmation or updates.
  - The INDI condition will be an abbreviated version of the current SDR questionnaire that is used in production.
- Include a brief response analysis survey (RAS, questions asked at the end of the survey to gather information about the experience of completing the survey.)

Analysis

The tables will include measures of statistical significance when appropriate per sample size. Tables that use survey response data will have weighted and unweighted versions.

Employer changes will be measured by change in employer name alone, change in department/division but not employer name, change in employer name and address, and change in either name or address along with respondent self-categorize change in employer.

Employment status change will be measured by a change from working for pay or profit on Feb 1 of prior cycle to not working for pay or profit in DIS Pilot Study instrument, including change to retired or not in labor force.

Other demographic characteristics shown in tables will include citizenship status and broad field of degree, as sample size permits

Table 1. Average time to complete (minutes) by questionnaire version and employment status.

	Currently employed			Not currently employed		
	DI-1	DI-2	INDI	DI-1	DI-2	INDI
Full survey						
Question #						
Question #						
Question #						

Table 2a. Number and percent of respondents with a measured employment change, by questionnaire version

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Change in emp. status						
Change in employer						
Change in job title						
Change in OCC code						

Change in top level OCC code						

Table 2a. Number and percent of respondents in which self-categorized change in employer or job type (B1/B2) is consistent with measured change in employer or job type, by version

Self-categorized matches measure for:	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Change in employer						
Change in job type						
Change in both						
No change in either						

Table 3. Item nonresponse, by questionnaire version

	DI-1[6] Count	DI-2[7] Count	INDI Count	DI-1 %	DI-2 %	INDI %
Question #						
Question #						
Question #						
Overall average						

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[6] For DI-1 (one stage), item nonresponse occurs if the respondent did not make an update to prefilled data, nor mark the box indicating no changes (e.g., displayed data reflect current situation).

[7] For DI-2 (two stage), responses to the first part and second part are needed for the data to be complete. Item nonresponse occurs when the respondent does not answer both parts of the question.

Table 4a. Percentage of D1-2 respondents who initially indicated a change (first part of DI question) since last cycle, but reversed that response when presented with screen to enter updated information (second part of DI question).

	Final count of "no change" from last cycle (first part of DI question)	Count of Respondents indicating "no change" and backed up at second part of DI	% of "no change" from last cycle (first part of DI question)	% of Respondents indicating "no change" who also backed up at 2nd part of DI
Question #				
Question #				
Question #				

Table 4b. Percentage of D1-1 respondents who enter some edits to prefilled answer but also check the box indicating "no change since prior cycle".

	Count of respondents editing prefilled response	Count of Respondents editing prefilled response and indicating "no change"	% of respondents editing prefilled response	% of Respondents editing prefilled response who also indicated "no change"
Question #				
Question #				
Question #				

Table 5a. Average length of gap reported between end of job reported in the previous SDR response and DIS Pilot Study reference date (September 1, 2020), for cases reporting a job change and currently employed

	Time between end of last job and September 1, 2020		
	Employer changed	Job title changed	OCC code changed:
DI-1questionnaire			
DI-2 questionnaire			
INDI questionnaire			

Table 5b. Average length of gap reported between end of job reported in the previous SDR response and DIS Pilot Study reference date (September 1, 2020), for cases reporting not currently employed

	Time between end of last job and September 1, 2020		
	Currently Retired	Currently Unemployed	Currently Not in Labor Force
DI-1questionnaire			
DI-2 questionnaire			
INDI questionnaire			

Table 6A. Rates of change in employment status from previous SDR response to 2020 by questionnaire condition, and by other characteristics

Characteristics (sample size dependent)	DI-1 %	DI-2 %	INDI %
Overall rate of change: employment status			
Year of graduation: - 1970-1979 - 1980-1989 - 1990-1999 - 2000-2009 - 2010-2013 - 2014 – 2018			
By sex: - Male - Female			
By race/ethnicity: - (categories)			
By other demographic characteristic(s)			
SDR response year - 2015 - 2017 - 2019			

Table 6B. Rates of Employer name change from previous SDR response to 2020 by questionnaire condition, and by other characteristics

Characteristics (sample size dependent)	DI-1 %	DI-2 %	INDI %
Overall rate of change: employer name			
Year of graduation: - 1970-1979 - 1980-1989 - 1990-1999 - 2000-2009 - 2010-2013 - 2014 - 2018			
By sex: - Male - Female			
By race/ethnicity: - (categories)			
By other demographic characteristic(s)			
SDR response year - 2015 - 2017 - 2019			

Table 6C. Rates of Principal Job Title change from prior SDR response to 2020 by questionnaire, and other characteristics

Characteristics (sample size dependent)	DI-1 %	DI-2 %	INDI %
Overall rate of change: job title			
Year of graduation: - 1970-1979 - 1980-1989 - 1990-1999 - 2000-2009 - 2010-2013 - 2014 - 2018			
By sex: - Male - Female			
By race/ethnicity: - (categories)			
By other demographic characteristic(s)			
SDR response year - 2015 - 2017 - 2019			

Table 6D. Rates of OCC change from prior SDR response to 2020 by questionnaire, and other characteristics

Characteristics (sample size dependent)	DI-1 %	DI-2 %	INDI %
Overall rate of change: OCC code			
Year of graduation: - 1970-1979 - 1980-1989 - 1990-1999 - 2000-2009 - 2010-2013 - 2014 - 2018			
By sex: - Male - Female			
By race/ethnicity: - (categories)			
By other demographic characteristic(s)			
SDR response year - 2015 - 2017 - 2019			

Analysis of Response Analysis Survey (RAS) responses

Table 7. Distribution of responses to RAS question concerning perceived speed of completing the questionnaire

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Very slow						
Somewhat slow						
Somewhat fast						
Very fast						

Table 8. Distribution of responses to RAS question on "How would you describe today's survey relative to other SDR surveys you've completed?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Very similar						
Somewhat similar						
Somewhat dissimilar						
Very dissimilar						

Table 9. Distribution of responses to RAS question on "To what extent did you enjoy completing today's survey?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Did not enjoy at all						
Enjoyed a little						
Enjoyed somewhat						
Enjoyed a great deal						

Table 10. Distribution of responses to RAS question "How sensitive did you think the questions on this survey were?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Not sensitive at all						
A little sensitive						
Somewhat sensitive						
Very sensitive						

Table 11. Distribution of responses to RAS question "How confident are you that NCSES will protect your answers?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Not securely at all						
Not very securely						
Somewhat securely						
Very securely						

Table 12. Distribution of responses to RAS question "Today's survey referenced the 201x Survey of Doctorate Recipients. Do you remember completing that survey?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Yes						
No						

Table 13. Distribution of responses to RAS question "Prior to answering today's survey, did you remember what your responses to the 201x Survey of Doctorate Recipients had been?"

	DI-1 Count	DI-2 Count	DI-1 %	DI-2 %
Yes				
No				

Table 14. Distribution of responses to RAS question gathering reactions to DI approach

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Surprised:						
Very much						
A little						
Not at all						
Confused:						
Very much						
A little						
Not at all						
Appreciative:						
Very much						
A little						
Not at all						
Comfortable:						
Very much						
A little						
Not at all						
Annoyed:						
Very much						
A little						
Not at all						
Concerned:						

Very much						
A little						
Not at all						
Relieved:						
Very much						
A little						
Not at all						

Table 15. Distribution of responses to RAS question gathering reactions to whether DI (made/would make) survey responses more or less accurate

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
More accurate						
Less accurate						
No impact						

Table 16. Distribution of responses to RAS question asking "were there any questions in today's survey where you felt that the answer displayed from 201x was 'accurate enough' and you decided to leave it as-is, rather than updating it with potentially more accurate information?

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Yes, for one question						
Yes, for more than one question						
No						

Table 17. Distribution of responses to RAS question asking "Were there any questions in today's survey where the answer displayed from 201x was no longer true, and you decided to leave it as-is, rather than updating it with current information?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Yes, for one question						
Yes, for more than one question						
No						

Table 18. Distribution of responses to RAS question on "Do you think that pre-filling some of your answers from 201x and asking you to confirm or update them (made/would make) this survey…?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Much more burdensome						
A little more burdensome						

Neither more or less burdensome						
A little less burdensome						
Much less burdensome						

Table 20. Distribution of responses to RAS question on "Do you think pre-filling your most recent answers to Survey of Doctorate Recipients is a…?"

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Very bad idea						
Somewhat bad idea						
Neither a good nor a bad idea						
Somewhat good idea						
Very good idea						

Table 21. Distribution of responses to RAS question on whether or not records were used to answer questions.

	DI-1 Count	DI-2 Count	INDI Count	DI-1 %	DI-2 %	INDI %
Yes						
No						

Additional Analyses
- Frequency distributions for all questions, including RAS.
- Comparison of coded RAS open-ended questions, between three instruments
- Interaction of RAS items with reported employment change for currently employed
- Interaction of RAS items with reported change in employment status for not currently employed
- Survey breakoffs by condition