

# **Prepopulating Audit Workpapers with Prior Year Assessments: Default Option Effects on Risk Rating Accuracy**

Sarah Bonner, University of Southern California  
Tracie Majors, University of Southern California  
Stacey Ritter, University of Southern California

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## **Overview**

Experimental participants ( $n = 117$ ) performed a risk assessment task in which they read current year client information and other background task-related information, then read prior year risk assessment information and provided their current year risk assessments. Specifically, they selected risk ratings and documented evidence for 19 risk factors, eight involving increases from the prior year, six involving decreases from the prior year, and five involving no changes from the prior year. We manipulated whether participants completed the task in workpapers that were prepopulated (i.e., contained the prior year's risk assessments) or non-prepopulated (i.e., blank). As explained in more detail in the following sections, we used participants' risk ratings to measure accuracy, and used their documented evidence to measure cognitive processing, i.e., motivated reasoning and superficial processing. We measured their responses to prepopulation (the mediators) using behavioral measures. Finally, we examined three (measured) auditor characteristics as moderators: auditors' professional identity, sufficiency of self-control resources, and frequency of use of prepopulated workpapers on audit engagements.

## Computation of Dependent Variable

**Risk Assessment Accuracy:** We calculated risk assessment accuracy within the Excel data file, separately for increasing, decreasing, and no change risks.

- For the eight increasing risks, we created an indicator variable for each risk factor that equaled “1” if the participant correctly increased the risk from the prior year rating, and “0” otherwise. The sum of these eight cells equals *Accuracy for Increasing Risk Factors*.
- For the six decreasing risks, we created an indicator variable for each risk factor that equaled “1” if the participant correctly decreased the risk from the prior year rating, and “0” otherwise. The sum of these six cells equals *Accuracy for Decreasing Risk Factors*.
- For the five no change risks, we created an indicator variable for each risk factor that equaled “1” if the participant correctly did not change the risk from the prior year rating, and 0 otherwise. The sum of these five cells equals *Accuracy for No Change Risk Factors*.

## **Manipulation or Measurement of Independent Variables (i.e., including Moderators)**

**Manipulated Independent Variable – Prepopulation of Workpapers:** We manipulated prepopulation of workpapers between-participants as either “Prepopulated” or “Non-Prepopulated” workpapers. To do so, we randomly assigned each participant to receive one of the two workpaper structures to use when completing the risk assessment task. Participants in the “Prepopulated” condition completed the risk assessment task using a current year workpaper with last year’s risk ratings and evidence filled into the spaces for this year’s ratings and evidence. Participants in the “Non-prepopulated” condition completed the risk assessment task using a current year workpaper with blank spaces for both risk ratings and evidence. All participants also were told: “This is consistent with your firm’s policy on how auditors should access prior year workpapers. Senior leadership in the audit quality group at your firm chose this policy because they believe it strikes the right balance between audit effectiveness and efficiency in performing the audit.” Participants in both conditions received the prior year workpaper in a separate file that they viewed on their screen next to the current year’s workpaper.

**Measured Auditor Characteristics – Moderators of Effects of Prepopulation:** We measured these variables for each participant using post-experimental questions.

- **Professional Identity:** We measured *Identity* by asking auditors to select one of seven images of two overlapping circles (reflecting the self and the profession), ranging from no overlap to nearly overlapping. Specifically, they were asked “Select the picture below that best describes how your personal attributes, qualities, and values align or overlap with the attributes, qualities, and values of the accounting profession.”
- **Sufficiency of Resources for Self-Control:** We measured *Replenishment* (reverse-scored) by asking auditors to report their agreement (on a 1-7 Likert scale) with the following statement: “I felt mentally overloaded when trying to combine the current client information with the prior year’s risk ratings.”
- **Frequency of Use of Prepopulated Workpapers:** We measured *Use of Prepopulated Workpapers* by asking participants the following question: “Current year workpapers can be prepopulated (i.e., have prior year documentation either automatically be copied over or copied and pasted from prior year workpapers) or not prepopulated (i.e., blank). Please click the button that best corresponds to the workpapers that you work with on your audit engagements.” Participants selected from the following three options:
  - “The workpapers on all of my engagements are prepopulated.”
  - “The workpapers on all of my engagements are not prepopulated.”
  - “The workpapers on some of my engagements are prepopulated, while the workpapers on some of my engagements are not prepopulated.”

## Measurement of Mediators and Cognitive Processes

### *Behavioral Measures of Mediators*

**Stick with Last Year:** We developed this measure within the Excel file, using the following steps:

- For the eight increasing risks, we created an indicator variable for each risk factor that equaled “1” if the participant selected the prior year rating, and “0” otherwise.
- For the six decreasing risks, we created an indicator variable for each risk factor that equaled “1” if the participant selected the prior year rating, and “0” otherwise.
- For the five no change risks, we created an indicator variable for each risk factor that equaled “1” if the participant selected the prior year rating, and “0” otherwise.

Then, we calculated the mediators in Excel as follows:

- *Stick with Last Year* for increasing risks was the sum of the above measure for decreasing and no change risks.
- *Stick with Last Year* for decreasing risks was the sum of the above measure for increasing and no change risks.
- *Stick with Last Year* for no change risks was the sum of the above measure for increasing and decreasing risks.

**Work Fast:** We developed this measure within the Excel file, using the following steps:

- First, we captured the time participants spent on the risk assessment task using the “timing question” feature in Qualtrics.
- Because there could be differences in time spent due to the fact that non-prepopulated workpapers require more typing time (given participants must start “from scratch,” as opposed to altering prior year evidence that is already present in prepopulated workpapers), we then made the raw time measure comparable across conditions using the following method:
  - We asked ten staff auditors to type a passage from our case study, and calculated an average typing time of 69 words per minute.
  - We then estimated the time participants in the prepopulated workpaper condition spent typing by dividing the number of new words of evidence they provided (i.e., incremental to the prior year’s evidence that was prepopulated in the workpaper) by 69, and subtracted this estimate from their total time spent on the risk assessment task. To count new words of evidence, we utilized the “LEN(TRIM),” “LEN(SUBSTITUTE),” and “ISNUMBER(SEARCH)” Excel tools.
  - We then calculated the average number of words of evidence typed by participants in the non-prepopulated workpaper condition, and divided this amount by 69 (to develop an estimate of the time these participants, on average, spent typing). Finally, we then added this estimate to the time spent for each participant in the prepopulated workpaper condition.

*Measures of Cognitive Processes (Related to Mediators)*

**Motivated Reasoning:** We measured motivated reasoning by counting the number of transition words indicative of counterargument within the Excel file containing participants' documented evidence. We performed the count separately for increasing and decreasing risk factors. To perform the count, we utilized the "ISNUMBER(SEARCH)" Excel tool. The list of counterargument words that we searched for is presented below:

<i>Above all</i>	<i>Even assuming</i>	<i>On one hand</i>
<i>After all</i>	<i>Even if</i>	<i>On the other hand</i>
<i>All the same</i>	<i>Even so</i>	<i>Otherwise</i>
<i>Although</i>	<i>However</i>	<i>Rather</i>
<i>At the same time</i>	<i>In reality</i>	<i>Regardless</i>
<i>Besides</i>	<i>In spite of</i>	<i>Still</i>
<i>But</i>	<i>Instead</i>	<i>That said</i>
<i>Contrary</i>	<i>Nevertheless</i>	<i>Then again</i>
<i>Contrast</i>	<i>Nonetheless</i>	<i>Unlike</i>
<i>Conversely</i>	<i>Notwithstanding</i>	<i>Whereas</i>
<i>Despite</i>	<i>Of course</i>	<i>While</i>
		<i>Yet</i>

**Superficial Processing:** We measured superficial processing by counting the number of new words within the Excel file containing participants' documented evidence. We performed the count separately for increasing and decreasing risk factors. To perform the count, we utilized the "LEN(TRIM)," "LEN(SUBSTITUTE)," and "ISNUMBER(SEARCH)" Excel tools.

## Data Analysis – Hypotheses Tests

We first ran ANOVAs (using the SPSS menu commands: Analyze → General Linear Model → Univariate) for the effect of our manipulated independent variable (*Prepopulation*) on each of our dependent variables (*Accuracy for Increasing, Decreasing, and No Change Risks*). This analysis provides our tests of H1 and H2 (the effects of prepopulation of workpapers on risk rating accuracy, for changing and unchanged risks, respectively). The ANOVA results are tabulated in Table 1, Panel C.

We used two statistical methods for tests of H3 and H4 (our hypotheses about auditors' responses to prepopulated workpapers, and how these responses mediate the relation between prepopulation and risk rating accuracy). Specifically, we used structural equation modeling (using AMOS software) and the Preacher and Hayes [2008] bias-corrected bootstrapping method using the Preacher and Hayes macro in SPSS.

Figures 2-4 display our empirical models that we tested using both approaches.

- **Structural Equations Modeling:** We used the AMOS graphics tool to draw the empirical models displayed in Figures 2-4, also including residual error terms on the mediators and dependent variable. We then ran each model by clicking the “Calculate Estimates” icon in AMOS. The AMOS output provided the estimates and goodness of fit statistics.
- **Preacher and Hayes [2008] Approach:** We installed the Preacher and Hayes macro in SPSS, and it is stored under the “Analyze → Regression” toolbar. We used “Model 4” to test the empirical models in Figures 2-4. We then ran each model using the macro. The output provided the estimates and 90% bias-corrected bootstrapped confidence intervals. Note that we also used this approach to conduct the exploratory analyses of cognitive processes.

## Data Analysis – Analyses of Moderating Effects of Auditor Characteristics

We used two statistical approaches to perform our moderation analyses, as described below.

The first approach was a comparison of two structural equations models within AMOS – one that was unconstrained (i.e., the models displayed in Figures 2-4), and one that constrained the links between the independent variable (*Prepopulation*) and the mediators (*Stick with Last Year* and *Work Fast*) to be equal across levels of the moderator being examined. This approach is illustrated in detail in Arbuckle [2016].

- Using “Manage Groups,” we created three groups within AMOS for each moderator (low, medium, and high). These groups were based on the closest cutoffs to achieve an even split across the three levels. To conduct the strongest test of moderation, for this analysis, we compared two groups: the low and high groups.
- Using the “Analyze → Multiple Group Analysis” command, we compared two models: one in which the models for each group were unconstrained, and one in which the models for each group were constrained to be equal (i.e., specifying within the textbox that the structural weights for the paths between *Prepopulation* and the mediators across the low and high groups must be equal).
- Clicking the “Clicking Estimates” icon then displayed the output, which provided a “Model Comparison” tab. This tab provided the chi-squared statistic comparing the unconstrained and constrained models.
- We performed this approach for each of the three moderators, separately for increasing and decreasing risks.

The second approach was the Preacher and Hayes [2007] moderated-mediation method using the Preacher and Hayes macro. We used the same process/macro as described for the test of mediation (i.e., tests of H1 and H2), but instead used “Model 7,” which incorporates the continuous moderators in the empirical models (i.e., adds the moderators to the empirical models displayed in Figures 2-3, i.e., just for changing risks). The Preacher and Hayes macro output provided the confidence intervals testing for moderation of the mediators.