

## Responses to Questions from the 4/17/09 O\*NET Meeting

### Additional Statistics and Survey Methods Questions

1. *The sample selection steps and weight construction are explained in the O\*NET Data Collection Program, OMB Package (December 2008; Volume 1; Section B). Additional details are provided on the model-aided sampling in Appendix G. The paper discussing the simulation and some assumptions made for the model-aided sampling simulation appear in a proceedings paper. Was any peer-reviewed paper developed and published from this work?*

Yes, a peer-reviewed paper was developed and published from this work. It was published in the January 2008 edition of RTI Press which is a peer-reviewed on-line journal of methodological work developed at RTI. The citation for this publication is:

Berzofsky, M., Welch, B., Williams, R., & Biemer, P. (2008). Using a model-aided sampling paradigm instead of a traditional sampling paradigm in a nationally representative establishment survey. RTI Press Publication No. MR-0004-0802. Research Triangle Park, NC: RTI International. Retrieved April 21, 2008 from <http://www.rti.org/rtpress>.

2. *Michael Penne (presentation made on April 17, 2008) remarked that there was some additional information available on the weight calibration methods. Is this Appendix H (O\*NET Data Collection Program, OMB Package, December 2008; Volume 2) or was there additional information?*

Additional information regarding the weight calibration methodology is available in Section B.1.1. (starting on page 75 of Volume 1 of the 2008 OMB package). Appendix H of Volume 2 of the 2008 OMB package discusses the methods and results of our nonresponse analyses at both the establishment and employee levels. These results have been utilized in developing the methods and techniques to adjust for nonresponse.

3. *Explain the deviance analysis that was mentioned in Michael Penne's presentation on slide 25, Slide Heading is Past Improvements, first slide.*

For every annual analysis cycle, the final stage of data cleaning is the deviance analysis for task questionnaire data, which identifies cases with response profiles differing from response profiles of the rest of the cases in an occupation. The deviance analysis includes a statistical analysis and a rational review of the



results. Because the scores from the statistical analysis do not necessarily reflect a true difference in occupational membership between one case and other cases providing data for the occupation of interest, the rational review is included as the second stage. Cases deemed deviant at both stages are removed from the data file and excluded from calculation of final estimates.

A sequence of statistical analyses is conducted by North Carolina State University (NCSU) on the task questionnaire data to detect deviant cases within each occupation. Cases that fall beneath a set significance value based on the results of these analyses are deemed potentially deviant and flagged for rational review. The statistical deviance analysis procedures are described in a paper by Drs. Erich Dierdorff and Don Drewes titled, “Determining Deviance in Incumbent Ratings: A Description of O\*NET® Existing Procedure and a Proposed Augmented Revision.” A copy of this paper is attached.

The first, statistical, stage of deviance analysis identifies *candidates* for exclusion. That is, cases in which the respondents, compared with the rest of the occupational experts (OEs)/incumbents in their occupation, rated Task items as being either more important or less important. Because the tasks are intended to more specifically capture what OEs or incumbents do on their job, it is expected that people performing the target occupations would rate some portion of the tasks as important to their jobs. The objective of the deviance analysis is to identify cases in which the respondent is not a member of the occupation; therefore, the O\*NET analysis team reviews only the cases that have lower task endorsement than the other cases in the occupation.

The extent of task endorsement (the proportion of tasks rated “3—Important” or higher) is the criterion determining which cases flagged as potentially deviant are subject to rational review. If 33% or more of the tasks are rated “3—Important” or higher and 50% or more of the tasks are rated as “Relevant,” the case requires no rational review and is retained. All remaining cases flagged as potentially deviant are reviewed.

For those cases that require review, two or three analysts from the National Center for O\*NET Development and RTI conduct independent reviews of the respondents’ task ratings. Whenever possible, emphasis is placed on the ratings of one or more key tasks deemed particularly descriptive of the occupation. If the incumbent endorsed a key task that had been identified *a priori* as being especially descriptive of the occupation as “3—Important” or higher, that case is usually retained. Where task review is not conclusive, the analysts considered



additional information including the written-in job title and the case’s industry designation and establishment of employment.

If, after reviewing this information, the analysts decide that a case appears to have a very small chance of belonging to the target occupation, they deem it deviant. The analysts’ judgments are compared, and they reach consensus on any independent judgments that differ. Cases that all analysts deem to be deviant are removed from the data set.

**4. Can you provide the page that presents the details to compute the overall cooperation rate?**

The overall cooperation rate is defined as the proportion of all business-eligible establishments that provide all requested information. Consider the following four mutually exclusive categorizations of all eligible establishments:

	No SOCs of Interest	SOCs of Interest Present	
Refuses initial inquiry	Unknown – <b>Group A</b> – Non-cooperator		
Cooperates with initial inquiry	<b>Group B</b> – Cooperator	<b>Group C</b> – Cooperator	<b>Group D</b> – Non-cooperator

**Group A – Refusals:** The establishment will not or cannot provide any information regarding whether any of the occupations of interest are present within that establishment.

**Group B – No Occupation(s):** The establishment Point of Contact (POC) confirms that none of the occupations of interest assigned to that particular establishment are present. At this point, no further information is required nor requested from the establishment (i.e., they have provided all requested information). In short, they have fully cooperated with our data collection effort.

**Group C – Occupation Present with Selected Employees:** The establishment POC confirms that at least one occupation of interest is present from among those on the full list of occupations assigned to that establishment. For those occupations present, the POC rosters all employees within each respective occupation and, in conjunction with the data collection team, selects a sample of these employees. Subsequently, occupation-specific questionnaires are sent to the establishment for distribution by the POC to each selected employee. In summary, the establishment through the POC fully cooperates with our data collection team

**Group D – Occupations Present, No Selected Employees:** The establishment POC confirms that at least one occupation of interest is present from among those on the full list of occupations assigned to that establishment. However, the POC



either refuses to roster the employees, to select a sample of employees, or to distribute questionnaires. In short, this establishment fails to fully cooperate or provide all necessary information.

The overall cooperation rate is defined as  $[(B + C) / (A+B+C+D)] * 100$ , where the sum of groups A through D is the total number of business-eligible establishments. The 75% presented in the NAS panel slides is derived from the following counts of establishments

Group A – 8,812

Group B – 69,899

Group C – 35,908

Group D – 25,893

Total business-eligible establishments (A+B+C+D) = 140,512

Total cooperating business-eligible establishments (B+C) = 105,807

Overall Cooperation Rate  $[105,807 / 140,512] * 100 = 75.30\%$

**5. *Was there any pilot testing done to determine if contacting the job incumbent directly would improve response rates for the job incumbent?***

No. While it may seem ideal to be able contact job incumbents directly, most employers will not divulge confidential employee contact information, making this approach problematic. In some cases, we do contact job incumbents and other experts identified through professional and trade associations when using the occupation expert method. However not all occupations are represented by associations, and associations often represent multiple occupations and include retirees, students, and others in their membership lists. Contacting job incumbents through a household survey would also be challenging, as described in the 4-1-09 responses to O\*NET Survey and Sampling Questions. The data collection design pilot tested by AIR and Westat was based on job incumbents found through business establishments. The OMB-required pilot testing of the establishment method design developed by RTI and the O\*NET Center yielded acceptable response rates when a small monetary incentive was used.

**6. *There were 2,029 respondents to date for the occupation expert method (Michael Penne's presentation on slide 13). Does the 2,029 denote 2,029 different occupation experts or 2,029 different completed surveys completed by a smaller number of occupation experts?***



The 2,029 denotes 2,029 different occupation experts. Each expert is identified as an expert in one specific occupation and completes the full set of questionnaires (with the exception of the domains completed by analysts).

7. *Can you explain why the results from the pretesting were not used to address some of the more substantive problems identified (e.g., redundancy in scales). Please describe the types of respondents used for the cognitive interviews.*

All substantive problems identified with the survey questionnaires were corrected. A comparison between the format of original prototype questions and those implemented by the current O\*NET data collection demonstrates the major changes made to question items. With regard to the redundancy in scales, the pros and cons of eliminating scales were considered by AIR and it was determined that the elimination of the level scale would result in difficulty making comparisons between occupations. Since the capacity to measure skills transferability is a central function in the design of the O\*NET system, this was not a viable option.

Another option considered by AIR was to develop a single scale that would combine level and importance constructs. The drawback of the use of any such “new scales” would be the loss of prior empirical findings, making the reliability and other properties of the scales unknown. Since the “problem” was the potential burden placed on a respondent, the Center and RTI considered and resolved this by incorporating the skip pattern, wherein a respondent only answers the level question after they have first rated the construct important. If it is not important, they are instructed to move on to the next item.

Any redundancy between questionnaire items in different domains was by design, according to AIR, in order for each domain to be comprehensive and stand alone. Various options to select the most theoretically and empirically parsimonious variables were considered by AIR, set against input from users that more descriptors are needed. The O\*NET Center and RTI considered this issue as well, and because O\*NET was to meet the needs of a broad range of users who may use different domains, and not necessarily all domains, the content model of O\*NET with comprehensive stand-alone domains was retained.

Finally, anchors that were included in the questionnaires underwent development and review by AIR prior to implementation. Further evaluation was outside the budgetary and time restrictions for project implementation. (Note, that placement of the anchors was changed to correspond to whole numbers on the scales). As part of an effort of continuous improvement, questionnaires would be evaluated based on how they worked in the field during data collection. The prototype



instruments were evaluated via expanded cognitive interviews during their initial development. RTI and the National Center for O\*NET Development did not conduct additional expanded cognitive interviews. However, survey items were revised as a result of an expert cognitive review panel conducted by RTI/O\*NET Center. In addition, a group of 7 RTI employees, which included staff from contracts, statistics, telephone services, and accounting, reviewed three different formats of the questionnaire scales and provided feedback on their preferences of format via focus group. They rated which format was easiest to read, easiest to understand the instructions, and easiest to use. The results from the different methods of cognitive review resulted in the modifications made to implemented questionnaires.

- 8. *Data is collected from employees, occupation experts, and data analysts. Data analysts rate skills and abilities and this seems to be distinguished on the O\*NET website. Is data collected from either the employees or occupation experts distinguished from the O\*NET web site?***

Yes it is. To display this information once an occupation is selected within O\*NET OnLine, a user can click on the link in the upper right corner, noting the date the occupation's data was updated (e.g., "updated 2008"). The user will be taken to the data collection information page which lists the date and data source for each type of information provided in O\*NET OnLine (e.g., tasks, knowledge, skills, work values, etc.). An example data collection information page for an occupation updated using occupation experts can be seen using this link: <http://online.onetcenter.org/link/updates/11-9021.00>.

- 9. *Can you please provide the Lesgold et al report mentioned in the response to our questions on 4/01/09?***

Unfortunately, we are unable to locate this report. Apparently, this report was an unpublished paper for the USDOL/ETA as a deliverable under a contract with another organization.

