Methods Research Report

Correcting for Publication Bias in the Presence of Covariates

Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

Methods Research Report

Correcting for Publication Bias in the Presence of Covariates

Prepared for:
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

Contract No. 290-02-0009

Prepared by:
Minnesota Evidence-based Practice Center
Minneapolis, MN

Investigators:
Sue Duval, Ph.D.
Eric Weinhandl, M.S.

AHRQ Publication No. 11-EHC041-EF
September 2011

This report is based on research conducted by the Minnesota Evidence-based Practice Center (EPC) under contract to the Agency for Healthcare Research and Quality (AHRQ), Rockville, MD (Contract No. 290-02-0009, Task Order Number: 1, Work Assignment Number 1). The findings and conclusions in this document are those of the author(s), who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this report should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services.

The information in this report is intended to help clinicians, employers, policymakers, and others make informed decisions about the provision of health care services. This report is intended as a reference and not as a substitute for clinical judgment.

This report may be used, in whole or in part, as the basis for the development of clinical practice guidelines and other quality enhancement tools, or as a basis for reimbursement and coverage policies. AHRQ or U.S. Department of Health and Human Services endorsement of such derivative products may not be stated or implied.

Persons using assistive technology may not be able to fully access information in this report. For assistance contact EffectiveHealthCare@ahrq.hhs.gov.

No investigators have any affiliations or financial involvement (e.g., employment, consultancies, honoraria, stock options, expert testimony, grants or patents received or pending, or royalties) that conflict with material presented in this report.

Suggested Citation: Duval S, Weinhandl E. Correcting for Publication Bias in the Presence of Covariates. Methods Research Report. (Prepared by the Minnesota Evidence-based Practice Center under Contract No. 290-02-0009.) AHRQ Publication No. 11-EHC041-EF. Rockville, MD: Agency for Healthcare Research and Quality. September 2011. Available at: www.effectivehealthcare.ahrq.gov/reports/final.cfm.

Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new health care technologies and strategies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

To improve the scientific rigor of these evidence reports, AHRQ supports empiric research by the EPCs to help understand or improve complex methodologic issues in systematic reviews. These methods research projects are intended to contribute to the research base in and be used to improve the science of systematic reviews. They are not intended to be guidance to the EPC program, although may be considered by EPCs along with other scientific research when determining EPC program methods guidance.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the health care system as a whole by providing important information to help improve health care quality. The reports undergo peer review prior to their release as a final report.

We welcome comments on this Methods Research Project. They may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850, or by e-mail to epc@ahrq.hhs.gov.

Carolyn M. Clancy, M.D.
Director
Agency for Healthcare Research and Quality

Jean Slutsky, P.A., M.S.P.H.
Director, Center for Outcomes and Evidence
Agency for Healthcare Research and Quality

Stephanie Chang, M.D., M.P.H.
Director, EPC Program
Agency for Healthcare Research and Quality
Agency for Healthcare Research and Quality

Ernestine Murray, M.A.S., R.N.
Task Order Officer
Center for Outcomes and Evidence

Acknowledgments

We would like to thank our reviewers, Dr. Michael Borenstein, Professor Larry Hedges, Dr. Alexander Sutton, and Dr. Norma Terrin, for reviewing and commenting on the draft. These reviewers and their affiliations are listed in Appendix A.

We also want to thank Marilyn Eells for her diligent editing and formatting of the report and Dr. Robert Kane for sharing his expertise in systematic reviews and his guidance throughout the project.

Correcting for Publication Bias in the Presence of Covariates

Structured Abstract

Objectives. To date, there are no established methods for assessing publication bias when study characteristics induce heterogeneity in the effects. The "trim and fill" method was developed to adjust for censored (i.e., missing) studies in a meta-analysis, assumed due to publication bias. We sought to modify this algorithm for use in the context where study characteristics induce heterogeneity in the effects.

Methods. An iterative algorithm based on the original trim and fill algorithm was developed. We performed Monte Carlo simulations with 5,000 iterations per instance of the adapted trim and fill algorithm. In each instance we set six parameters, both to alter the structure of the randomly generated data, and to manipulate the algorithm itself. We assessed the average performance (type 1 error, power, bias) of the algorithm, in the context of inference regarding the metaregression parameters. We also applied the method to data from 19 randomized studies examining the hypothesis that teachers' expectations influence students' IQ intelligence test scores, the covariate of interest being the dichotomized length of teacher-student contact prior to the study. We developed user-friendly software in R, for one covariate at this stage, with future versions to incorporate several covariates.

Results. Meaningful, albeit incomplete, reduction in the bias of estimated metaregression model parameters was achieved. Bias and coverage probability improved as the number of studies increased. The R estimator outperformed both L and Q from the original trim and fill method. Performance declined in the presence of large heterogeneity, but substantial bias reduction was still obtained. Two algorithm variants were developed, with the simpler one-dimensional version performing slightly better than the two-dimensional.

Conclusions. This new method provides a generalized trim and fill algorithm that is applicable to metaregression, that is, where covariates are available. The new algorithm should be seen as a sensitivity analysis to the influence of covariates on funnel plot asymmetry.

Contents

Figures

Appendixes

Executive Summary

We have adapted the trim and fill algorithm,[1] originally created to adjust for publication bias in meta-analysis, to its application in metaregression. Under this scenario, studies report heterogeneous effect estimates, at least in part attributable to systematic variation induced by differences in measured covariate(s) that summarize salient features of the individual studies. In other words, whereas typical meta-analysis models pool a set of effect estimates into a single summary measure of, for example, efficacy or risk, metaregression pools effect estimates into a summary measure that is a function of (i.e., conditional upon) the value of some exogenous covariate.

An example of this situation might be seen in a series of studies evaluating the association of teachers' expectations and students' IQ intelligence test scores. Raudenbush reported 19 studies, in which students were randomly allocated to either an experimental "expectancy induction group" or to a control group.[2] Teachers of students in the experimental group were led to believe that their students were "likely to experience substantial intellectual growth." Raudenbush also hypothesized that the magnitude of teacher expectancy effects might be related to the length of time that the teacher and student were in contact prior to the expectancy induction.[2] The amount of prior contact can be categorized into two groups: (1) contact for one week or less, and (2) contact for more than one week. This two-level categorization of prior contact serves a binary covariate that may systematically induce variability in study effect estimates.

Heuristically, our adaptation of trim and fill to the metaregression situation functions in much the same fashion as the original algorithm. We start by fitting a metaregression model to the observed data. From that fitted model, we estimate the residuals of each observation (i.e., study) in the model. Then, from the set of residuals, we estimate the number of missing studies, *k*, with the same analytic tools proposed by Duval.[1] We then trim those *k* studies with the largest residuals (in absolute terms), and re-estimate the metaregression model. Again, we estimate the residuals, and from there, the number of missing studies. This iterative loop proceeds until the estimate of *k* converges, which is indicated by the lack of a difference in estimates of *k* from one iterative step to the next. At this point, we fill the observed data set with *k* missing studies in the following manner. We identify those *k* studies with the largest absolute residuals (from the final fitted metaregression model to the trimmed data) and record the measured value of the exogenous covariate in those studies. For each of the k studies, we impute the "reflection," where the reflection is taken across the midrange of the covariate and the final fitted metaregression model.

We evaluated the performance of this modified trim and fill algorithm under a wide variety of scenarios, using Monte Carlo simulation. In particular, we estimated the bias and coverage probability of estimated model parameters (e.g., intercept, slope) across ranges of the number of observed studies, the number of missing studies, the magnitude of between-study variability as induced by stochastic error, the magnitude of between-study variability as induced by the slope associated with the exogenous covariate, the distribution of the covariate (either binary or uniform), and the nature of the metaregression model applied during the iterative portion of trim and fill.

We showed that certain methodological choices—the nature of the metaregression model, the estimator of *k*—resulted in superior performance, and we illustrated that the adaptation of trim and fill does result in meaningful, albeit incomplete, reduction in the bias of estimated model parameters.

We created user-friendly software in R (version 2.8.1), an open-source statistical software package that is freely available for download at http://www.r-project.org/, that can be applied to existing datasets that are amenable to metaregression and suffer from suspected publication bias.[3] This software reports metaregression estimates from both fixed-effects and random-effects models, both before and after application of trim and fill to the set of observed studies. We have also developed documentation for the software, and code for an example dataset.

We recommend the use of the modified trim and fill algorithm as a form of sensitivity analysis in the case where both heterogeneity and publication bias may play a role.

Introduction

Context for This Research

Meta-analysis has become increasingly popular in the last decade and is now in the top position on most proposed hierarchies of evidence. Meta-analyses are also the most cited study design in the health sciences literature. The traditional role for meta-analysis has been to compile information from diverse studies on the same topic, thus increasing power. However, there is increasing recognition of the challenges that heterogeneity presents in data synthesis. It is important to quantify, assess, and potentially interpret heterogeneity and try to distinguish between genuine between-study heterogeneity and biases. Meta-analytic studies provide a very useful tool for sensitizing researchers, physicians, and public health practitioners to the almost ubiquitous presence of biases in research. The focus in the present report is on one such bias, publication bias, which has been suggested as the most important threat to the validity of meta-analyses.

The trim and fill method was developed by Duval and Tweedie[1,4] to address the issue of publication bias in meta-analysis, and it is now widely used in practice in many areas of public health research. It relies on scrutinizing a funnel plot for asymmetry, assumed to be a manifestation of publication bias (see below). The goal of this research was to extend the trim and fill method to those situations where covariates are available as possible explanations for some of the funnel plot asymmetry.

Publication Bias

Publication bias is the term used for the bias that may occur when the research on a particular topic does not include the whole population of studies that has been performed. The danger to interpretation under these conditions is that the wrong conclusions may be drawn if the available studies differ systematically from the results of all the research that has been done.

Publication bias is a phenomenon that runs counter to the way in which the scientific method has developed over the past century. One of the key historical contributions of statistical thinking has been a move away from a context where possible random observations were acceptable, to one where only those results that are statistically significant (i.e., not due to chance alone) are seen as being established and worth consideration.

It is commonly believed that studies are not uniformly likely to be published in scientific journals.[5] Easterbrook et al. suggested that statistical significance is a major determining factor of publication.[6] Some researchers may not submit a nonsignificant result for publication, and editors may fail to publish nonsignificant results even if they are submitted.[7] Therefore, there may be a nonrepresentative proportion of significant studies in the scientific literature. This becomes problematic for a meta-analysis in which data come solely from the published literature, potentially leading to a nonrepresentative proportion of significant studies in the meta-analysis dataset. A standard meta-analysis will then result in a conclusion biased toward significance.

This is not just an academic problem: it can ultimately influence the clinical decisions of medical practitioners and public health officials. As Glass noted in 1976, journals that directly or indirectly influence medical practice cannot afford to ignore this problem.[8] He claims, “The potential for publication bias concerns us because physicians now will search systematic reviews to determine the best treatment for patients. If positive results get published more, then the risk of adopting ineffective and even harmful medical practices is greater."

Publication Bias, Funnel Plot Asymmetry, and Small-Study Effects

Funnel plot asymmetry is often equated with publication bias;[9,10] however, the funnel plot is simply a way of displaying small-study effects – a tendency for the effects seen in smaller studies to differ from those seen in larger studies.[11] Small-study effects may be due to reasons other than publication bias.[11,12] Funnel plot asymmetry may be due to publication bias, but it may also result from clinical or methodological heterogeneity between studies. Even if there is publication bias in a review, it may not result in an asymmetrical funnel plot. An important point is that heterogeneity among effects can cause funnel plot asymmetry without creating bias.

Current Methods

There are several statistical methods available that purport to identify, quantify, or assess the potential impact of publication bias.

The methods developed to detect publication bias are based on either the funnel plot, or statistical hypothesis tests. Two well known tests for funnel plot asymmetry are those of Begg and Mazumdar,[13] a rank correlation test, and the regression test of Egger et al.[12]

A set of techniques called "file-drawer" analyses provide sensitivity analyses to meta-analysis conclusions in the presence of publication bias. These have largely been replaced in the literature by more sophisticated methods, and are named here only for the sake of completeness.

Two main methods have been created to adjust meta-analytic estimates for the possible effects of publication bias. One group of methods use the selection model approach, and despite their utility in detecting and correcting for publication bias, are not often used in practice due to the level of computational complexity. These models, employing both parametric and nonparametric weight functions, have been generalized to include covariates.[14,15] The other adjustment method, the trim and fill method, is rather less complex, and has been implemented in several software applications.

We will not discuss the aforementioned methods in any detail in this report. However, since our new method builds on the original trim and fill method, we will describe this method briefly. Full details may be found in the original articles by Duval and Tweedie.[1,4]

Methods

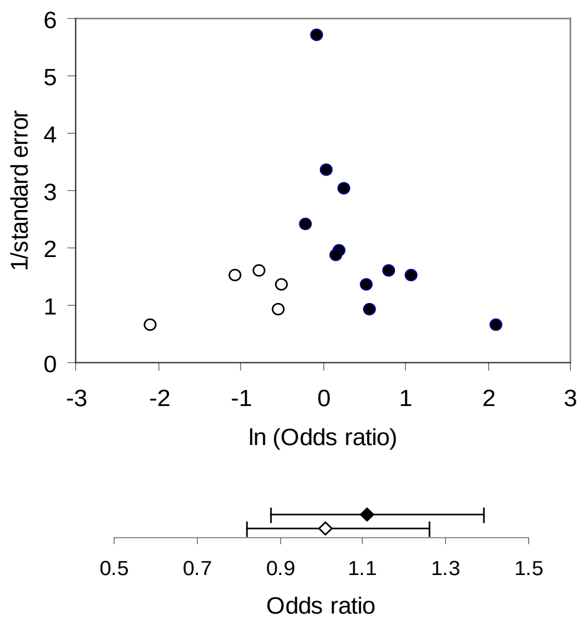
We conducted a simulation study, using a factorial design for the simulation parameters, to assess the performance of the newly developed "modified" trim and the fill algorithm. We define the modified trim and fill algorithm as the original trim and fill algorithm adapted to a two-dimensional metaregression.

For completeness, we present a brief description of the original trim and fill method, as described fully in Duval and Tweedie.[1,4]

The "Original" Trim and Fill Method

The trim and fill method is a simple rank-based augmentation technique to formalize the use of a funnel plot. The method can be used to estimate the number of missing studies and, more importantly, to provide an estimate of the estimate of the "treatment" effect by adjusting for potential publication bias in a meta-analysis. The mechanics of the approach are displayed in Figure 1, using a meta-analysis of the effect of gangliosides on mortality from ischemic stroke.[16] Figure 1 shows the observed studies as filled circles, with the open circles denoting the imputed missing studies. Note that the "funnel" is much more visually symmetric with the inclusion of the imputed data. The bottom panel of Figure 1 gives the odds ratios (ORs) and their 95 percent confidence intervals before and after allowing for publication bias, on the OR scale.

Figure 1. Trim and fill applied to a meta-analysis of the effect of gangliosides on mortality from ischemic stroke



The key assumption of the method is that it is the most extreme negative studies which have not been published. Three easily calculated estimators for the number of missing studies, *R*, *L*, and *Q*, have been derived based on method of moment considerations.

The Modified Trim and Fill Algorithm

Generation of Simulated Meta-Analytic Data

We simulated metaregression data under a variety of conditions. Simulated data were generated from a hierarchical model. For $i = 1, 2, \ldots, n$, where n is the number of studies, both published and unpublished, we had:

$X_{1,i} \sim f(X_1)$,

$\theta_i \mid X_{1,i}, \beta \sim N(\beta_0 + \beta_1 * X_{1,i}, \tau^2)$,

$\sigma_i \sim \text{Gamma}(3, 1/9)$,

$Y_i \mid \theta_i, \sigma_i \sim N(\theta_i, \sigma_i^2)$,

where the parameters β_0, β_1, and τ^2 were pre-specified.

We varied the following parameters in our simulation:

1. Sample size. We set $n = 25, 35, 45, 55,$ and 65.
2. Distribution of X_1. We set $f(x) = (1/2)^x(1/2)^{1-x}$, for $x = 0, 1$ (i.e., Bernoulli), and $f(x) = 1$, for $0 < x < 1$.
3. Slope parameter. We set $\beta_1 = 4/81, 2/27, 4/27, 8/27,$ and $12/27$. (We set $\beta_0 = 0$ in all simulations.)
4. Between-study variability. We set $\tau^2 = 0, 4/81, 4/27,$ and $4/9$.
5. Number of missing studies. We set $k = 0, 5,$ and 10.
6. Dimension of the metaregression model during the iterative portion of the algorithm. We set the dimension $d = 1$ and 2.

Two Variants of the Algorithm

From a sample of n studies, k studies were censored. We defined r_i as the rank of Y_i, and censored those studies with rank $r_1, r_2, \ldots, r_k$. Therefore, censoring resulted in an “observed” sample of $m = n - k$ studies.

We fit both a fixed effect (FE) and random effects (RE), two-dimensional metaregression model to each observed sample. Then, we proceeded to apply the following adaptation of the trim and fill algorithm:

1. Fit an FE model to the observed sample: for $i = 1, 2, \ldots, m$,
   $Y_i = \beta_0 + \beta_1 * X_{1,i} + e_i$,
   where $e_i \sim N(0, \sigma_i^2)$.
   Denote the estimates of (β_0, β_1) by $[\beta]^{(1)} = ([\beta_0]^{(1)}, [\beta_1]^{(1)})$.

2. Calculate centered values from the fitted FE model: for $i = 1, 2, \ldots, m$,
   $Y_i^{(1)} = Y_i - ([\beta_0] + [\beta_1] * X_{1,i})$.
   Estimate $k^{(1)}$, the number of missing studies, using one of the three usual estimators, applied to the set $\{Y_i^{(1)}\}$, $i = 1, 2, \ldots, m$:
   $R = \gamma^* - 1$,
   $L = [4 * T_m - m * (m + 1)] / [2 * m - 1]$,

$Q = m - 1/2 - \sqrt{[2 * m^2 - 4 * T_m + 1/4]}$,
where γ^* and T_m are defined in the usual manner.[4]

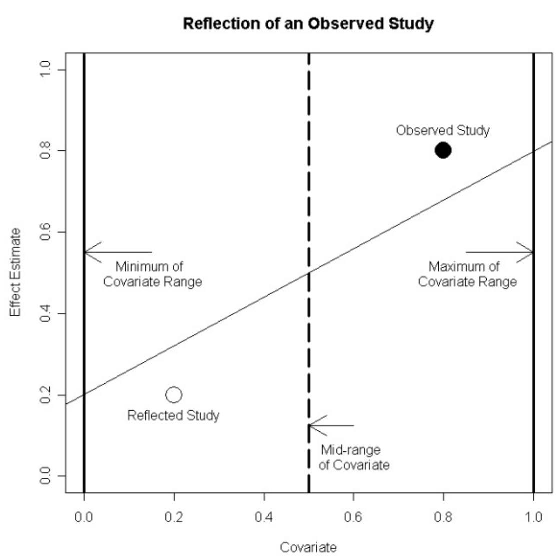
3. Remove those studies with the $k^{(1)}$ largest values of $\{Y_i^{(1)}\}$ from the observed sample. Fit an FE model to the reduced sample of $m - k^{(1)}$ studies, and calculate centered values, based upon the updated estimate $[\beta]^{(2)} = ([\beta_0]^{(2)}, [\beta_1]^{(2)})$:
$Y_i^{(2)} = Y_i - ([\beta_0]^{(2)} + [\beta_1]^{(2)} * X_{1,i})$.
Estimate $k^{(2)}$ from the set $\{Y_i^{(2)}\}$, $i = 1, 2, \ldots, m$.

4. Continue until an iteration J where $k^{(J)} = k^{(J-1)} \equiv [k]$.
Set $[\beta] = ([\beta_0], [\beta_1]) = ([\beta_0]^{(J)}, [\beta_1]^{(J)})$, and for $j = 1, 2, \ldots, [k]$, define the triplet Z_j:
$Z_j = (Z_{1,j}, Z_{2,j}, Z_{3,j}) = (Y_h^{(J)}, \sigma_h, X_{1,h})$,
where h is the index value such that the rank of $Y_h^{(J)}$ equals $m - j + 1$.

5. As a final step, augment the observed sample with $[k]$ studies:
$X_{1,j} = 2 * \text{midrange}\{X_1\} - Z_{3,j}$,
$\sigma_j = Z_{2,j}$,
$Y_j = [\beta_0] + [\beta_1] * X_{1,j} - Z_{1,j}$,
for $j = 1, 2, \ldots, [k]$, where midrange$\{X_1\}$ is the mid-range of X_1, which may be either estimated or specified by the analyst.

Figure 2 is a simple visual illustration of how Step 5 is implemented in the algorithm. Mid-range estimates include the maximum likelihood estimate (MLE) = $[\min(X_1) + \max(X_1)] / 2$, or the method of moments estimate (MOM) = sample mean of X_1. The user may also specify a mid-range, typically taken as the mean of user-specified minimum and maximum values for the covariate (e.g., 0 and 1, for a dichotomous X_1).

Figure 2. Augmentation using the modified trim and fill algorithm



6. In a metaregression model with covariate X_1, analyze the set of $m + [k]$ studies, with either an FE model or an RE model.

As a variant on the above algorithm, we also considered fitting only a one-dimensional metaregression model during the iterative portion of the algorithm:

1. Fit an FE model to the observed sample: for $i = 1, 2, \ldots, m$,
   $Y_i = \beta_0 + e_i$,
   where $e_i \sim N(0, \sigma_i^2)$.
   Denote the estimate of (β_0) by $[\beta]^{(1)} = ([\beta_0]^{(1)})$.

2. Calculate centered values from the fitted FE model: for $i = 1, 2, \ldots, m$,
   $Y_i^{(1)} = Y_i - [\beta_0]$.
   Estimate $k^{(1)}$, the number of missing studies, using one of the three usual estimators, applied to the set $\{Y_i^{(1)}\}$, $i = 1, 2, \ldots, m$:
   $R = \gamma^* - 1$,
   $L = [4 * T_m - m * (m + 1)] / [2 * m - 1]$,
   $Q = m - 1/2 - \sqrt{[2 * m^2 - 4 * T_m + 1/4]}$,
   where γ^* and T_m are defined in the usual manner.[4]

3. Remove those studies with the $k^{(1)}$ largest values of $\{Y_i^{(1)}\}$ from the observed sample. Fit an FE model to the reduced sample of $m - k^{(1)}$ studies, and calculate centered values, based upon the updated estimate $[\beta]^{(2)} = ([\beta_0]^{(2)})$:
   $Y_i^{(2)} = Y_i - [\beta_0]^{(2)}$.
   Estimate $k^{(2)}$ from the set $\{Y_i^{(2)}\}$, $i = 1, 2, \ldots, m$.

4. Continue until an iteration J where $k^{(J)} = k^{(J-1)} \equiv [k]$.
   Set $[\beta] = ([\beta_0]) = ([\beta_0]^{(J)})$, and for $j = 1, 2, \ldots, [k]$, define the triplet Z_j:
   $Z_j = (Z_{1,j}, Z_{2,j}, Z_{3,j}) = (Y_h^{(J)}, \sigma_h, X_{1,h})$,
   where h is the index value such that the rank of $Y_h^{(J)}$ equals $m - j + 1$.

5. As a final step, augment the observed sample with $[k]$ studies:
   $X_{1,j} = 2 * \text{midrange}\{X_1\} - Z_{3,j}$,
   $\sigma_j = Z_{2,j}$,
   $Y_j = [\beta_0] + [\beta_1] * X_{1,j} - Z_{1,j}$,
   for $j = 1, 2, \ldots, [k]$, where midrange$\{X_1\}$ is the mid-range of X_1, which may be either estimated or specified by the analyst.

6. In a metaregression model with covariate X_1, analyze the set of $m + [k]$ studies, with either an FE model or an RE model.

For each set of parameters, we ran 5,000 iterations. Within each iteration, we proceeded through the algorithm by estimating k with each of the three estimators, R, L, and Q.

We reported absolute bias and coverage probability for the regression parameters β_0 and β_1, along with relative bias for the parameter β_1. We also report mean values for R, L, and Q, along with estimation failure rates for each of R, L, and Q. Estimation failure occurred when Q was inestimable, the estimate of k failed to converge within 100 steps, or if $d = 2$, when the estimate of k was equal to 1 at any point during the iterative portion of the algorithm.

All simulations were conducted in R, version 2.8.1.

Results

Without correction for publication bias, the performance of the estimated parameters in the usual fixed effect (FE) and random effects (RE) metaregression models largely depends, rather unsurprisingly of course, on whether or not publication bias exists, although to a lesser extent, the relative performance of the FE and RE models also depends on the magnitude of between-study variability (τ^2).

In the absence of publication bias (i.e., with zero missing studies), the absolute biases of the estimated intercept (Appendix Table E1) and slope (Appendix Table E7) were both negligible, independent of the true value of the slope parameter, the magnitude of between-study variability, sample size (from 25 to 65), and model assumptions concerning random variability (FE or RE). In contrast, still in the absence of publication bias, the coverage probabilities of the confidence intervals around the estimated intercept (Appendix Table E2) and slope (Appendix Table E8) were mixed. The coverage probabilities achieved the nominal level (95 percent) in the absence of between-study variability ($\tau^2 = 0$), independent of both sample size and model assumptions (FE or RE). However, with between-study variability ($\tau^2 > 0$), coverage probabilities of intervals around both the estimated slope and intercept rapidly decreased with increasing between-study variability in the FE model, but were stable, albeit modestly below nominal level, with increasing between-study variability in the RE model. In all instances, associations of coverage probabilities with simulation parameters were independent of the true value of the slope parameter. Finally, still in the absence of publication bias, the relative bias of the estimated slope parameter (Appendix Table E13) was mixed, although only as a function of the true value of the slope parameter. When the true value of the slope was 0.049, the relative bias of the slope parameter was generally non-negligible, although without discernible patterns with respect to other simulation parameters. As the true value of the slope increased, the relative bias of the slope parameter typically decreased, such that when the true value of the slope was 0.444, relative bias was, in fact, negligible. Much of this relative bias is symptomatic of the metric itself, since even a small absolute bias may be a quite large relative bias when the true value of the parameter in question is in the neighborhood of zero.

Without correction for publication bias in spite of the presence of such bias, the performance of the estimated intercept and slope parameters, along with associated confidence intervals, was much different. Absolute bias of the estimated intercept was positive (Appendix Table E1). Absolute bias increased as the number of missing studies increased (from 5 to 10), as between-study variability increased, and as the true value of the slope parameter increased. Absolute bias decreased as the sample size increased. Bias was largely independent of model assumptions (FE or RE), with only a modest increase in the RE *vs.* FE model when $\tau^2 = 0$, and a modest decrease in the RE versus FE model when $\tau^2 > 0$. The absolute bias of the estimate slope parameter, in contrast, was negative (Appendix Table E7). Absolute bias of the estimated slope also increased in (absolute) magnitude as the number of missing studies increased, as between-study variability increased, and as the true value of the slope parameter increased, while bias decreased as sample size grew larger. The coverage probabilities of the confidence intervals around the estimated intercept (Appendix Table E2) and slope (Appendix Table E8) decreased, relative to probabilities in the absence of publication bias. Coverage probabilities decreased as the number of missing studies increased (particularly with 10 missing studies), as between-study variability increased, as the true value of the slope increased, and interestingly, even as the sample size increased. Decreases were equally apparent in the both the FE and RE models. Finally, the relative bias of the estimate slope (Appendix Table E13) typically increased, compared to the relative bias in the absence of publication bias. Associations of relative bias with simulation parameters mirrored the above associations of absolute bias in the estimated slope with simulation parameters.

With correction for publication bias, via imputation of $\mathbf{k}$ = *R* or $\mathbf{k}$ = *L* studies, as estimated and identified from the modified trim and fill algorithm, the performance of the estimated intercept and slope parameters, along with associated confidence intervals, was mixed, as a function of whether or not publication bias was actually present. In the absence of publication bias, the imputation of $\mathbf{k}$ studies actually introduced negative absolute bias in the estimated intercept (Appendix Tables E2 and E3). This bias grew in (absolute) magnitude as the true value of the slope increased and as between-study variability increased. This bias was largely independent of sample size, but was clearly larger in the RE versus FE model, independent of the magnitude of τ^2. Conversely, but still in the absence of publication bias, imputation of $\mathbf{k}$ studies introduced non-negative absolute bias in the estimated slope (Appendix Tables E8 and E9). In the FE model, bias was generally negligible, but in the RE model, bias was generally positive, relatively more so as the true value of the slope increased. As with the estimated intercept, the absolute bias in the estimated slope was larger in the RE versus FE model. The coverage probabilities of the confidence intervals around the estimated intercept (Appendix Tables E5 and E6) and slope (Appendix Tables E11 and E12) parameters were practically unchanged, with only very modest degradation, relative to a lack of correction for publication bias. Finally, patterns in the relative bias of the estimated slope parameter (Appendix Tables E14 and E15), with correction for publication bias despite the absence of such bias, generally mirrored corresponding patterns in the absolute bias of the estimated slope parameter. In particular, for larger true values of the slope parameter, relative bias in the estimated slope was negligible in the FE model, but almost always positive in the RE model, with increasing bias as between-study variability increased.

With correction for publication bias in the absence of such bias, the performance of estimated parameters, and associated confidence intervals, was generally superior with imputation of $\mathbf{k}$ = *R* *vs.* $\mathbf{k}$ = *L* studies. In particular, with imputation of *R* versus *L* studies, absolute and relative biases in the estimated intercept and slope parameters were generally smaller and corresponding coverage probabilities were generally larger.

When publication bias actually existed, the imputation of $\mathbf{k}$ studies resulted in meaningful, albeit incomplete correction of bias in estimated model parameters induced by publication bias. The absolute bias of the estimated intercept (Appendix Tables E2 and E3) and slope (Appendix Tables E8 and E9) parameters was reduced via application of modified trim. Absolute bias in the estimated intercept parameter was mostly eliminated, with five missing studies from any sample size given small τ^2, from sample size ≥35 given medium τ^2, and from sample size ≥45 with large τ^2, all through fitting of an FE model. Bias was also mostly eliminated with 10 missing studies from sample size ≥45 given small τ^2 and from sample size 65 given medium τ^2, but non-trivial bias remained with 10 missing studies and large τ^2, again all through fitting of an FE model. Generally, the absolute bias in the estimated intercept was further reduced through fitting of an RE model, even independent of the magnitude of τ^2, so much so that absolute bias was largely eliminated with 10 missing studies from sample size 65 in sets of studies with large between-study variability. The absolute bias of the slope parameter exhibited similar improvement, with analogous associations with simulation parameters. In particular, with 5 missing studies, bias was largely eliminated only as sample size increased, given increasing levels of between-study variability, while with 10 missing studies, bias was eliminated only with even larger sample size, given commensurate between-study variability. Again, bias was further reduced through fitting of an RE model, relative to fitting of an FE model. The relative bias of the estimated slope parameter (Appendix Tables E14 and E15) mirrored these trends. However, the relative bias metric better illuminates the fact that with a relatively large proportion of missing studies attributable to publication bias and substantial between-study variability (beyond that accounted by the metaregression model), nontrivial negative relative bias remains in the estimated slope. Coverage probabilities of the confidence intervals around the estimated intercept (Appendix Tables E5 and E6) and slope (Appendix Tables E11 and E12) were mixed, after correction for publication bias. In general, coverage probabilities of FE-model-derived intervals around the estimated intercept ranged from unchanged to slightly greater, relative to a lack of correction for publication bias. Improvements were seen, unsurprisingly, when $\tau^2 = 0$. However, all coverage probabilities of FE-model-derived intervals were below nominal level, particularly as between-study variability increased. Corresponding probabilities were much closer to nominal level with intervals derived from RE models. Interestingly however, coverage probabilities were modestly smaller with correction for publication bias than without such correction when the proportion of missing studies was low, although coverage probabilities were larger, as may be expected, when that proportion was high.

Throughout all scenarios in which the modified trim and fill algorithm was applied to sets of studies in which publication bias, in fact, existed, the imputation of $\mathbf{k} = R$ studies was generally superior to the imputation of $\mathbf{k} = L$ studies. Absolute and relative biases in model parameters were generally smaller, although coverage probabilities were often comparable.

Some of this difference can likely be attributed to the mean values of $\mathbf{k}$. Mean values of $\mathbf{k}$ when $\mathbf{k} = R$ (Appendix Table E16) and $\mathbf{k} = L$ (Appendix Table E17) illustrate this. When $\mathbf{k} = R$, the estimated number, $\mathbf{k}$, of missing studies tends to exhibit good properties. It remains low in the absence of publication bias, typically exceeding one only with substantial between-study variability. It typically increases as the number of missing studies increases, but does not rapidly increase as sample size increases. However, when the proportion of missing studies is large (e.g., 10 studies from sample size 25), the estimated number of missing studies is badly biased downward. In contrast, when $\mathbf{k} = L$, the estimated number of missing studies tends to exhibit less desirable properties. In the absence of publication bias, $\mathbf{k}$ typically increases as sample size increases, and with large between-study variability, overestimates the number of missing studies. When publication bias does exist, the estimated number of missing studies appears to increase rapidly with sample size, even with a given number of missing studies, but nonetheless remains negatively biased when 10 studies are missing, largely independent of the proportion of missing studies.

In Appendix Tables E1 through E17, we display simulation results from the one-dimensional variant of the modified trim and fill algorithm. In Appendix Tables E18 through E34, we display analogous results from the two-dimensional variant of the algorithm. In this variant, unlike in the former, a random effects metaregression model, with both an intercept and a slope parameter, is fit to the data during the iterative phase of the algorithm, during which $\mathbf{k}$ is estimated; in the former, only an intercept is included in the model that is fit during the iterative phase. Patterns associated with the simulation parameters are entirely analogous in this variant. Notably, however, all measures of bias in the estimated slope parameter indicate relatively poorer performance, with much larger relative bias, given a high proportion of missing studies and medium to high between-study variability.

Example

We consider here data from 19 randomized studies examining the hypothesis that teachers' expectations influence students' IQ intelligence test scores.[2] In each study, students were randomly assigned either to an experimental, "expectancy induction" group, or to a control group. Teachers of students in the experimental group were led to believe that their students were "likely to experience substantial intellectual growth." The effect analyzed here is the standardized mean difference between the study groups.

The authors hypothesized that the magnitude of the response variable might be related to the length of time that the teacher and student were in contact prior to the expectancy induction. For instance, teachers who had accumulated more contact with students prior to the start of the study were expected to be less vulnerable to induction. Thus, amount of prior contact was categorized into two groups: contact for one week or less (i.e., the low-contact group) and contact for more than one week (i.e., the high-contact group). This variable is the study-level covariate used in the modified trim and fill algorithm.

In a metaregression ignoring the possibility of publication bias, the predicted mean response from a fixed effect model was $Y = 0.349 - 0.371 * I$ [high-contact group], where I [high-contact group] is an indicator variable that equals 1 if a study is in the high-contact group, and equals zero if a study is in the low-contact group. In the model, the estimated intercept is significantly different from zero (95 percent confidence interval (CI): 0.19, 0.51; p <0.01), and so is the estimated slope (95 percent CI: -0.55, -0.20; p <0.01). A test of whether between-study variability was equal to zero versus greater than zero, given adjustment for heterogeneity induced by contact group, was nonsignificant ($X^2 = 16.8$, $df = 17$, $p = 0.47$), suggesting that a random effects model was unnecessary. Perhaps of greater interest are the predicted means of the response variable in each contact group. In the low-contact group, the predicted mean response was 0.35 (95 percent CI: 0.19, 0.51; $p < 0.01$). In contrast, in the high-contact group, the predicted mean response was -0.021 (95 percent CI: -0.102, 0.059; $p = 0.60$). Thus, there was a significant, positive effect of expectancy induction in studies in the low-contact group, but a nonsignificant, modestly negative effect of induction in studies in the high-contact group.

With application of the one-dimensional variant of the modified trim and fill algorithm, and with $\mathbf{k} = R$ missing studies, there is evidence of funnel plot asymmetry, with estimated $R = 2$. Both of the missing studies are estimated to be in the high-contact group. Interestingly, after imputation of this pair of studies, there is some evidence of between-study heterogeneity, even with adjustment for contact group ($X^2 = 31.4$, $df = 17$, $p = 0.04$). Thus, unlike above, a random effects model is likely appropriate here. In a metaregression with imputation of missing studies, the predicted mean response from a random effects model was $Y = 0.368 - 0.450 * I$ [high-contract group]. In the model, both the estimated intercept (95 percent CI: 0.16, 0.54; p <0.01) and the estimated slope (95 percent CI: -0.60, -0.15; p <0.01) remained significantly different from 0. In the low-contact group, the predicted mean response was 0.37 (95 percent CI: 0.16, 0.54; p <0.01), quite similar to the earlier analysis, unsurprisingly, since the trim and fill algorithm estimated no missing studies in this group. However, in the high-contact group, the predicted mean response was -0.082 (95 percent CI: -0.20, 0.034; $p = 0.16$). Therefore, while there was persistent evidence of a positive effect of expectancy induction in the studies in the low-contact group, there was also evidence, albeit nonsignificant, of an opposite, negative effect in the high-contact group. As an example, this finding is compatible with the hypothesis that expectancy induction in teachers with lengthy contact with students may encourage complacency, resulting in lower IQ intelligence test scores.

Figure 3 gives a funnel plot of the teacher expectancy studies, using different symbols for the low- and high-contact groups. The imputed studies are shown as open symbols. In Figure 4, the residuals after fitting the metaregression model to the data are shown. Evidently, publication bias may have resulted in censoring of two studies in the high-contact group, both with very negative findings.

Figure 3. Funnel plot of the teacher expectancy data, showing imputed studies

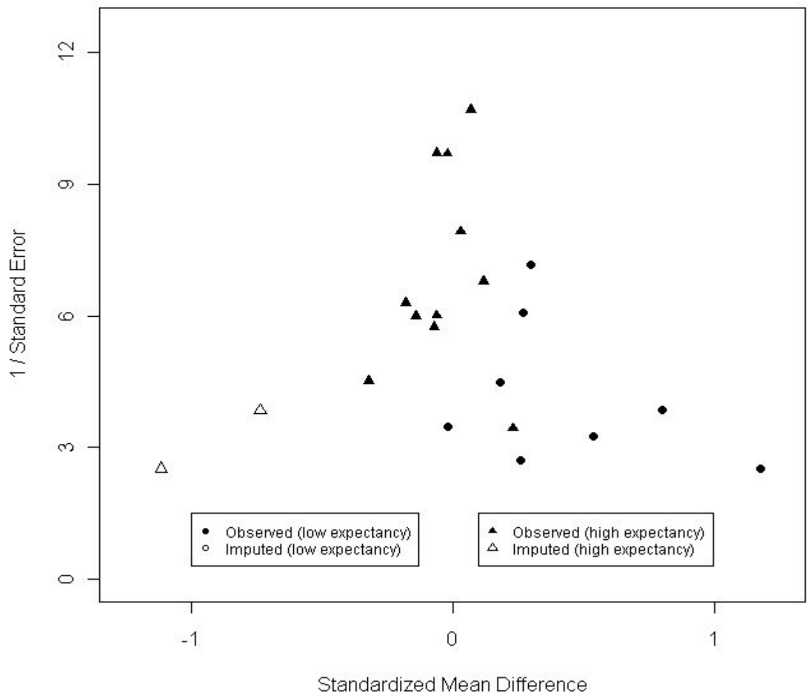
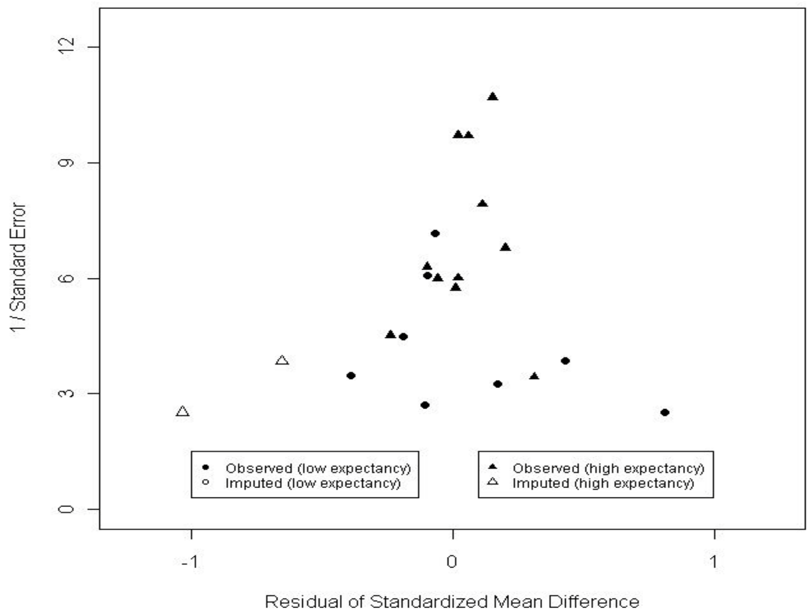
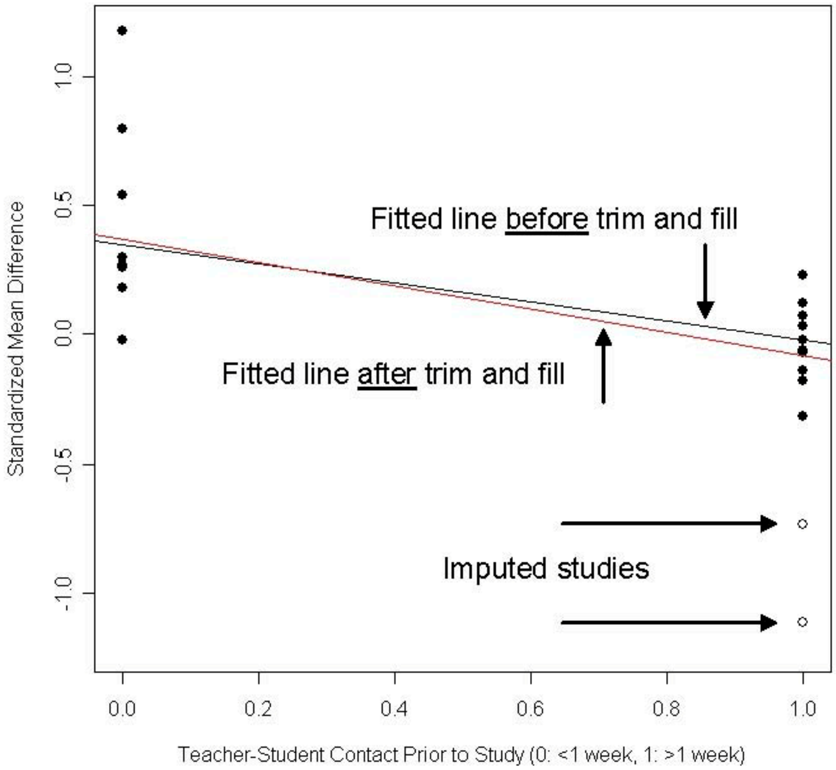


Figure 4. Funnel plot of the residuals of the standardized mean differences, showing imputed data



A scatter-plot with all relevant studies, along with the fitted regression lines both before and after correction for publication bias, is shown in Figure 5. Addition of these studies to the observed studies results in a more negative slope in the fitted regression line.

Figure 5. Application of the modified Trim and Fill algorithm to the teacher expectancy data



Finally of note, with $\mathbf{k} = L$, the modified trim and fill algorithm estimated $L = 3$. This resulted in a slightly more negatively sloped line than $\mathbf{k} = R$, but the quantitative difference in conclusions regarding the high-contact group was trivial.

Discussion

We have developed a new generalized trim and fill algorithm for analyzing heterogeneity and publication bias simultaneously in a meta-analysis. Since this report focuses on the development of a new method, we did not explicitly discuss investigation of the sources of heterogeneity per se. Naturally, elucidation of sources of heterogeneity may explain at least some of the funnel plot asymmetry, and may even obviate the need for adjustment for potential publication bias. The more typical situation arises where we do not have enough information to identify all of the sources for heterogeneity, or we are unable to remove all of the heterogeneity even when sources can be identified. Another issue is that metaregression methods require a minimal amount of studies—some say at least 10 per covariate—and this is not often the case in the medical literature.

In the simulation studies of Peters et al[17] and Terrin et al,[18] only unexplainable between-study heterogeneity was induced. Until now, there has been very little research into assessment of publication bias in the presence of explainable between-study heterogeneity. It may sometimes be the case that study-level covariates can explain some of the heterogeneity in a meta-analysis, which, although complicating the assessment of publication bias, is now addressable via the modified algorithm we have presented here.

We assessed the performance of the algorithm with simulation techniques and applied it to data from a set of 19 randomized studies examining the hypothesis that teachers' expectations influence students' intelligence test scores. We found that bias and coverage probability improved as the number of studies increased, varying from 25 to 65 component studies in the meta-analysis. The R estimator outperforms both L and Q from the original trim and fill method. Performance declined in the presence of large heterogeneity, with between-study variability varied from an intraclass coefficient (ICC) of 0 to 0.75, but substantial bias reduction still obtained. Two algorithm variants were developed, with the simpler one-dimensional version performing slightly better than the two-dimensional. We caution, however, that the one-dimensional variant may not be superior in all instances.

In general, the simulations show that estimation of the number of missing studies k is better using the R estimator, especially when between-study variability exceeds zero. The Q estimator should not be used to estimate k. Performance of the one-dimensional variant of the algorithm is superior to the two-dimensional version.

Further Work

In general, it appears that *R* is a superior estimator of *k*, in contrast to previous recommendations in support of *L*. It is unclear why this is the case here, and requires further investigation. In the future, we will investigate properties of the adapted algorithm in the presence of multiple covariates. This will allow a broader adjustment to be made, given covariate information and sufficient studies in each covariate profile. We will also assess inferential properties of predicted values from the metaregression.

We have written "trim.fill.regression," a program (freely available) for the statistical software package, R. The program currently supports this adaptation of trim and fill for metaregression, but with just one covariate. Future versions will support multiple covariates. A beta version of the program can be requested from the authors. The software package Stata (StataCorp Inc, College Station, Tx) currently includes an implementation of the original trim and fill algorithm called metatrim. We intend for the modified algorithm to be incorporated into metatrim in collaboration with Stata developers, thus making the research much more widely accessible.

Recommendation

We acknowledge that assessment for publication bias in the presence of heterogeneity requires considerable caution. Our recommendation when covariates are available is for the use of the modified trim and fill algorithm as a sensitivity analysis to the potential impact of publication bias.

References

1. Duval S, Tweedie R. "Trim and fill" method of accounting for publication bias in meta-analysis. Journal of the American Statistical Association 2000; 95(449):89-98.

2. Raudenbush SW. Magnitude of teacher expectancy effects on pupil IQ as a function of the credibility of expectancy induction. Journal of Educational Psychology 1984; 76:85-97.

3. R Development Core Team. R: A language and environment for statistical computing, reference index version 2.8.1. Vienna, Austria: R Foundation for Statistical Computing, Vienna, Austria; 2005. Available at: www.R-project.org.

4. Duval S, Tweedie R. Trim and fill: A simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. Biometrics 2000 Jun; 56(2):455-63.

5. Dickersin K, Min Y, Meinert C. Factors influencing publication of research results. JAMA 1992; 267:374-8.

6. Easterbrook P, Berlin J, Gopalan R, et al. Publication bias in clinical research. Lancet 1991; 337:867-72.

7. British Medical Journal Editorial Staff. The editor regrets...(editorial). British Medical Journal 1983; 280:508.

8. Glass GV. Primary, secondary, and meta-analysis of research. Educational Researcher 1976; 5:3-8.

9. Light RJ, Pillemer DB. The Science of Reviewing Research. Vol 1. Cambridge, MA: Harvard University Press; 1984.

10. Begg CB, Berlin JA. Publication bias: A problem in interpreting medical data. Journal of the Royal Statistical Society: Series A 1988; 151:419-63.

11. Sterne JAC, Gravaghan D, Egger M. Publication and related bias in meta-analysis: Power of statistical tests and prevalence in the literature. Journal of Clinical Epidemiology 2000; 53:1119-29.

12. Egger M, Smith GD, Schneider M, et al. Bias in meta-analysis detected by a simple, graphical test. BMJ 1997; 315:629-34.

13. Begg CB, Mazumdar M. Operating characteristics of a rank correlation test for publication bias. Biometrics 1994 Dec; 50(4):1088-1101.

14. Vevea JL, Hedges LV. A general linear model for estimating effect size in the presence of publication bias. Psychometrika 1995; 60:419-35.

15. Hedges LV, Vevea J. Selection method approaches to publication bias. In: Rothstein H, Sutton A, Borenstein M, eds. Publication bias in meta-analysis. New York: John Wiley; 2005; pp. 145-74.

16. Candelise L, Ciccone A. Gangliosides for acute ischaemic stroke (Cochrane Review). The Cochrane Library, Issue 1. Chichester, UK: John Wiley & Sons, Ltd.; 1998.

17. Peters JL, Sutton AJ, Jones DR, et al. Performance of the trim and fill method in the presence of publication bias and between-study heterogeneity. Statistics in Medicine 2007; 26(25):4544-62.

18. Terrin N, Schmid CH, Lau J, et al. Adjusting for publication bias in the presence of heterogeneity. Statistics in Medicine 2003; 22:2113-26.

Acronyms/Abbreviations

CI	Confidence interval
FE	Fixed effect
ICC	Intraclass coefficient
RE	Random effects

Appendix A. Peer Reviewers

Dr. Michael Borenstein
Biostat, Inc.
Englewood, NJ

Professor Larry V. Hedges
Northwestern University
Evanston, IL

Dr. Alex J. Sutton
Department of Health Sciences
University of Leicester
Leicester, UK

Norma Terrin, Ph.D.
Tufts University
Boston, MA

Appendix B. Software Program Code

```
trim.fill.regression <- function (theta.hat, s.e.theta, covariate,
                                  k.estimator, t.f.mod, t.f.dim,
                                  fill.range, level = 0.95) {

dim.beta <- 2

n.obs.1 <- length(theta.hat)
n.obs.2 <- length(s.e.theta)
n.obs.3 <- length(covariate)

n.check <- 1 * (var(c(n.obs.1, n.obs.2, n.obs.3)) == 0)

if (n.check == 0) {
    return("ERROR. Argument lengths are not equal.")
}
if (n.check == 1) {
    n.obs <- n.obs.1

    estimate.obs <- matrix(
                    cbind(theta.hat, s.e.theta),
                    nrow = n.obs, ncol = 2
                   )

    x.design.obs <- matrix(
                    cbind(rep(1, n.obs), covariate),
                    nrow = n.obs, ncol = 2
                   )

    meta.fit <- data.frame(
                  matrix(NA, 2 * (2 * dim.beta + 1) + 1, 11)
                 )

    names(meta.fit)[1] <- "METHOD"
    names(meta.fit)[2] <- "MODEL"
    names(meta.fit)[3] <- "PARAM"

    names(meta.fit)[4] <- "Estimate"
    names(meta.fit)[5] <- "St Error"
    names(meta.fit)[6] <- "Stat"
    names(meta.fit)[7] <- "P"

    names(meta.fit)[8] <- "Lower CI"
    names(meta.fit)[9] <- "Upper CI"
```

```
    names(meta.fit)[10] <- "CovBeta1"
    names(meta.fit)[11] <- "CovBeta2"

    for (i in 1 : 2) {
        if (i == 1) {
            inv.v <- solve(
                     diag(estimate.obs[, 2]^2, n.obs, n.obs)
                    )
        }
        if (i == 2) {
            inv.v.fix <- solve(
                         diag(estimate.obs[, 2]^2, n.obs, n.obs)
                        )

            m.1.fix <- solve(
                        t(x.design.obs) %*% inv.v.fix %*% x.design.obs
                     )

            q.hat <- t(estimate.obs[, 1]) %*%
                     (inv.v.fix -
                      inv.v.fix %*% x.design.obs %*% m.1.fix %*% t(x.design.obs)
%*% inv.v.fix) %*%
                     estimate.obs[, 1]

            d.f <- n.obs - dim.beta

            if (dim.beta == 1) {
                c.hat <- sum(diag(inv.v.fix)) -
                         sum(m.1.fix %*% t(x.design.obs) %*% inv.v.fix %*%
inv.v.fix %*% x.design.obs)
            }
            if (dim.beta >  1) {
                c.hat <- sum(diag(inv.v.fix)) -
                         sum(diag(m.1.fix %*% t(x.design.obs) %*% inv.v.fix
%*% inv.v.fix %*% x.design.obs))
            }

            tau.sq.hat <- max(0, (q.hat - d.f) / c.hat)

            inv.v <- solve(
                     diag(estimate.obs[, 2]^2 + tau.sq.hat, n.obs, n.obs)
                    )
        }

        m.1 <- solve(
               t(x.design.obs) %*% inv.v %*% x.design.obs
```

```
            )
        m.2 <- t(x.design.obs) %*% inv.v %*% estimate.obs[, 1]

        if (i == 1) {
            beta.hat.1 <- m.1 %*% m.2

            beta.cov.1 <- m.1

            if (dim.beta == 1) beta.err.1 <- sqrt(m.1)
            if (dim.beta >  1) beta.err.1 <- sqrt(diag(m.1))
        }
        if (i == 2) {
            beta.hat.2 <- m.1 %*% m.2

            beta.cov.2 <- m.1

            if (dim.beta == 1) beta.err.2 <- sqrt(m.1)
            if (dim.beta >  1) beta.err.2 <- sqrt(diag(m.1))
        }
    }

    mark.1 <- (1 - 1) * (2 * dim.beta + 1) + (1 - 1) * (dim.beta) + 1
    mark.2 <- (1 - 1) * (2 * dim.beta + 1) + (1 - 1) * (dim.beta) + dim.beta
    mark.3 <- (1 - 1) * (2 * dim.beta + 1) + (2 - 1) * (dim.beta) + 1
    mark.4 <- (1 - 1) * (2 * dim.beta + 1) + (2 - 1) * (dim.beta) + dim.beta
    mark.5 <- (1 - 1) * (2 * dim.beta + 1) + (2 - 1) * (dim.beta) + dim.beta + 1

    meta.fit[mark.1 : mark.5, 1] <- rep("OBSERVED", 2 * dim.beta + 1)
    meta.fit[mark.1 : mark.5, 2] <- c(rep("FIX", dim.beta), rep("RAN", dim.beta + 1))
    meta.fit[mark.1 : mark.5, 3] <- c(rep(c("Intercept", "Covariate"), 2), "Tau^2")

    meta.fit[mark.1 : mark.2, 4 : 5] <- cbind(beta.hat.1, beta.err.1)
    meta.fit[mark.3 : mark.4, 4 : 5] <- cbind(beta.hat.2, beta.err.2)

    meta.fit[mark.1 : mark.4, 6] <- meta.fit[mark.1 : mark.4, 4] / meta.fit[mark.1 : mark.4, 5]
    meta.fit[mark.1 : mark.4, 7] <- 2 * (1 - pnorm(abs(meta.fit[mark.1 : mark.4, 6])))
    meta.fit[mark.1 : mark.4, 8] <- meta.fit[1 : 4, 4] + qnorm(0 + (1 - level) / 2) *
meta.fit[mark.1 : mark.4, 5]
    meta.fit[mark.1 : mark.4, 9] <- meta.fit[1 : 4, 4] + qnorm(1 - (1 - level) / 2) *
meta.fit[mark.1 : mark.4, 5]

    meta.fit[mark.1 : mark.2, 10 : 11] <- beta.cov.1
    meta.fit[mark.3 : mark.4, 10 : 11] <- beta.cov.2

    meta.fit[mark.5, 4] <- tau.sq.hat
    meta.fit[mark.5, 6] <- q.hat
```

```
        meta.fit[mark.5, 7] <- 1 - pchisq(q.hat, df = d.f)

        assign("meta.fit", meta.fit, env = .GlobalEnv)

        if (t.f.mod == "FIX") {
                inv.v <- solve(
                             diag(estimate.obs[, 2]^2, n.obs, n.obs)
                            )
        }
        if (t.f.mod == "RAN") {
                inv.v.fix <- solve(
                                  diag(estimate.obs[, 2]^2, n.obs, n.obs)
                                 )

                m.1.fix <- solve(
                                 t(x.design.obs[, 1 : t.f.dim]) %*% inv.v.fix %*% x.design.obs[, 1 :
t.f.dim]
                              )

                q.hat <- t(estimate.obs[, 1]) %*%
                            (inv.v.fix -
                             inv.v.fix %*% x.design.obs[, 1 : t.f.dim] %*% m.1.fix %*%
t(x.design.obs[, 1 : t.f.dim]) %*% inv.v.fix) %*%
                            estimate.obs[, 1]

                d.f <- n.obs - t.f.dim

                if (dim.beta == 1) {
                        c.hat <- sum(diag(inv.v.fix)) -
                                   sum(m.1.fix %*% t(x.design.obs[, 1 : t.f.dim]) %*% inv.v.fix
%*% inv.v.fix %*% x.design.obs[, 1 : t.f.dim])
                }
                if (dim.beta >  1) {
                        c.hat <- sum(diag(inv.v.fix)) -
                                   sum(diag(m.1.fix %*% t(x.design.obs[, 1 : t.f.dim]) %*%
inv.v.fix %*% inv.v.fix %*% x.design.obs[, 1 : t.f.dim]))
                }

                tau.sq.hat <- max(0, (q.hat - d.f) / c.hat)

                inv.v <- solve(
                             diag(estimate.obs[, 2]^2 + tau.sq.hat, n.obs, n.obs)
                            )

        }
```

```
m.1 <- solve(
            t(x.design.obs[, 1 : t.f.dim]) %*% inv.v %*% x.design.obs[, 1 : t.f.dim]
           )
m.2 <- t(x.design.obs[, 1 : t.f.dim]) %*% inv.v %*% estimate.obs[, 1]

iter.beta.hat <- m.1 %*% m.2

residual <- round(
                  estimate.obs[, 1] - x.design.obs[, 1 : t.f.dim] %*% iter.beta.hat,
                  digits = 12
                 )

sign.rank <- cbind(
                   sign(residual),
                   rank(residual, ties.method = "random"),
                   rank(abs(residual), ties.method = "random")
                  )

if (min(sign.rank[, 1]) == -1) gamma.star <- n.obs - max(sign.rank[sign.rank[, 1] == -1,
3])
if (min(sign.rank[, 1]) ==  0) gamma.star <- n.obs - sum(sign.rank[, 1] == 0)

if (max(sign.rank[, 1]) ==  0) T.n <- 0
if (max(sign.rank[, 1]) ==  1) T.n <- sum(sign.rank[sign.rank[, 1] == 1, 3])

if (k.estimator == "R") {
    n.miss.hat <- max(0, gamma.star - 1)
    delta.n.miss.hat <- n.miss.hat - 0

    if (n.miss.hat > (n.obs - t.f.dim)) {
        n.miss.hat <- NA
        delta.n.miss.hat <- 0

        return("ERROR. Trimmed data is of insufficient rank.")
    }
}
if (k.estimator == "L") {
    n.miss.hat <- max(0, floor((4 * T.n - n.obs * (n.obs + 1)) / (2 * n.obs - 1) + 1/2))
    delta.n.miss.hat <- n.miss.hat - 0

    if (n.miss.hat > (n.obs - t.f.dim)) {
        n.miss.hat <- NA
        delta.n.miss.hat <- 0

        return("ERROR. Trimmed data is of insufficient rank.")
    }
```

```
        }
        if (k.estimator == "Q") {
                if ((2 * n.obs^2 - 4 * T.n + 1/4) <  0) {
                        n.miss.hat <- NA
                        delta.n.miss.hat <- 0

                        return("ERROR. Q-hat cannot be calculated.")
                }
                if ((2 * n.obs^2 - 4 * T.n + 1/4) >= 0) {
                        n.miss.hat <- max(0, floor((n.obs - 1/2) - sqrt(2 * n.obs^2 - 4 * T.n + 1/4)
+ 1/2))
                        delta.n.miss.hat <- n.miss.hat - 0

                        if (n.miss.hat > (n.obs - t.f.dim)) {
                                n.miss.hat <- NA
                                delta.n.miss.hat <- 0

                                return("ERROR. Trimmed data is of insufficient rank.")
                        }
                }
        }

        step <- 1

        while ((delta.n.miss.hat != 0) & (step <= 100)) {
                lag.n.miss.hat <- n.miss.hat

                retain <- (1 : n.obs)[!(sign.rank[, 2] > (n.obs - lag.n.miss.hat))]

                x.design.sub <- matrix(
                                   x.design.obs[retain, 1 : t.f.dim],
                                   ncol = t.f.dim
                                  )
                estimate.sub <- matrix(
                                   estimate.obs[retain, ],
                                   ncol = 2
                                  )

                n.sub <- nrow(estimate.sub)

                x.rank.check <- 1 * (qr(x.design.sub)$rank == t.f.dim)

                if (x.rank.check == 0) {
                        n.miss.hat <- NA
                        delta.n.miss.hat <- 0
                }
```

```
if (x.rank.check == 1) {
	if (t.f.mod == "FIX") {
		inv.v <- solve(
			diag(estimate.sub[, 2]^2, n.sub, n.sub)
			)
	}
	if (t.f.mod == "RAN") {
		if (n.sub == 1) {
			tau.sq.hat <- 0
		}
		if (n.sub >  1) {
			inv.v.fix <- solve(
					diag(estimate.sub[, 2]^2, n.sub, n.sub)
					)

			m.1.fix <- solve(
					t(x.design.sub) %*% inv.v.fix %*%
x.design.sub
				)

			q.hat <- t(estimate.sub[, 1]) %*%
				(inv.v.fix -
				 inv.v.fix %*% x.design.sub %*% m.1.fix %*%
t(x.design.sub) %*% inv.v.fix) %*%
				estimate.sub[, 1]

			d.f <- n.sub - t.f.dim

			if (t.f.dim == 1) {
				c.hat <- sum(diag(inv.v.fix)) -
					sum(m.1.fix %*% t(x.design.sub) %*%
inv.v.fix %*% inv.v.fix %*% x.design.sub)
			}
			if (t.f.dim >  1) {
				c.hat <- sum(diag(inv.v.fix)) -
					sum(diag(m.1.fix %*% t(x.design.sub)
%*% inv.v.fix %*% inv.v.fix %*% x.design.sub))
			}

			tau.sq.hat <- max(0, (q.hat - d.f) / c.hat)
		}

		inv.v <- solve(
			diag(estimate.sub[, 2]^2 + tau.sq.hat, n.sub, n.sub)
			)
	}
```

```
        m.1 <- solve(
                t(x.design.sub) %*% inv.v %*% x.design.sub
               )
        m.2 <- t(x.design.sub) %*% inv.v %*% estimate.sub[, 1]

        iter.beta.hat <- m.1 %*% m.2
    }

    residual <- round(
                    estimate.obs[, 1] - x.design.obs[, 1 : t.f.dim] %*% iter.beta.hat,
                    digits = 12
                   )

    sign.rank <- cbind(
                     sign(residual),
                     rank(residual, ties.method = "random"),
                     rank(abs(residual), ties.method = "random")
                    )

    if (min(sign.rank[, 1]) == -1) gamma.star <- n.obs - max(sign.rank[sign.rank[, 1]
== -1, 3])
    if (min(sign.rank[, 1]) ==  0) gamma.star <- n.obs - sum(sign.rank[, 1] == 0)

    if (max(sign.rank[, 1]) ==  0) T.n <- 0
    if (max(sign.rank[, 1]) ==  1) T.n <- sum(sign.rank[sign.rank[, 1] == 1, 3])

    if (k.estimator == "R") {
        n.miss.hat <- max(0, gamma.star - 1)
        delta.n.miss.hat <- n.miss.hat - lag.n.miss.hat

        if (n.miss.hat > (n.obs - t.f.dim)) {
            n.miss.hat <- NA
            delta.n.miss.hat <- 0

            return("ERROR. Trimmed data is of insufficient rank.")
        }
    }
    if (k.estimator == "L") {
        n.miss.hat <- max(0, floor((4 * T.n - n.obs * (n.obs + 1)) / (2 * n.obs - 1) +
1/2))

        delta.n.miss.hat <- n.miss.hat - lag.n.miss.hat

        if (n.miss.hat > (n.obs - t.f.dim)) {
            n.miss.hat <- NA
            delta.n.miss.hat <- 0
```

```
                        return("ERROR. Trimmed data is of insufficient rank.")
                    }
                }
                if (k.estimator == "Q") {
                    if ((2 * n.obs^2 - 4 * T.n + 1/4) <  0) {
                        n.miss.hat <- NA
                        delta.n.miss.hat <- 0

                        return("ERROR. Q-hat cannot be calculated.")
                    }
                    if ((2 * n.obs^2 - 4 * T.n + 1/4) >= 0) {
                        n.miss.hat <- max(0, floor((n.obs - 1/2) - sqrt(2 * n.obs^2 - 4 * T.n
+ 1/4) + 1/2))
                        delta.n.miss.hat <- n.miss.hat - lag.n.miss.hat

                        if (n.miss.hat > (n.obs - t.f.dim)) {
                            n.miss.hat <- NA
                            delta.n.miss.hat <- 0

                            return("ERROR. Trimmed data is of insufficient rank.")
                        }
                    }
                }

                step <- step + 1

                if (step == 100) {
                    n.miss.hat <- NA
                    delta.n.miss.hat <- 0

                    if (k.estimator == "R") {
                        return("ERROR. R-hat does not converge.")
                    }
                    if (k.estimator == "L") {
                        return("ERROR. L-hat does not converge.")
                    }
                    if (k.estimator == "Q") {
                        return("ERROR. Q-hat does not converge.")
                    }
                }
            }

            n.miss.check <- 1 * (is.na(n.miss.hat) == 0)

            if (n.miss.check == 1) {
```

```
		if (n.miss.hat == 0) {
			x.design.t.f.1 <- x.design.obs

			estimate.t.f.1 <- estimate.obs

			x.design.t.f <- rbind(x.design.t.f.1)
			estimate.t.f <- rbind(estimate.t.f.1)

			n.t.f <- nrow(estimate.t.f)
		}
		if (n.miss.hat >  0) {
			range.check <- 1 * (is.numeric(fill.range))

			if (range.check == 0) {
				if (fill.range == "MLE") {
					mid.range <- mean(c(min(x.design.obs[, 2]),
max(x.design.obs[, 2])))
				}
				if (fill.range == "MOM") {
					mid.range <- mean(x.design.obs[, 2])
				}
			}
			if (range.check == 1) {
				mid.range <- mean(c(fill.range[1], fill.range[2]))
			}

			x.design.t.f.1 <- x.design.obs
			x.design.t.f.2 <- matrix(
						cbind(
						 rep(1, n.miss.hat),
						 2 * mid.range - x.design.obs[(sign.rank[, 2] >
(n.obs - n.miss.hat)), 2]
						),
						nrow = n.miss.hat, ncol = 2
					       )

			estimate.t.f.1 <- estimate.obs
			estimate.t.f.2 <- cbind(
						x.design.t.f.2[, 1 : t.f.dim] %*% iter.beta.hat -
residual[(sign.rank[, 2] > (n.obs - n.miss.hat)), ],
						estimate.obs[(sign.rank[, 2] > (n.obs - n.miss.hat)),
2]
					       )

			x.design.t.f <- rbind(x.design.t.f.1, x.design.t.f.2)
			estimate.t.f <- rbind(estimate.t.f.1, estimate.t.f.2)
```

```
            n.t.f <- nrow(estimate.t.f)
        }

        t.f.theta.hat <- estimate.t.f[, 1]
        t.f.s.e.theta <- estimate.t.f[, 2]
        t.f.covariate <- x.design.t.f[, 2]
        t.f.fill.flag <- c(rep(0, n.obs), rep(1, n.miss.hat))

        assign("t.f.theta.hat", t.f.theta.hat, env = .GlobalEnv)
        assign("t.f.s.e.theta", t.f.s.e.theta, env = .GlobalEnv)
        assign("t.f.covariate", t.f.covariate, env = .GlobalEnv)
        assign("t.f.fill.flag", t.f.fill.flag, env = .GlobalEnv)

        for (i in 1 : 2) {
            if (i == 1) {
                inv.v <- solve(
                         diag(estimate.t.f[, 2]^2, n.t.f, n.t.f)
                        )
            }
            if (i == 2) {
                if (n.t.f == 1) {
                    tau.sq.hat <- 0
                }
                if (n.t.f >  1) {
                    inv.v.fix <- solve(
                                 diag(estimate.t.f[, 2]^2, n.t.f, n.t.f)
                                )

                    m.1.fix <- solve(
                            t(x.design.t.f) %*% inv.v.fix %*%
x.design.t.f
                         )

                    q.hat <- t(estimate.t.f[, 1]) %*%
                         (inv.v.fix - inv.v.fix %*% x.design.t.f %*%
m.1.fix %*% t(x.design.t.f) %*% inv.v.fix) %*%
                         estimate.t.f[, 1]

                    d.f <- n.t.f - dim.beta

                    if (dim.beta == 1) {
                        c.hat <- sum(diag(inv.v.fix)) -
                             sum(m.1.fix %*% t(x.design.t.f) %*%
inv.v.fix %*% inv.v.fix %*% x.design.t.f)
                    }
```

```
                    if (dim.beta >  1) {
                        c.hat <- sum(diag(inv.v.fix)) -
                            sum(diag(m.1.fix %*% t(x.design.t.f)
%*% inv.v.fix %*% inv.v.fix %*% x.design.t.f))
                    }

                    tau.sq.hat <- max(0, (q.hat - d.f) / c.hat)
                }

                inv.v <- solve(
                      diag(estimate.t.f[, 2]^2 + tau.sq.hat, n.t.f, n.t.f)
                     )
            }

            m.1 <- solve(
                   t(x.design.t.f) %*% inv.v %*% x.design.t.f
                  )
            m.2 <- t(x.design.t.f) %*% inv.v %*% estimate.t.f[, 1]

            if (i == 1) {
                beta.hat.1 <- m.1 %*% m.2

                beta.cov.1 <- m.1

                if (dim.beta == 1) beta.err.1 <- sqrt(m.1)
                if (dim.beta >  1) beta.err.1 <- sqrt(diag(m.1))
            }
            if (i == 2) {
                beta.hat.2 <- m.1 %*% m.2

                beta.cov.2 <- m.1

                if (dim.beta == 1) beta.err.2 <- sqrt(m.1)
                if (dim.beta >  1) beta.err.2 <- sqrt(diag(m.1))
            }
        }

        mark.1 <- (2 - 1) * (2 * dim.beta + 1) + (1 - 1) * (dim.beta) + 1
        mark.2 <- (2 - 1) * (2 * dim.beta + 1) + (1 - 1) * (dim.beta) + dim.beta
        mark.3 <- (2 - 1) * (2 * dim.beta + 1) + (2 - 1) * (dim.beta) + 1
        mark.4 <- (2 - 1) * (2 * dim.beta + 1) + (2 - 1) * (dim.beta) + dim.beta
        mark.5 <- (2 - 1) * (2 * dim.beta + 1) + (2 - 1) * (dim.beta) + dim.beta + 1

        meta.fit[mark.1 : mark.5, 1] <- rep("FILLED", 2 * dim.beta + 1)
        meta.fit[mark.1 : mark.5, 2] <- c(rep("FIX", dim.beta), rep("RAN", dim.beta + 1))
        meta.fit[mark.1 : mark.5, 3] <- c(rep(c("Intercept", "Covariate"), 2), "Tau^2")
```

```
meta.fit[mark.1 : mark.2, 4 : 5] <- cbind(beta.hat.1, beta.err.1)
meta.fit[mark.3 : mark.4, 4 : 5] <- cbind(beta.hat.2, beta.err.2)

meta.fit[mark.1 : mark.4, 6] <- meta.fit[mark.1 : mark.4, 4] / meta.fit[mark.1 :
mark.4, 5]
meta.fit[mark.1 : mark.4, 7] <- 2 * (1 - pnorm(abs(meta.fit[mark.1 : mark.4, 6])))
meta.fit[mark.1 : mark.4, 8] <- meta.fit[1 : 4, 4] + qnorm(0 + (1 - level) / 2) *
meta.fit[mark.1 : mark.4, 5]
meta.fit[mark.1 : mark.4, 9] <- meta.fit[1 : 4, 4] + qnorm(1 - (1 - level) / 2) *
meta.fit[mark.1 : mark.4, 5]

meta.fit[mark.1 : mark.2, 10 : 11] <- beta.cov.1
meta.fit[mark.3 : mark.4, 10 : 11] <- beta.cov.2

meta.fit[mark.5, 4] <- tau.sq.hat
meta.fit[mark.5, 6] <- q.hat
meta.fit[mark.5, 7] <- 1 - pchisq(q.hat, df = d.f)

meta.fit[mark.5 + 1, 3] <- paste(k.estimator, "hat", sep = "-")
meta.fit[mark.5 + 1, 4] <- n.miss.hat

assign("meta.fit", meta.fit, env = .GlobalEnv)
    }
}

}
```

Appendix C. Program Documentation

Trim and Fill for Meta-regression

Description

`trim.fill.regression` is used to perform trim and fill in a metaregression, in which publication bias is assumed to have censored some study estimates.

Usage

```
trim.fill.regression(theta.hat, s.e.theta, covariate,
                     k.estimator, t.f.mod, t.f.dim,
                     fill.range, level = 0.95)
```

Arguments

`theta.hat`	A vector consisting of study effect estimates, on whichever scale estimates are assumed to be normally distributed (typically, *log*).
`s.e.theta`	A vector consisting of standard errors of study effect estimates.
`covariate`	A vector consisting of measured values of a variable assumed to be associated with effect estimate.
`k.estimator`	The formula used to estimate the number of missing studies; options include “`R`,” “`L`,” or “`Q`.”
`t.f.mod`	The model formulation for the iterative step of trim and fill; either “`FIX`” (fixed effects model) or “`RAN`” (random effects model).
`t.f.dim`	The dimension of the model that is fit during the iterative step of trim and fill; options include `1` or `2`.
`fill.range`	The range over which covariate values are reflected during the fill phase of trim and fill; options include “`MLE`” (maximum likelihood), “`MOM`” (method of moments), or a user-supplied vector `c(a, b)`, with `a` as the minimum and `b` as the maximum of the fill interval.
`level`	Level of statistical significance (to determine confidence interval width).

Details

Currently, in its beta form, `trim.fill.regression` supports trim and fill in a metaregression with only one covariate. Use of multiple vectors in the `covariate` argument will result in an error.

The options for `k.estimator` include $R = \gamma^\star - 1$, $L = [4 * T_n - n * (n - 1)] / [2 * n - 1]$, and $Q = n - \frac{1}{2} - \text{sqrt}[2 * n^2 - 4 * T_n + \frac{1}{4}]$, where $\gamma^\star$ and T_n are defined as in Duval (2000), and n is the number of observed studies. Note that Q may be undefined, in which case `trim.fill.regression` will return an error code dictating so. In simulation studies of the algorithm in meta.fit, R generally performed superiorly.

Like for trim and fill in a standard (one-dimensional) meta-analysis, `"FIX"` is highly recommended as the `t.f.mod` argument.

Simulation studies have generally suggested that `t.f.dim = 1` is recommended, although this suggestion may depend some upon the assumed censoring mechanism. Note that if `t.f.dim = 2`, it is possible for the estimate of k to be equal to 1 during the iterative phase of trim and fill, in which case `trim.fill.regression` will return an error code dictating so, although this occurs rarely.

For `fill.range`, use of `"MLE"` corresponds to a fill interval [a, b], where a is the minimum of `covariate`, and b is the maximum, while use of "MOM" corresponds to a fill interval [$\bar{x} - \text{sqrt}[3] * s$, $\bar{x} + \text{sqrt}[3] * s$], where x-bar is the mean of `covariate`, and s is its estimated standard deviation.

Value

`trim.fill.regression` returns a matrix of analytical results, `meta.fit`, and four vectors of data, `t.f.theta.hat`, `t.f.s.e.theta`, `t.f.covariate`, `t.f.fill.flag`.

`meta.fit` consists an 11-by-11 matrix. The first set of five rows corresponds to a meta-regression analysis of the observed data, under both a fixed-effects and a random-effects model. The fifth row includes an estimate of τ^2 (between-study variability) from the random-effects model, along with a test of its significance. The second set of five rows corresponds to a meta-regression analysis of observed and imputed data, after trim and fill has imputed missing studies, under both a fixed-effects and a random-effects model. The tenth row again includes an estimate of τ^2 from the random-effects model, along with a test of its significance. The final row of `meta.fit` includes the estimate of k, with whichever estimator was requested by the user. Finally, the 10th and 11th columns of the matrix include the covariance matrix of the parameter estimates.

The vectors `t.f.theta.hat`, `t.f.s.e.theta`, and `t.f.covariate` are analogous to the user-supplied arguments `theta.hat`, `s.e.theta`, and `covariate`, but with imputed studies appended to the original vectors. The vector `t.f.fill.flag` is of identical length as `t.f.theta.hat`.It includes binary indicators of whether each value in `t.f.theta.hat` represents an observed study (0) or an imputed study (1).

References

Duval S, Tweedie R. A nonparametric "trim and fill" method of accounting for publication bias in meta-analysis. Journal of the American Statistical Association 2000;95:89–98.

Examples

```
##### Example 1

example <- read.csv(“C:\\example.csv”, header = F)

trim.fill.regression(example[, 1], example[, 2], example[, 3],
                  "R", "FIX", 1,
                  c(0, 1))

##### Example 2

y <- c( 0.54, -0.32,  0.12, -0.06, -0.02,
       -0.18,  0.07,  0.18, -0.07, -0.06,
        0.23, -0.14, -0.02,  0.27,  0.80,
        1.18,  0.26,  0.30,  0.03)

sigma <- c(0.306957, 0.221297, 0.147462, 0.103098, 0.103264,
           0.158934, 0.093603, 0.223096, 0.174151, 0.166704,
           0.290517, 0.166871, 0.288682, 0.164595, 0.259808,
           0.396813, 0.370659, 0.139452, 0.126246)

x <- c(0, 1, 1, 1, 1,
       1, 1, 0, 1, 1,
       1, 1, 0, 0, 0,
       0, 0, 0, 1)

trim.fill.regression(y, sigma, x,
                  "L", "FIX", 2,
                  "MLE")
```

Appendix D. Output From Example

	METHODL	MODEL	PARAM	Estimate	St Error	Stat	P	Lower CI	Upper CI	CovBeta1	CovBeta2
1	OBSERVED	FIX	Intercept	0.3494971	0.07918507	4.413674	1.016311e-05	0.1942972	0.5046970	0.006270276	-0.006270276
2	OBSERVED	FIX	Covariate	-0.3708776	0.08928915	-4.153669	3.271863e-05	-0.5458811	-0.1958741	-0.006270276	0.007972552
3	OBSERVED	RAN	Intercept	0.3494971	0.07918507	4.413674	1.016311e-05	0.1942972	0.5046970	0.006270276	-0.006270276
4	OBSERVED	RAN	Covariate	-0.3708776	0.08928915	-4.153669	3.271863e-05	-0.5458811	-0.1958741	-0.006270276	0.007972552
5	OBSERVED	RAN	Tau^2	0.0000000	NA	16.786276	4.689346e-01	NA	NA	NA	NA
6	FILLED	FIX	Intercept	0.3494971	0.07918507	4.413674	1.016311e-05	0.1942972	0.5046970	0.006270276	-0.006270276
7	FILLED	FIX	Covariate	-0.3708776	0.08928915	-4.153669	3.271863e-05	-0.5458811	-0.1958741	-0.006270276	0.007972552
8	FILLED	RAN	Intercept	0.3494971	0.07918507	4.413674	1.016311e-05	0.1942972	0.5046970	0.006270276	-0.006270276
9	FILLED	RAN	Covariate	-0.3708776	0.08928915	-4.153669	3.271863e-05	-0.5458811	-0.1958741	-0.006270276	0.007972552
10	FILLED	RAN	Tau^2	0.0000000	NA	16.786276	4.689346e-01	NA	NA	NA	NA
11	<NA>	<NA?	L-hat	0.0000000	NA	NA	NA	NA	NA	NA	NA

Appendix E. Tables

Table E1. Absolute bias in the estimated intercept, with no correction for publication bias (from 1-dimensional algorithmic variant)

No Correction for Publication Bias		Number of Missing Studies	Fixed Effects in the Final Model, Number of Studies: 25	35	45	55	65	Random Effects in the Final Model, Number of Studies: 25	35	45	55	65
$\beta_1 = 0.049$	$\tau^2 = 0$	0	-0.001	0.001	0.001	0.000	0.001	-0.001	0.001	0.001	0.000	0.001
		5	0.041	0.025	0.019	0.012	0.011	0.044	0.027	0.020	0.013	0.012
		10	0.113	0.061	0.041	0.032	0.022	0.117	0.063	0.042	0.033	0.023
	$\tau^2 = 0.049$	0	0.000	0.000	-0.001	0.001	0.002	0.002	0.002	0.001	0.000	0.001
		5	0.081	0.049	0.032	0.027	0.019	0.099	0.068	0.054	0.044	0.036
		10	0.193	0.120	0.087	0.064	0.049	0.203	0.137	0.107	0.084	0.072
	$\tau^2 = 0.148$	0	-0.010	-0.007	0.001	0.001	-0.001	-0.003	-0.002	0.003	0.000	-0.001
		5	0.128	0.091	0.070	0.050	0.041	0.152	0.113	0.089	0.075	0.065
		10	0.275	0.191	0.146	0.117	0.101	0.292	0.218	0.171	0.146	0.125
	$\tau^2 = 0.444$	0	0.000	-0.003	0.002	0.012	0.002	0.000	-0.006	0.008	0.004	0.000
		5	0.228	0.161	0.131	0.104	0.078	0.247	0.190	0.157	0.127	0.109
		10	0.436	0.311	0.252	0.199	0.172	0.464	0.339	0.282	0.234	0.202
$\beta_1 = 0.074$	$\tau^2 = 0$	0	0.001	-0.001	0.000	0.000	0.001	0.001	-0.001	0.000	0.000	0.000
		5	0.046	0.027	0.018	0.014	0.011	0.050	0.029	0.020	0.015	0.012
		10	0.122	0.065	0.043	0.033	0.026	0.125	0.067	0.045	0.034	0.027
	$\tau^2 = 0.049$	0	-0.001	0.002	-0.001	0.001	-0.001	-0.001	0.002	-0.001	0.000	0.002
		5	0.079	0.055	0.041	0.029	0.019	0.097	0.071	0.058	0.045	0.036
		10	0.202	0.128	0.090	0.069	0.053	0.215	0.144	0.111	0.093	0.076
	$\tau^2 = 0.148$	0	0.001	0.001	0.003	-0.002	0.001	0.000	-0.002	0.003	0.000	-0.003
		5	0.133	0.093	0.067	0.059	0.043	0.158	0.118	0.091	0.083	0.068
		10	0.287	0.198	0.152	0.117	0.099	0.306	0.223	0.177	0.146	0.130
	$\tau^2 = 0.444$	0	-0.006	-0.007	0.007	-0.003	0.006	-0.006	-0.005	-0.002	-0.005	0.001
		5	0.226	0.164	0.133	0.109	0.087	0.248	0.189	0.154	0.132	0.113
		10	0.450	0.326	0.261	0.210	0.173	0.468	0.350	0.283	0.242	0.205

Table E1. Absolute bias in the estimated intercept, with no correction for publication bias (from 1-dimensional algorithmic variant) (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	0	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000
			5	0.051	0.031	0.021	0.015	0.013	0.054	0.033	0.022	0.017	0.014
			10	0.143	0.076	0.052	0.038	0.030	0.147	0.079	0.053	0.039	0.031
	τ^2 = 0.049		0	-0.001	-0.004	0.002	0.002	0.001	0.000	-0.004	0.002	0.002	-0.001
			5	0.093	0.058	0.046	0.031	0.025	0.111	0.080	0.065	0.052	0.043
			10	0.217	0.141	0.104	0.080	0.061	0.228	0.158	0.126	0.104	0.086
	τ^2 = 0.148		0	-0.002	0.002	0.008	0.001	0.006	0.000	-0.001	0.003	0.003	0.004
			5	0.139	0.112	0.079	0.065	0.049	0.164	0.133	0.104	0.091	0.071
			10	0.297	0.209	0.161	0.130	0.115	0.319	0.235	0.192	0.161	0.139
	τ^2 = 0.444		0	0.003	-0.007	-0.001	0.000	0.000	0.000	-0.002	0.002	0.008	0.004
			5	0.247	0.173	0.133	0.121	0.093	0.269	0.198	0.166	0.143	0.120
			10	0.477	0.346	0.265	0.223	0.183	0.493	0.371	0.299	0.250	0.219
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	-0.001	-0.002	0.000	0.001	0.000	-0.001	-0.002	0.000	0.001	-0.001
			5	0.066	0.037	0.027	0.020	0.016	0.069	0.040	0.029	0.021	0.017
			10	0.190	0.100	0.065	0.047	0.036	0.195	0.103	0.068	0.049	0.038
	τ^2 = 0.049		0	0.001	0.002	0.001	0.001	-0.004	0.003	0.000	0.001	-0.002	-0.003
			5	0.116	0.077	0.053	0.042	0.030	0.136	0.099	0.074	0.064	0.052
			10	0.259	0.173	0.128	0.099	0.080	0.273	0.191	0.151	0.126	0.107
	τ^2 = 0.148		0	0.001	-0.006	-0.002	0.005	0.002	0.001	-0.004	0.000	0.004	0.001
			5	0.171	0.113	0.091	0.076	0.060	0.196	0.145	0.122	0.104	0.086
			10	0.344	0.248	0.189	0.154	0.127	0.362	0.272	0.219	0.185	0.162
	τ^2 = 0.444		0	-0.008	0.012	0.001	0.003	0.010	-0.006	0.007	0.002	-0.001	0.004
			5	0.281	0.197	0.168	0.134	0.118	0.303	0.227	0.188	0.159	0.140
			10	0.507	0.374	0.305	0.253	0.222	0.526	0.396	0.332	0.283	0.248
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	0.000	-0.001	0.001	-0.001	0.000	0.000	-0.001	0.001	-0.001	0.001
			5	0.079	0.046	0.031	0.025	0.019	0.084	0.049	0.033	0.027	0.021
			10	0.217	0.123	0.080	0.057	0.043	0.223	0.126	0.083	0.059	0.045
	τ^2 = 0.049		0	0.001	0.000	0.002	-0.003	-0.001	0.001	0.001	0.000	-0.001	-0.001
			5	0.141	0.091	0.064	0.049	0.040	0.159	0.116	0.090	0.073	0.063
			10	0.298	0.201	0.150	0.118	0.093	0.311	0.222	0.176	0.146	0.122
	τ^2 = 0.148		0	0.002	0.005	-0.003	-0.001	-0.003	-0.001	0.003	-0.002	0.003	0.001
			5	0.198	0.135	0.109	0.082	0.067	0.222	0.168	0.142	0.116	0.098
			10	0.387	0.280	0.220	0.179	0.151	0.408	0.308	0.251	0.213	0.184
	τ^2 = 0.444		0	0.013	-0.007	-0.001	0.001	0.000	0.004	-0.001	0.001	-0.003	0.000
			5	0.288	0.221	0.175	0.138	0.121	0.325	0.249	0.202	0.173	0.148
			10	0.553	0.405	0.325	0.271	0.238	0.571	0.435	0.358	0.301	0.270

Table E2. Absolute bias in the estimated intercept, with R studies imputed (from 1-dimensional algorithmic variant)

R Missing Studies Imputed				Fixed Effects in the Final Model					Random Effects in the Final Model				
				Number of Studies					Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	τ^2 = 0	Number of Missing Studies	0	-0.004	-0.001	-0.001	-0.001	0.000	-0.005	-0.001	-0.002	-0.002	-0.001
			5	0.012	0.003	0.002	-0.001	0.001	0.012	0.003	0.002	-0.001	0.001
			10	0.058	0.020	0.009	0.006	0.001	0.058	0.020	0.010	0.006	0.001
	τ^2 = 0.049		0	-0.008	-0.005	-0.004	-0.002	-0.001	-0.014	-0.009	-0.007	-0.007	-0.005
			5	0.034	0.010	0.000	-0.001	-0.006	0.030	0.005	-0.003	-0.008	-0.010
			10	0.138	0.063	0.033	0.014	0.004	0.136	0.061	0.029	0.008	-0.002
	τ^2 = 0.148		0	-0.027	-0.023	-0.009	-0.008	-0.008	-0.039	-0.033	-0.021	-0.020	-0.017
			5	0.067	0.032	0.012	-0.003	-0.004	0.051	0.013	-0.007	-0.019	-0.017
			10	0.211	0.123	0.074	0.046	0.035	0.202	0.111	0.058	0.030	0.015
	τ^2 = 0.444		0	-0.042	-0.040	-0.028	-0.017	-0.019	-0.078	-0.074	-0.050	-0.048	-0.042
			5	0.127	0.069	0.037	0.019	-0.005	0.092	0.035	0.003	-0.019	-0.030
			10	0.352	0.208	0.142	0.090	0.062	0.331	0.176	0.109	0.059	0.026
β_1 = 0.074	τ^2 = 0	Number of Missing Studies	0	-0.003	-0.003	-0.002	-0.001	0.000	-0.004	-0.004	-0.002	-0.001	-0.001
			5	0.015	0.004	0.002	0.000	0.000	0.016	0.004	0.002	0.001	0.000
			10	0.064	0.023	0.010	0.007	0.004	0.064	0.023	0.011	0.007	0.005
	τ^2 = 0.049		0	-0.009	-0.004	-0.005	-0.001	-0.003	-0.017	-0.010	-0.011	-0.007	-0.004
			5	0.029	0.014	0.007	0.000	-0.005	0.026	0.005	-0.001	-0.008	-0.011
			10	0.144	0.073	0.035	0.019	0.006	0.144	0.068	0.030	0.015	0.000
	τ^2 = 0.148		0	-0.018	-0.013	-0.008	-0.010	-0.006	-0.038	-0.030	-0.022	-0.020	-0.020
			5	0.070	0.030	0.008	0.006	-0.005	0.057	0.012	-0.008	-0.009	-0.016
			10	0.221	0.126	0.076	0.045	0.029	0.212	0.112	0.059	0.030	0.013
	τ^2 = 0.444		0	-0.053	-0.040	-0.025	-0.033	-0.016	-0.093	-0.070	-0.061	-0.060	-0.044
			5	0.134	0.066	0.043	0.019	0.005	0.097	0.030	-0.001	-0.013	-0.024
			10	0.361	0.220	0.155	0.093	0.062	0.330	0.187	0.111	0.062	0.026
β_1 = 0.148	τ^2 = 0	Number of Missing Studies	0	-0.003	-0.002	-0.001	-0.001	-0.001	-0.004	-0.003	-0.001	-0.001	-0.002
			5	0.018	0.006	0.003	0.001	0.002	0.016	0.006	0.002	0.001	0.001
			10	0.077	0.028	0.015	0.009	0.005	0.077	0.028	0.015	0.008	0.005
	τ^2 = 0.049		0	-0.008	-0.010	-0.002	-0.001	-0.002	-0.018	-0.017	-0.008	-0.006	-0.007
			5	0.041	0.015	0.009	-0.001	-0.002	0.035	0.010	0.002	-0.008	-0.009
			10	0.156	0.080	0.046	0.029	0.015	0.152	0.074	0.039	0.022	0.006
	τ^2 = 0.148		0	-0.020	-0.013	-0.003	-0.009	-0.002	-0.040	-0.032	-0.023	-0.019	-0.015
			5	0.070	0.044	0.019	0.010	-0.001	0.054	0.021	0.000	-0.007	-0.018
			10	0.225	0.127	0.083	0.057	0.044	0.217	0.110	0.068	0.037	0.023
	τ^2 = 0.444		0	-0.043	-0.043	-0.033	-0.028	-0.022	-0.084	-0.071	-0.058	-0.046	-0.041
			5	0.149	0.069	0.035	0.029	0.005	0.111	0.028	0.002	-0.012	-0.031
			10	0.385	0.238	0.148	0.103	0.068	0.349	0.202	0.113	0.060	0.034

Table E2. Absolute bias in the estimated intercept, with R studies imputed (from 1-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
β_1 = 0.296	**τ^2 = 0**	**Number of Missing Studies**	**0**	-0.004	-0.005	-0.002	-0.001	-0.002	-0.006	-0.006	-0.003	-0.001	-0.002
			5	0.028	0.010	0.006	0.002	0.002	0.025	0.008	0.004	0.001	0.000
			10	0.110	0.045	0.023	0.012	0.007	0.109	0.044	0.021	0.010	0.005
	τ^2 = 0.049		**0**	-0.008	-0.005	-0.004	-0.002	-0.007	-0.017	-0.015	-0.010	-0.011	-0.011
			5	0.062	0.029	0.013	0.006	0.000	0.053	0.019	0.000	-0.002	-0.008
			10	0.183	0.099	0.062	0.039	0.025	0.177	0.088	0.051	0.030	0.014
	τ^2 = 0.148		**0**	-0.019	-0.020	-0.014	-0.004	-0.006	-0.040	-0.038	-0.030	-0.019	-0.020
			5	0.104	0.047	0.028	0.015	0.009	0.084	0.029	0.006	-0.007	-0.013
			10	0.263	0.161	0.102	0.070	0.046	0.244	0.138	0.079	0.046	0.026
	τ^2 = 0.444		**0**	-0.049	-0.022	-0.029	-0.024	-0.014	-0.088	-0.063	-0.060	-0.055	-0.042
			5	0.176	0.092	0.069	0.034	0.029	0.128	0.055	0.017	-0.008	-0.017
			10	0.405	0.253	0.181	0.123	0.098	0.367	0.207	0.138	0.081	0.053
β_1 = 0.444	**τ^2 = 0**	**Number of Missing Studies**	**0**	-0.005	-0.004	-0.001	-0.003	-0.001	-0.008	-0.006	-0.002	-0.004	-0.002
			5	0.038	0.013	0.006	0.004	0.002	0.034	0.007	0.001	0.001	-0.001
			10	0.136	0.063	0.032	0.016	0.007	0.134	0.060	0.028	0.011	0.002
	τ^2 = 0.049		**0**	-0.009	-0.007	-0.002	-0.007	-0.005	-0.023	-0.017	-0.014	-0.013	-0.011
			5	0.081	0.039	0.018	0.009	0.006	0.066	0.026	0.006	-0.002	-0.007
			10	0.214	0.122	0.075	0.052	0.033	0.204	0.109	0.062	0.039	0.019
	τ^2 = 0.148		**0**	-0.018	-0.010	-0.015	-0.012	-0.012	-0.046	-0.033	-0.034	-0.024	-0.023
			5	0.119	0.056	0.040	0.018	0.011	0.093	0.033	0.016	-0.005	-0.011
			10	0.294	0.187	0.123	0.087	0.061	0.275	0.163	0.095	0.062	0.032
	τ^2 = 0.444		**0**	-0.032	-0.046	-0.031	-0.025	-0.022	-0.087	-0.081	-0.067	-0.060	-0.052
			5	0.176	0.110	0.070	0.039	0.027	0.136	0.063	0.021	-0.005	-0.020
			10	0.444	0.276	0.187	0.136	0.106	0.397	0.232	0.142	0.087	0.060

Table E3. Absolute bias in the estimated intercept, with L studies imputed (from 1-dimensional algorithmic variant)

L Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model: Number of Studies 25	35	45	55	65	Random Effects in the Final Model: Number of Studies 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	-0.007	-0.004	-0.004	-0.004	-0.003	-0.009	-0.006	-0.005	-0.005	-0.004
		5	0.017	0.006	0.004	0.000	0.001	0.019	0.007	0.004	0.000	0.002
		10	0.070	0.030	0.016	0.011	0.005	0.072	0.031	0.018	0.012	0.005
	$\tau^2 =$ 0.049	0	-0.019	-0.018	-0.015	-0.013	-0.011	-0.034	-0.031	-0.029	-0.029	-0.027
		5	0.046	0.019	0.005	0.000	-0.007	0.045	0.017	0.004	-0.005	-0.012
		10	0.153	0.081	0.050	0.029	0.017	0.154	0.083	0.050	0.027	0.016
	$\tau^2 =$ 0.148	0	-0.045	-0.042	-0.031	-0.031	-0.032	-0.069	-0.069	-0.060	-0.062	-0.059
		5	0.081	0.046	0.023	0.004	-0.001	0.071	0.032	0.007	-0.008	-0.013
		10	0.232	0.146	0.100	0.072	0.057	0.226	0.142	0.093	0.065	0.045
	$\tau^2 =$ 0.444	0	-0.071	-0.077	-0.067	-0.060	-0.067	-0.127	-0.134	-0.114	-0.120	-0.119
		5	0.155	0.096	0.063	0.035	0.005	0.126	0.069	0.035	0.002	-0.017
		10	0.383	0.249	0.187	0.134	0.105	0.369	0.230	0.166	0.115	0.080
β_1 = 0.074	$\tau^2 = 0$	0	-0.006	-0.006	-0.005	-0.004	-0.003	-0.008	-0.008	-0.006	-0.005	-0.004
		5	0.021	0.008	0.004	0.001	0.001	0.022	0.009	0.005	0.002	0.001
		10	0.077	0.033	0.018	0.012	0.008	0.077	0.034	0.020	0.013	0.009
	$\tau^2 =$ 0.049	0	-0.020	-0.016	-0.017	-0.014	-0.014	-0.037	-0.031	-0.033	-0.030	-0.026
		5	0.041	0.022	0.011	0.001	-0.005	0.040	0.017	0.007	-0.006	-0.011
		10	0.160	0.091	0.052	0.034	0.020	0.161	0.090	0.053	0.035	0.018
	$\tau^2 =$ 0.148	0	-0.037	-0.034	-0.030	-0.033	-0.031	-0.069	-0.065	-0.061	-0.061	-0.064
		5	0.087	0.046	0.020	0.013	-0.001	0.079	0.033	0.008	0.001	-0.012
		10	0.240	0.153	0.104	0.071	0.052	0.236	0.147	0.095	0.064	0.044
	$\tau^2 =$ 0.444	0	-0.082	-0.077	-0.068	-0.077	-0.061	-0.141	-0.130	-0.133	-0.133	-0.120
		5	0.157	0.090	0.061	0.037	0.017	0.127	0.061	0.025	0.009	-0.009
		10	0.390	0.264	0.198	0.140	0.103	0.369	0.241	0.168	0.120	0.079
β_1 = 0.148	$\tau^2 = 0$	0	-0.007	-0.006	-0.004	-0.004	-0.004	-0.010	-0.008	-0.006	-0.005	-0.006
		5	0.024	0.011	0.005	0.002	0.002	0.023	0.011	0.005	0.002	0.002
		10	0.090	0.040	0.024	0.015	0.010	0.091	0.040	0.025	0.016	0.010
	$\tau^2 =$ 0.049	0	-0.018	-0.021	-0.014	-0.012	-0.013	-0.035	-0.039	-0.031	-0.030	-0.031
		5	0.053	0.023	0.014	0.001	-0.003	0.050	0.022	0.009	-0.004	-0.009
		10	0.173	0.099	0.064	0.044	0.027	0.171	0.097	0.062	0.042	0.024
	$\tau^2 =$ 0.148	0	-0.039	-0.034	-0.025	-0.034	-0.028	-0.073	-0.070	-0.065	-0.065	-0.060
		5	0.088	0.060	0.031	0.017	0.003	0.077	0.042	0.016	0.003	-0.013
		10	0.248	0.156	0.112	0.083	0.067	0.245	0.145	0.105	0.072	0.053
	$\tau^2 =$ 0.444	0	-0.069	-0.079	-0.076	-0.075	-0.069	-0.132	-0.136	-0.128	-0.124	-0.122
		5	0.175	0.097	0.055	0.048	0.018	0.143	0.063	0.030	0.011	-0.014
		10	0.415	0.284	0.194	0.152	0.111	0.389	0.259	0.173	0.121	0.090

Table E3. Absolute bias in the estimated intercept, with L studies imputed (from 1-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	-0.008	-0.009	-0.006	-0.005	-0.005	-0.012	-0.012	-0.010	-0.008	-0.008
			5	0.035	0.015	0.009	0.004	0.003	0.034	0.013	0.007	0.003	0.001
			10	0.124	0.058	0.033	0.020	0.013	0.124	0.058	0.033	0.020	0.012
	τ^2 = 0.049		0	-0.019	-0.016	-0.016	-0.016	-0.020	-0.038	-0.039	-0.037	-0.041	-0.040
			5	0.072	0.038	0.018	0.008	0.000	0.067	0.033	0.009	0.001	-0.008
			10	0.201	0.122	0.082	0.057	0.040	0.198	0.115	0.078	0.054	0.035
	τ^2 = 0.148		0	-0.037	-0.042	-0.039	-0.031	-0.033	-0.074	-0.078	-0.076	-0.068	-0.071
			5	0.121	0.063	0.041	0.024	0.014	0.107	0.050	0.025	0.005	-0.006
			10	0.286	0.191	0.133	0.099	0.073	0.273	0.176	0.118	0.085	0.061
	τ^2 = 0.444		0	-0.084	-0.059	-0.071	-0.069	-0.063	-0.143	-0.126	-0.133	-0.130	-0.124
			5	0.209	0.121	0.092	0.053	0.041	0.168	0.091	0.048	0.018	0.000
			10	0.438	0.298	0.233	0.173	0.143	0.410	0.264	0.201	0.142	0.109
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	-0.010	-0.009	-0.007	-0.008	-0.006	-0.017	-0.015	-0.012	-0.013	-0.012
			5	0.046	0.019	0.009	0.006	0.002	0.043	0.015	0.005	0.002	-0.002
			10	0.150	0.076	0.044	0.026	0.015	0.149	0.074	0.041	0.023	0.012
	τ^2 = 0.049		0	-0.022	-0.020	-0.017	-0.023	-0.020	-0.047	-0.045	-0.044	-0.045	-0.044
			5	0.094	0.049	0.026	0.013	0.006	0.082	0.039	0.016	0.003	-0.006
			10	0.233	0.145	0.098	0.071	0.049	0.225	0.137	0.091	0.064	0.041
	τ^2 = 0.148		0	-0.038	-0.032	-0.039	-0.038	-0.041	-0.083	-0.076	-0.081	-0.074	-0.078
			5	0.139	0.074	0.054	0.027	0.016	0.117	0.056	0.036	0.008	-0.003
			10	0.320	0.220	0.155	0.118	0.090	0.305	0.204	0.137	0.102	0.070
	τ^2 = 0.444		0	-0.059	-0.086	-0.075	-0.076	-0.073	-0.141	-0.150	-0.140	-0.142	-0.137
			5	0.206	0.139	0.094	0.060	0.040	0.174	0.098	0.052	0.022	-0.003
			10	0.482	0.328	0.243	0.187	0.157	0.442	0.294	0.210	0.150	0.124

Table E4. Coverage probability of the estimated intercept, with no correction for publication bias (from 1-dimensional algorithmic variant)

No Correction for Publication Bias			Fixed Effects in the Final Model Number of Studies 25	35	45	55	65	Random Effects in the Final Model Number of Studies 25	35	45	55	65
$\beta_1 = 0.049$	$\tau^2 = 0$	Number of Missing Studies 0	95.0%	94.9%	94.9%	95.4%	95.3%	96.2%	96.2%	95.9%	96.4%	96.1%
		5	94.7%	94.4%	94.8%	94.8%	94.5%	94.9%	94.9%	95.2%	95.1%	94.7%
		10	87.7%	90.2%	91.3%	91.9%	92.8%	87.9%	90.4%	91.6%	91.9%	93.1%
	$\tau^2 = 0.049$	0	62.4%	60.0%	56.3%	55.5%	54.0%	92.2%	92.4%	93.2%	93.1%	94.2%
		5	63.8%	61.8%	57.4%	55.6%	53.6%	82.5%	85.9%	88.9%	89.8%	90.4%
		10	58.1%	56.2%	54.6%	54.1%	53.0%	65.3%	70.3%	74.4%	79.7%	82.5%
	$\tau^2 = 0.148$	0	46.0%	41.4%	38.9%	37.7%	36.6%	93.1%	92.9%	93.4%	93.7%	93.6%
		5	48.8%	43.5%	40.2%	37.9%	37.1%	82.3%	86.6%	88.2%	89.2%	89.9%
		10	41.1%	39.9%	38.8%	36.6%	34.9%	59.5%	66.6%	72.7%	75.7%	78.7%
	$\tau^2 = 0.444$	0	27.9%	26.0%	23.7%	22.0%	21.3%	92.6%	93.1%	93.1%	93.9%	93.7%
		5	31.3%	27.8%	24.9%	23.5%	24.0%	81.1%	84.0%	85.9%	87.1%	89.1%
		10	25.3%	25.0%	24.2%	23.7%	21.7%	55.7%	65.3%	69.1%	72.5%	75.6%
$\beta_1 = 0.074$	$\tau^2 = 0$	Number of Missing Studies 0	95.0%	94.9%	94.8%	94.6%	94.8%	96.1%	96.0%	95.8%	95.8%	96.0%
		5	93.6%	94.2%	95.0%	94.5%	94.6%	93.9%	94.4%	95.3%	94.8%	95.1%
		10	86.2%	89.1%	90.8%	91.9%	91.9%	86.4%	89.2%	90.9%	92.0%	92.1%
	$\tau^2 = 0.049$	0	62.3%	58.3%	57.4%	56.0%	53.6%	92.4%	92.9%	93.4%	93.6%	93.5%
		5	64.3%	59.7%	57.6%	54.7%	53.1%	82.6%	85.9%	87.9%	89.4%	90.7%
		10	56.2%	55.0%	53.6%	53.0%	53.1%	63.5%	68.8%	73.5%	77.8%	81.9%
	$\tau^2 = 0.148$	0	44.5%	41.2%	38.9%	37.9%	35.5%	92.7%	93.3%	94.1%	93.9%	94.2%
		5	48.7%	41.7%	38.9%	37.2%	37.8%	81.5%	84.9%	87.8%	86.8%	90.1%
		10	38.9%	37.7%	38.3%	36.6%	35.8%	57.0%	65.5%	71.9%	75.1%	77.0%
	$\tau^2 = 0.444$	0	27.9%	25.9%	24.2%	23.0%	20.9%	93.2%	93.2%	93.8%	93.2%	93.8%
		5	30.7%	29.7%	26.0%	24.6%	23.7%	80.4%	84.8%	86.6%	86.9%	88.8%
		10	26.3%	24.4%	24.5%	22.7%	22.5%	56.2%	63.5%	68.9%	71.6%	75.1%
$\beta_1 = 0.148$	$\tau^2 = 0$	Number of Missing Studies 0	94.4%	95.4%	94.5%	94.9%	94.6%	95.6%	96.4%	95.8%	96.2%	95.7%
		5	92.6%	93.3%	94.0%	94.3%	94.4%	93.0%	93.6%	94.4%	94.6%	94.6%
		10	82.9%	86.9%	89.3%	90.4%	91.6%	83.2%	87.0%	89.4%	90.5%	91.6%
	$\tau^2 = 0.049$	0	62.7%	61.2%	56.3%	54.8%	53.2%	91.6%	93.5%	93.8%	93.8%	93.5%
		5	64.5%	59.6%	57.3%	55.3%	54.6%	81.1%	84.1%	86.2%	89.0%	89.7%
		10	53.5%	53.2%	51.9%	52.0%	51.1%	61.5%	65.3%	70.4%	75.2%	78.7%
	$\tau^2 = 0.148$	0	44.1%	41.3%	39.1%	36.8%	34.4%	93.3%	93.1%	93.6%	93.6%	92.8%
		5	46.8%	42.1%	41.0%	37.5%	35.8%	80.6%	84.2%	86.9%	87.7%	89.1%
		10	38.9%	37.7%	35.8%	36.0%	34.8%	56.3%	64.2%	68.1%	72.3%	73.6%
	$\tau^2 = 0.444$	0	28.1%	26.5%	24.8%	22.4%	21.7%	92.3%	92.7%	92.7%	93.3%	93.7%
		5	31.8%	28.3%	26.0%	22.9%	22.5%	80.2%	83.4%	85.6%	86.2%	87.6%
		10	24.4%	23.3%	23.3%	22.4%	22.8%	53.6%	61.0%	66.1%	71.2%	72.8%

Table E4. Coverage probability of the estimated intercept, with no correction for publication bias (from 1-dimensional algorithmic variant) (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	94.9%	95.2%	95.3%	95.0%	94.8%	95.9%	96.2%	96.4%	96.1%	95.8%
			5	90.5%	93.4%	93.1%	93.8%	93.6%	91.0%	93.6%	93.5%	94.1%	94.0%
			10	74.8%	81.0%	84.6%	87.4%	89.4%	75.2%	81.0%	84.6%	87.4%	89.3%
	τ^2 = 0.049		0	62.9%	59.8%	58.4%	55.2%	53.7%	92.2%	92.6%	93.8%	93.4%	94.0%
			5	61.4%	57.7%	56.6%	53.8%	54.1%	77.7%	81.9%	86.1%	86.4%	88.5%
			10	46.2%	46.4%	48.3%	46.6%	48.5%	53.5%	59.3%	64.2%	67.9%	72.7%
	τ^2 = 0.148		0	44.3%	41.9%	38.2%	36.7%	34.8%	92.7%	92.8%	93.1%	93.8%	93.0%
			5	45.1%	41.7%	38.4%	37.4%	36.4%	77.9%	81.7%	84.1%	86.3%	87.3%
			10	33.6%	32.5%	34.4%	32.5%	33.0%	50.5%	56.5%	62.5%	67.4%	69.5%
	τ^2 = 0.444		0	27.3%	26.7%	24.0%	22.4%	21.1%	91.8%	93.4%	93.2%	94.0%	93.6%
			5	29.0%	27.9%	26.1%	23.5%	23.6%	78.0%	81.4%	83.4%	85.2%	86.8%
			10	22.3%	22.0%	20.3%	21.6%	21.4%	51.0%	56.7%	61.2%	65.0%	68.2%
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	95.1%	95.1%	95.2%	95.6%	95.3%	96.1%	95.9%	96.0%	96.4%	96.5%
			5	89.1%	91.9%	92.5%	92.8%	93.3%	89.6%	92.2%	92.7%	93.1%	93.6%
			10	71.6%	75.5%	79.6%	84.4%	87.1%	71.9%	75.6%	79.5%	84.4%	87.1%
	τ^2 = 0.049		0	63.4%	59.4%	57.2%	54.7%	54.4%	92.1%	92.0%	93.5%	93.0%	94.1%
			5	57.8%	55.9%	54.4%	52.7%	52.5%	74.0%	78.5%	82.5%	85.2%	86.7%
			10	40.0%	40.7%	43.1%	43.0%	45.3%	47.8%	52.5%	57.9%	61.3%	66.5%
	τ^2 = 0.148		0	44.7%	40.7%	39.3%	37.0%	35.1%	92.8%	93.4%	93.9%	93.2%	94.0%
			5	43.1%	40.5%	39.0%	37.0%	35.7%	75.2%	79.1%	81.0%	84.7%	85.5%
			10	28.3%	30.0%	30.2%	30.0%	31.0%	44.6%	51.0%	56.5%	60.3%	65.1%
	τ^2 = 0.444		0	28.7%	26.5%	23.5%	22.8%	21.8%	92.5%	93.4%	93.7%	93.0%	94.3%
			5	29.6%	27.2%	25.1%	24.5%	22.8%	75.3%	79.6%	81.8%	83.3%	85.1%
			10	20.0%	20.8%	20.7%	20.4%	19.9%	47.1%	53.5%	57.9%	62.6%	63.6%

Table E5. Coverage probability of the estimated intercept, with R studies imputed (from 1-dimensional algorithmic variant)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	0	94.6%	94.6%	94.5%	95.2%	95.1%	95.8%	96.1%	95.8%	96.3%	96.1%
			5	93.1%	92.6%	93.6%	93.7%	93.3%	94.3%	93.9%	94.7%	94.7%	94.1%
			10	90.6%	91.3%	91.9%	91.7%	91.9%	91.4%	92.5%	93.0%	92.6%	92.9%
	τ^2 = 0.049		0	61.3%	59.5%	56.2%	55.1%	53.7%	90.7%	91.4%	92.0%	92.4%	93.3%
			5	60.9%	58.0%	53.6%	51.7%	50.7%	81.4%	82.8%	84.5%	85.5%	86.3%
			10	61.0%	57.0%	53.5%	51.4%	49.0%	71.6%	76.2%	78.1%	80.0%	81.1%
	τ^2 = 0.148		0	44.5%	40.3%	38.1%	37.1%	36.2%	89.4%	89.1%	90.5%	90.9%	91.4%
			5	45.5%	40.0%	36.2%	35.3%	33.9%	80.5%	82.3%	82.2%	82.0%	82.6%
			10	44.0%	40.3%	37.7%	33.9%	31.1%	66.4%	73.9%	77.5%	77.9%	78.2%
	τ^2 = 0.444		0	26.4%	24.8%	23.1%	21.6%	20.7%	87.1%	87.4%	88.2%	89.1%	89.9%
			5	28.8%	24.2%	22.3%	21.7%	20.8%	78.6%	79.4%	80.0%	79.9%	80.3%
			10	27.4%	25.3%	23.2%	22.2%	20.9%	64.8%	72.6%	74.7%	75.1%	75.3%
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	0	94.6%	94.6%	94.6%	94.2%	94.6%	95.9%	95.9%	95.8%	95.6%	95.9%
			5	92.1%	92.4%	93.5%	93.0%	93.9%	93.1%	93.3%	94.4%	94.1%	94.9%
			10	90.2%	91.1%	90.9%	92.1%	92.4%	90.9%	92.2%	92.0%	93.2%	93.6%
	τ^2 = 0.049		0	61.1%	57.7%	56.9%	55.8%	53.4%	90.6%	91.9%	92.3%	92.7%	92.7%
			5	61.3%	56.9%	54.1%	51.7%	51.1%	81.9%	83.0%	84.4%	84.9%	86.9%
			10	60.6%	57.2%	53.1%	51.2%	50.3%	71.6%	76.0%	78.0%	80.2%	81.4%
	τ^2 = 0.148		0	43.5%	40.1%	38.2%	37.4%	35.2%	89.1%	90.0%	90.9%	91.4%	91.7%
			5	45.9%	38.8%	35.6%	32.9%	34.0%	80.1%	80.6%	81.7%	81.2%	83.7%
			10	42.0%	38.6%	37.8%	35.5%	32.5%	65.2%	73.4%	77.9%	77.9%	77.6%
	τ^2 = 0.444		0	27.1%	25.2%	23.3%	21.9%	20.4%	86.6%	88.0%	88.1%	88.1%	89.5%
			5	28.9%	26.8%	22.9%	21.4%	20.5%	78.8%	80.2%	79.9%	80.5%	81.0%
			10	28.8%	24.4%	23.3%	21.0%	21.0%	64.1%	71.1%	74.7%	74.5%	75.9%
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	0	94.1%	94.8%	94.4%	94.7%	94.5%	95.5%	96.2%	95.8%	96.1%	95.7%
			5	91.7%	92.2%	92.9%	93.2%	93.7%	92.7%	93.4%	94.1%	94.6%	94.9%
			10	88.6%	90.3%	91.3%	91.4%	92.2%	89.3%	91.2%	92.3%	92.2%	93.3%
	τ^2 = 0.049		0	61.5%	60.6%	55.8%	54.5%	52.9%	90.0%	91.7%	92.5%	92.9%	92.7%
			5	62.5%	56.0%	54.5%	52.1%	52.0%	81.6%	81.7%	83.8%	84.7%	85.2%
			10	59.5%	56.5%	51.9%	51.6%	48.8%	69.9%	74.5%	77.1%	79.6%	80.0%
	τ^2 = 0.148		0	42.9%	40.7%	38.3%	36.7%	33.5%	89.6%	89.9%	90.4%	91.4%	90.7%
			5	44.2%	37.8%	37.8%	34.7%	32.5%	79.4%	80.9%	81.8%	80.9%	81.8%
			10	42.0%	40.5%	36.7%	34.9%	32.2%	65.0%	73.8%	75.1%	77.2%	76.5%
	τ^2 = 0.444		0	27.0%	25.0%	23.7%	21.8%	21.3%	86.0%	87.1%	87.4%	88.6%	89.1%
			5	30.5%	25.4%	23.2%	20.9%	20.4%	78.7%	78.7%	79.9%	79.3%	79.7%
			10	26.5%	24.8%	21.8%	20.8%	20.0%	62.9%	70.6%	73.9%	76.3%	75.0%

Table E5. Coverage probability of the estimated intercept, with R studies imputed (from 1-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	94.4%	94.5%	94.9%	94.8%	94.7%	95.6%	95.8%	96.2%	96.0%	95.7%
			5	89.3%	91.2%	91.9%	92.2%	92.8%	91.1%	92.5%	93.3%	93.2%	93.9%
			10	83.8%	87.8%	88.4%	89.0%	90.1%	84.9%	88.6%	89.8%	90.4%	91.0%
	τ^2 = 0.049		0	61.7%	58.6%	57.6%	54.9%	53.5%	90.4%	90.9%	92.3%	92.2%	92.7%
			5	60.3%	55.2%	54.3%	50.8%	50.7%	79.5%	81.5%	83.4%	83.5%	84.2%
			10	55.1%	54.8%	52.6%	49.0%	47.0%	66.1%	73.4%	76.5%	76.7%	78.6%
	τ^2 = 0.148		0	43.1%	40.9%	37.3%	36.3%	34.2%	88.5%	89.3%	89.6%	90.8%	90.5%
			5	43.4%	38.1%	35.8%	34.4%	33.3%	79.1%	79.1%	80.0%	81.0%	80.7%
			10	39.3%	36.9%	35.8%	33.4%	31.6%	63.1%	71.1%	74.6%	75.9%	76.4%
	τ^2 = 0.444		0	25.8%	25.4%	23.3%	21.5%	20.6%	86.6%	87.7%	88.5%	89.3%	89.1%
			5	28.0%	25.6%	23.2%	21.7%	20.5%	78.3%	78.9%	78.9%	78.7%	80.6%
			10	25.4%	24.4%	22.0%	21.2%	20.8%	61.0%	69.3%	73.0%	73.9%	74.8%
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	94.2%	94.6%	94.7%	95.3%	95.0%	95.4%	95.5%	95.9%	96.2%	96.3%
			5	88.2%	89.1%	89.8%	90.9%	92.0%	89.7%	90.6%	90.7%	91.7%	92.9%
			10	80.2%	83.4%	84.2%	86.1%	85.6%	81.7%	84.4%	85.3%	87.2%	86.4%
	τ^2 = 0.049		0	62.2%	58.6%	56.9%	54.0%	54.0%	90.0%	90.4%	91.8%	91.8%	92.8%
			5	59.9%	54.4%	52.0%	50.3%	49.2%	78.3%	79.6%	80.7%	82.7%	83.3%
			10	50.0%	51.0%	49.8%	48.3%	46.3%	62.8%	70.6%	74.1%	76.1%	76.3%
	τ^2 = 0.148		0	43.1%	40.0%	38.3%	36.3%	34.2%	88.5%	90.0%	90.2%	90.0%	90.7%
			5	42.9%	37.8%	35.9%	33.4%	32.3%	77.5%	79.3%	80.1%	79.6%	80.8%
			10	36.4%	36.0%	33.7%	33.9%	31.2%	59.1%	67.7%	74.0%	74.4%	75.3%
	τ^2 = 0.444		0	27.5%	25.0%	22.4%	22.3%	21.0%	86.9%	87.4%	87.9%	87.8%	89.0%
			5	28.2%	25.5%	23.2%	21.7%	20.0%	76.6%	78.5%	78.3%	78.4%	78.1%
			10	23.8%	23.2%	22.7%	20.5%	19.9%	60.2%	67.9%	71.2%	71.8%	72.2%

Table E6. Coverage probability of the estimated intercept, with L studies imputed (from 1-dimensional algorithmic variant)

L Missing Studies Imputed			Fixed Effects in the Final Model					Random Effects in the Final Model				
			Number of Studies					Number of Studies				
		Number of Missing Studies	25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	94.0%	94.2%	94.0%	94.4%	94.5%	95.5%	96.0%	95.4%	95.8%	95.9%
		5	93.6%	93.1%	93.6%	93.6%	93.0%	94.7%	94.3%	94.5%	94.8%	94.1%
		10	90.3%	92.2%	92.7%	92.5%	92.6%	90.9%	92.9%	93.5%	93.3%	93.6%
	τ^2=0.049	0	59.7%	57.7%	54.2%	53.1%	51.7%	88.2%	89.0%	88.2%	88.4%	89.2%
		5	62.0%	59.1%	54.5%	51.7%	49.7%	82.2%	83.7%	85.4%	85.3%	85.4%
		10	60.7%	57.9%	55.1%	53.2%	50.3%	70.7%	76.1%	78.5%	81.5%	82.2%
	τ^2 = 0.148	0	43.3%	38.8%	36.2%	35.8%	33.9%	86.9%	84.7%	85.1%	84.3%	84.2%
		5	46.2%	41.6%	37.4%	35.9%	33.5%	81.5%	84.2%	83.0%	83.2%	83.1%
		10	43.2%	40.6%	38.1%	35.2%	31.8%	64.9%	72.6%	76.6%	78.7%	79.9%
	τ^2 = 0.444	0	25.5%	23.2%	21.3%	20.1%	19.4%	84.3%	82.4%	82.6%	81.5%	80.1%
		5	30.3%	25.6%	23.0%	20.9%	21.2%	80.1%	81.3%	82.2%	81.2%	81.5%
		10	27.1%	25.2%	23.8%	22.6%	21.2%	62.4%	70.8%	73.7%	75.1%	76.3%
β_1 = 0.074	$\tau^2 = 0$	0	94.2%	94.2%	94.1%	94.1%	94.2%	95.5%	95.8%	95.6%	95.6%	95.7%
		5	92.5%	92.8%	93.8%	93.5%	93.6%	93.8%	93.6%	94.9%	94.4%	94.8%
		10	89.7%	91.1%	91.6%	92.8%	92.9%	90.4%	91.9%	92.6%	93.9%	93.9%
	τ^2 = 0.049	0	59.8%	56.7%	54.9%	54.2%	51.3%	88.3%	88.5%	88.9%	88.4%	88.1%
		5	62.7%	57.4%	54.6%	51.8%	50.4%	82.8%	83.7%	84.7%	84.7%	85.6%
		10	59.6%	57.4%	54.5%	53.0%	51.3%	70.0%	75.0%	78.4%	80.4%	82.4%
	τ^2 = 0.148	0	41.9%	38.4%	36.5%	35.4%	33.5%	86.7%	85.8%	85.7%	84.8%	83.4%
		5	46.9%	40.0%	36.2%	33.5%	33.5%	81.1%	81.9%	83.5%	81.7%	84.1%
		10	41.6%	39.3%	38.5%	36.2%	33.7%	63.8%	71.9%	77.0%	78.1%	78.8%
	τ^2 = 0.444	0	25.8%	23.9%	22.1%	20.4%	19.4%	83.5%	83.0%	81.9%	80.1%	80.5%
		5	29.8%	27.7%	23.6%	22.1%	21.5%	79.8%	81.6%	81.5%	81.8%	82.1%
		10	27.7%	24.5%	23.4%	21.7%	21.2%	62.3%	69.5%	73.0%	73.4%	76.2%

Table E6. Coverage probability of the estimated intercept, with L studies imputed (from 1-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model: Number of Studies					Random Effects in the Final Model: Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.148	τ^2 = 0	Number of Missing Studies	0	93.2%	94.5%	93.8%	93.9%	93.8%	95.1%	95.9%	95.2%	95.8%	95.3%
			5	92.4%	92.5%	93.0%	93.0%	93.4%	93.2%	93.7%	94.2%	94.2%	94.7%
			10	87.6%	90.8%	91.5%	92.0%	92.5%	88.5%	91.5%	92.3%	92.8%	93.4%
	τ^2 = 0.049		0	60.2%	58.6%	54.3%	52.8%	50.4%	87.8%	88.4%	88.6%	88.4%	87.7%
			5	63.0%	57.3%	54.3%	51.9%	50.7%	82.5%	83.1%	84.1%	84.6%	84.4%
			10	58.2%	56.3%	52.6%	51.4%	49.5%	68.2%	72.6%	76.7%	79.2%	80.3%
	τ^2 = 0.148		0	41.8%	38.8%	35.7%	33.7%	31.5%	86.9%	85.1%	84.6%	83.7%	83.1%
			5	45.6%	39.3%	38.1%	35.3%	32.0%	80.1%	82.2%	82.4%	81.9%	82.0%
			10	42.0%	39.6%	36.0%	35.1%	33.0%	63.0%	71.5%	73.6%	76.7%	75.9%
	τ^2 = 0.444		0	26.1%	23.0%	21.7%	19.8%	19.1%	83.3%	82.1%	81.1%	79.6%	79.6%
			5	31.1%	25.8%	24.0%	21.3%	20.4%	79.8%	80.9%	81.4%	80.7%	80.3%
			10	26.2%	24.4%	22.4%	21.7%	21.1%	60.5%	68.3%	72.0%	76.1%	75.2%
β_1 = 0.296	τ^2 = 0	Number of Missing Studies	0	93.5%	93.4%	93.8%	93.5%	93.8%	94.7%	95.3%	95.2%	94.9%	94.7%
			5	90.2%	91.9%	92.2%	91.9%	91.7%	91.5%	92.9%	93.6%	93.1%	93.0%
			10	83.0%	87.5%	87.9%	89.5%	90.3%	84.3%	88.2%	89.3%	90.7%	91.1%
	τ^2 = 0.049		0	60.1%	56.8%	55.2%	51.6%	51.6%	87.9%	87.6%	87.6%	86.2%	85.8%
			5	61.0%	55.6%	53.7%	50.0%	50.5%	79.8%	81.8%	84.0%	83.1%	83.1%
			10	53.6%	53.0%	51.6%	49.2%	48.1%	64.2%	70.7%	74.5%	75.6%	77.9%
	τ^2 = 0.148		0	42.0%	39.4%	35.5%	33.8%	32.0%	85.6%	84.4%	82.5%	83.5%	81.8%
			5	44.6%	39.4%	36.3%	34.2%	33.3%	79.4%	80.0%	81.2%	81.7%	80.6%
			10	38.2%	36.1%	35.6%	33.2%	31.5%	60.4%	68.1%	71.2%	74.0%	73.9%
	τ^2 = 0.444		0	24.9%	24.0%	21.7%	20.1%	18.5%	82.8%	82.6%	80.9%	81.0%	79.7%
			5	28.8%	26.3%	24.7%	21.5%	20.7%	78.9%	79.9%	80.2%	79.8%	80.7%
			10	24.7%	23.7%	21.1%	20.9%	20.1%	59.0%	66.5%	70.2%	71.8%	72.5%

Table E6. Coverage probability of the estimated intercept, with L studies imputed (from 1-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.444$	$\tau^2 = 0$	Number of Missing Studies	0	92.8%	93.2%	92.8%	93.8%	92.8%	94.0%	94.1%	94.0%	94.1%	94.1%
			5	89.4%	89.5%	89.7%	90.2%	90.7%	90.4%	90.9%	90.5%	90.9%	91.3%
			10	79.5%	82.3%	84.6%	86.7%	86.8%	80.7%	83.3%	85.3%	87.6%	87.3%
	$\tau^2 = 0.049$		0	59.8%	56.7%	54.1%	50.8%	51.2%	86.6%	86.1%	86.0%	84.7%	84.8%
			5	59.8%	53.8%	51.5%	50.5%	48.2%	77.5%	80.2%	80.5%	81.5%	81.6%
			10	47.8%	48.2%	48.5%	46.7%	45.3%	60.6%	67.0%	71.0%	72.9%	74.5%
	$\tau^2 = 0.148$		0	40.9%	38.1%	36.0%	34.0%	31.7%	85.1%	84.8%	83.2%	81.7%	79.8%
			5	43.6%	38.9%	36.1%	33.9%	32.2%	77.5%	79.5%	80.6%	79.4%	79.8%
			10	34.2%	34.0%	33.1%	32.3%	31.1%	56.3%	63.0%	69.5%	71.5%	73.3%
	$\tau^2 = 0.444$		0	26.3%	24.6%	21.1%	20.7%	19.2%	82.7%	82.5%	80.5%	78.1%	77.6%
			5	29.2%	26.0%	22.7%	21.4%	20.0%	76.7%	79.8%	79.2%	79.2%	78.2%
			10	22.5%	22.2%	22.1%	20.6%	20.2%	57.1%	64.0%	67.4%	69.8%	69.7%

Table E7. Absolute bias in the estimated slope, with no correction for publication bias (from 1-dimensional algorithmic variant)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.049$	$\tau^2 = 0$	Number of Missing Studies	0	0.001	-0.002	-0.002	0.000	-0.001	0.001	-0.002	-0.002	0.000	-0.001
			5	-0.008	-0.005	-0.004	-0.001	-0.003	-0.009	-0.005	-0.004	-0.001	-0.003
			10	-0.030	-0.015	-0.009	-0.009	-0.003	-0.030	-0.015	-0.010	-0.009	-0.003
	$\tau^2 = 0.049$		0	0.000	-0.007	0.003	0.001	-0.004	0.000	-0.008	-0.002	0.002	-0.004
			5	-0.019	-0.008	-0.005	-0.007	-0.002	-0.019	-0.011	-0.011	-0.006	-0.004
			10	-0.040	-0.020	-0.020	-0.012	-0.009	-0.039	-0.022	-0.019	-0.011	-0.010
	$\tau^2 = 0.148$		0	0.019	0.008	0.001	-0.003	0.007	0.010	0.002	-0.003	0.001	0.002
			5	-0.018	-0.016	-0.017	-0.008	-0.003	-0.017	-0.014	-0.012	-0.010	-0.010
			10	-0.033	-0.022	-0.021	-0.020	-0.022	-0.027	-0.027	-0.019	-0.020	-0.018
	$\tau^2 = 0.444$		0	-0.008	0.014	0.008	-0.021	-0.003	-0.009	0.010	-0.010	-0.004	0.001
			5	-0.020	-0.002	-0.020	-0.013	0.004	-0.008	-0.011	-0.025	-0.012	-0.007
			10	-0.009	-0.009	-0.026	-0.006	-0.008	-0.028	-0.018	-0.027	-0.020	-0.009
$\beta_1 = 0.074$	$\tau^2 = 0$	Number of Missing Studies	0	-0.002	0.001	0.001	-0.001	0.000	-0.001	0.000	0.001	-0.001	0.000
			5	-0.018	-0.007	-0.004	-0.004	-0.002	-0.019	-0.008	-0.005	-0.004	-0.003
			10	-0.047	-0.023	-0.014	-0.011	-0.008	-0.047	-0.024	-0.014	-0.011	-0.009
	$\tau^2 = 0.049$		0	0.001	-0.006	-0.001	-0.001	0.001	0.001	-0.003	0.001	0.000	-0.004
			5	-0.018	-0.017	-0.015	-0.013	-0.004	-0.019	-0.016	-0.016	-0.012	-0.007
			10	-0.047	-0.036	-0.025	-0.021	-0.017	-0.049	-0.036	-0.026	-0.025	-0.018
	$\tau^2 = 0.148$		0	-0.006	0.001	-0.003	0.003	-0.005	-0.006	0.003	-0.004	-0.001	0.003
			5	-0.021	-0.018	-0.013	-0.021	-0.010	-0.024	-0.021	-0.013	-0.022	-0.015
			10	-0.046	-0.039	-0.033	-0.017	-0.021	-0.047	-0.039	-0.030	-0.022	-0.025
	$\tau^2 = 0.444$		0	0.018	0.023	-0.021	0.002	-0.006	0.020	0.009	-0.001	0.012	0.000
			5	-0.023	-0.011	-0.020	-0.017	-0.002	-0.023	-0.020	-0.017	-0.023	-0.014
			10	-0.036	-0.041	-0.038	-0.030	-0.017	-0.037	-0.037	-0.031	-0.036	-0.020
$\beta_1 = 0.148$	$\tau^2 = 0$	Number of Missing Studies	0	-0.001	-0.001	-0.001	-0.002	0.001	-0.001	-0.001	-0.001	-0.002	0.001
			5	-0.027	-0.015	-0.011	-0.008	-0.007	-0.028	-0.015	-0.011	-0.008	-0.008
			10	-0.083	-0.045	-0.031	-0.021	-0.016	-0.084	-0.045	-0.032	-0.022	-0.017
	$\tau^2 = 0.049$		0	0.003	0.006	-0.001	-0.001	0.001	0.002	0.007	-0.001	-0.002	0.001
			5	-0.043	-0.027	-0.027	-0.017	-0.013	-0.044	-0.037	-0.031	-0.024	-0.018
			10	-0.080	-0.060	-0.049	-0.041	-0.030	-0.081	-0.061	-0.053	-0.049	-0.037
	$\tau^2 = 0.148$		0	0.006	-0.005	-0.012	-0.002	-0.008	0.000	-0.001	-0.005	-0.004	-0.005
			5	-0.044	-0.052	-0.035	-0.037	-0.024	-0.046	-0.046	-0.040	-0.039	-0.026
			10	-0.073	-0.062	-0.054	-0.043	-0.049	-0.081	-0.062	-0.062	-0.052	-0.048
	$\tau^2 = 0.444$		0	-0.003	0.005	-0.009	-0.001	0.001	0.001	0.003	-0.005	-0.011	-0.006
			5	-0.059	-0.040	-0.029	-0.038	-0.029	-0.057	-0.041	-0.040	-0.037	-0.032
			10	-0.100	-0.077	-0.057	-0.061	-0.037	-0.092	-0.082	-0.066	-0.053	-0.048

Table E7. Absolute bias in the estimated slope, with no correction for publication bias (from 1-dimensional algorithmic variant) (continued)

No Correction for Publication Bias			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
		Number of Missing Studies	25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.296$	$\tau^2 = 0$	0	0.001	0.002	0.001	0.000	0.001	0.000	0.002	0.001	0.000	0.001
		5	-0.053	-0.030	-0.023	-0.016	-0.012	-0.055	-0.031	-0.024	-0.017	-0.013
		10	-0.168	-0.088	-0.056	-0.039	-0.029	-0.169	-0.089	-0.057	-0.040	-0.030
	$\tau^2 = 0.049$	0	-0.004	-0.003	-0.001	-0.004	0.007	-0.004	-0.002	-0.001	0.003	0.005
		5	-0.088	-0.062	-0.042	-0.040	-0.025	-0.093	-0.073	-0.049	-0.050	-0.038
		10	-0.165	-0.126	-0.097	-0.082	-0.066	-0.167	-0.128	-0.104	-0.092	-0.077
	$\tau^2 = 0.148$	0	-0.001	0.012	0.002	-0.007	-0.009	0.000	0.007	0.003	-0.006	-0.002
		5	-0.099	-0.064	-0.064	-0.060	-0.044	-0.105	-0.081	-0.075	-0.065	-0.055
		10	-0.165	-0.140	-0.114	-0.094	-0.080	-0.165	-0.140	-0.117	-0.101	-0.093
	$\tau^2 = 0.444$	0	0.015	-0.016	-0.006	-0.002	-0.010	0.009	-0.013	-0.002	0.000	-0.006
		5	-0.128	-0.081	-0.087	-0.076	-0.061	-0.127	-0.094	-0.084	-0.079	-0.066
		10	-0.164	-0.130	-0.123	-0.109	-0.101	-0.160	-0.125	-0.128	-0.114	-0.100
$\beta_1 = 0.444$	$\tau^2 = 0$	0	-0.001	0.000	-0.002	0.002	0.001	0.000	0.000	-0.003	0.002	0.000
		5	-0.080	-0.045	-0.031	-0.024	-0.018	-0.083	-0.047	-0.032	-0.025	-0.019
		10	-0.219	-0.126	-0.083	-0.057	-0.042	-0.221	-0.129	-0.085	-0.059	-0.043
	$\tau^2 = 0.049$	0	-0.005	-0.004	0.001	0.002	0.000	-0.003	-0.003	0.003	0.001	0.000
		5	-0.130	-0.090	-0.064	-0.049	-0.043	-0.134	-0.104	-0.080	-0.066	-0.058
		10	-0.242	-0.178	-0.141	-0.114	-0.090	-0.243	-0.186	-0.152	-0.130	-0.107
	$\tau^2 = 0.148$	0	-0.005	-0.007	0.008	0.001	0.008	0.000	-0.005	0.002	-0.005	-0.001
		5	-0.156	-0.109	-0.096	-0.072	-0.054	-0.156	-0.123	-0.115	-0.090	-0.074
		10	-0.246	-0.192	-0.173	-0.142	-0.129	-0.248	-0.205	-0.179	-0.154	-0.138
	$\tau^2 = 0.444$	0	-0.018	0.007	0.002	0.004	0.009	-0.008	0.006	0.004	0.002	0.002
		5	-0.161	-0.130	-0.110	-0.083	-0.076	-0.180	-0.139	-0.117	-0.104	-0.087
		10	-0.246	-0.197	-0.179	-0.155	-0.140	-0.246	-0.210	-0.185	-0.154	-0.150

Table E8. Absolute bias in the estimated slope, with R studies imputed (from 1-dimensional algorithmic variant

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 =$ 0.049	$\tau^2 = 0$	Number of Missing Studies	0	0.001	-0.002	-0.001	0.000	0.000	0.002	-0.002	-0.001	0.000	0.000
			5	-0.008	-0.003	-0.002	0.001	-0.001	-0.007	-0.002	-0.002	0.001	-0.001
			10	-0.016	-0.009	-0.007	-0.006	0.001	-0.015	-0.009	-0.007	-0.006	0.001
	$\tau^2 =$ 0.049		0	-0.001	-0.006	0.003	0.002	-0.004	0.000	-0.006	-0.001	0.003	-0.003
			5	-0.014	-0.006	-0.003	-0.004	0.002	-0.011	-0.005	-0.006	0.000	0.003
			10	-0.028	-0.011	-0.012	-0.006	-0.005	-0.026	-0.010	-0.009	-0.002	-0.001
	$\tau^2 =$ 0.148		0	0.014	0.009	0.001	-0.001	0.008	0.008	0.005	0.000	0.005	0.004
			5	-0.018	-0.013	-0.011	-0.004	-0.002	-0.009	-0.006	-0.003	0.002	-0.003
			10	-0.024	-0.017	-0.017	-0.014	-0.018	-0.018	-0.017	-0.012	-0.010	-0.010
	$\tau^2 =$ 0.444		0	-0.007	0.018	0.007	-0.020	-0.003	-0.010	0.014	-0.007	-0.004	0.003
			5	-0.006	-0.004	-0.019	-0.012	0.009	0.000	-0.006	-0.023	-0.004	0.000
			10	-0.008	-0.004	-0.014	-0.003	-0.005	-0.021	-0.005	-0.015	-0.010	0.006
$\beta_1 =$ 0.074	$\tau^2 = 0$	Number of Missing Studies	0	-0.001	0.002	0.002	0.000	0.000	0.000	0.002	0.002	0.000	0.000
			5	-0.014	-0.003	-0.001	-0.001	0.000	-0.014	-0.003	-0.001	-0.002	0.000
			10	-0.027	-0.015	-0.009	-0.007	-0.004	-0.025	-0.014	-0.009	-0.007	-0.004
	$\tau^2 =$ 0.049		0	0.001	-0.006	-0.001	-0.001	0.001	0.003	-0.002	0.003	0.001	-0.002
			5	-0.009	-0.011	-0.011	-0.010	-0.002	-0.006	-0.004	-0.007	-0.004	-0.001
			10	-0.033	-0.029	-0.017	-0.011	-0.009	-0.032	-0.024	-0.013	-0.011	-0.005
	$\tau^2 =$ 0.148		0	-0.008	0.002	-0.003	0.002	-0.004	-0.003	0.006	0.000	0.001	0.005
			5	-0.013	-0.013	-0.004	-0.016	-0.004	-0.012	-0.008	-0.002	-0.012	-0.004
			10	-0.034	-0.031	-0.021	-0.008	-0.012	-0.032	-0.028	-0.014	-0.008	-0.009
	$\tau^2 =$ 0.444		0	0.024	0.021	-0.018	0.007	-0.007	0.034	0.015	0.003	0.017	0.004
			5	-0.017	0.003	-0.017	-0.005	0.002	-0.009	0.001	-0.002	-0.010	-0.008
			10	-0.026	-0.028	-0.032	-0.012	-0.015	-0.022	-0.022	-0.017	-0.017	-0.005
$\beta_1 =$ 0.148	$\tau^2 = 0$	Number of Missing Studies	0	0.000	-0.001	0.000	-0.001	0.001	0.002	0.000	0.000	-0.001	0.001
			5	-0.021	-0.008	-0.005	-0.004	-0.004	-0.017	-0.007	-0.004	-0.003	-0.003
			10	-0.047	-0.027	-0.019	-0.012	-0.008	-0.045	-0.025	-0.018	-0.012	-0.007
	$\tau^2 =$ 0.049		0	0.002	0.007	0.000	-0.001	0.002	0.004	0.011	0.002	0.001	0.004
			5	-0.030	-0.020	-0.018	-0.009	-0.006	-0.023	-0.019	-0.013	-0.005	-0.002
			10	-0.057	-0.041	-0.035	-0.030	-0.020	-0.051	-0.032	-0.029	-0.025	-0.014
	$\tau^2 =$ 0.148		0	0.002	-0.003	-0.011	0.000	-0.006	0.006	0.005	0.003	0.002	-0.001
			5	-0.029	-0.035	-0.024	-0.029	-0.013	-0.021	-0.019	-0.016	-0.020	-0.007
			10	-0.051	-0.036	-0.034	-0.030	-0.034	-0.049	-0.023	-0.031	-0.022	-0.021
	$\tau^2 =$ 0.444		0	-0.001	0.011	-0.005	0.002	0.005	0.009	0.012	0.002	-0.002	0.002
			5	-0.045	-0.022	-0.016	-0.030	-0.024	-0.035	-0.010	-0.019	-0.015	-0.010
			10	-0.087	-0.060	-0.036	-0.042	-0.021	-0.067	-0.056	-0.031	-0.021	-0.018

Table E8. Absolute bias in the estimated slope, with R studies imputed (from 1-dimensional algorithmic variant (continued)

R Missing Studies Imputed			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
		Number of Missing Studies	25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.296$	$\tau^2 = 0$	0	0.002	0.003	0.002	0.001	0.002	0.003	0.004	0.003	0.002	0.002
		5	-0.041	-0.019	-0.013	-0.007	-0.004	-0.036	-0.015	-0.011	-0.005	-0.002
		10	-0.100	-0.056	-0.035	-0.022	-0.015	-0.096	-0.054	-0.033	-0.020	-0.012
	$\tau^2 = 0.049$	0	-0.003	-0.002	0.000	-0.003	0.008	0.003	0.004	0.004	0.009	0.010
		5	-0.067	-0.045	-0.029	-0.026	-0.012	-0.055	-0.037	-0.014	-0.019	-0.007
		10	-0.113	-0.082	-0.065	-0.054	-0.042	-0.101	-0.065	-0.050	-0.044	-0.031
	$\tau^2 = 0.148$	0	-0.001	0.014	0.003	-0.007	-0.007	0.009	0.019	0.013	0.003	0.008
		5	-0.079	-0.045	-0.047	-0.043	-0.030	-0.064	-0.039	-0.033	-0.026	-0.015
		10	-0.119	-0.099	-0.080	-0.060	-0.049	-0.095	-0.077	-0.059	-0.042	-0.035
	$\tau^2 = 0.444$	0	0.012	-0.020	-0.002	0.000	-0.002	0.022	-0.002	0.012	0.012	0.007
		5	-0.099	-0.059	-0.064	-0.052	-0.041	-0.071	-0.053	-0.034	-0.033	-0.018
		10	-0.128	-0.090	-0.085	-0.067	-0.063	-0.103	-0.063	-0.068	-0.051	-0.041
$\beta_1 = 0.444$	$\tau^2 = 0$	0	0.001	0.002	-0.001	0.004	0.002	0.004	0.004	0.000	0.005	0.002
		5	-0.061	-0.029	-0.017	-0.010	-0.006	-0.054	-0.022	-0.011	-0.006	-0.003
		10	-0.139	-0.083	-0.054	-0.033	-0.018	-0.134	-0.078	-0.047	-0.028	-0.013
	$\tau^2 = 0.049$	0	-0.004	-0.002	0.002	0.004	0.003	0.008	0.008	0.013	0.009	0.007
		5	-0.097	-0.069	-0.042	-0.028	-0.026	-0.072	-0.051	-0.029	-0.018	-0.012
		10	-0.172	-0.121	-0.089	-0.072	-0.057	-0.152	-0.101	-0.070	-0.055	-0.041
	$\tau^2 = 0.148$	0	-0.007	-0.007	0.008	0.006	0.011	0.015	0.010	0.017	0.010	0.013
		5	-0.117	-0.076	-0.070	-0.046	-0.031	-0.088	-0.054	-0.055	-0.026	-0.017
		10	-0.179	-0.135	-0.116	-0.094	-0.081	-0.154	-0.113	-0.086	-0.071	-0.052
	$\tau^2 = 0.444$	0	-0.016	0.012	0.004	0.007	0.012	0.016	0.029	0.025	0.022	0.025
		5	-0.124	-0.092	-0.076	-0.059	-0.050	-0.104	-0.069	-0.047	-0.035	-0.023
		10	-0.193	-0.138	-0.118	-0.101	-0.082	-0.154	-0.116	-0.090	-0.065	-0.059

Table E9. Absolute bias in the estimated slope, with L studies imputed (from 1-dimensional algorithmic variant)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
β_1 = 0.049	**τ^2 = 0**	**Number of Missing Studies**	**0**	0.000	-0.002	-0.002	0.000	0.000	0.001	-0.001	-0.001	0.000	0.000
			5	-0.008	-0.004	-0.003	0.000	-0.002	-0.008	-0.003	-0.003	0.000	-0.002
			10	-0.018	-0.010	-0.007	-0.007	-0.001	-0.017	-0.010	-0.007	-0.007	0.000
	τ^2 = 0.049		**0**	0.000	-0.004	0.002	0.002	-0.004	0.002	-0.004	-0.001	0.005	-0.002
			5	-0.016	-0.007	-0.004	-0.004	0.000	-0.012	-0.007	-0.006	-0.001	0.002
			10	-0.031	-0.013	-0.014	-0.007	-0.006	-0.029	-0.012	-0.010	-0.002	-0.003
	τ^2 = 0.148		**0**	0.014	0.006	0.002	-0.001	0.009	0.008	0.006	0.003	0.007	0.006
			5	-0.017	-0.014	-0.012	-0.006	-0.004	-0.010	-0.007	-0.003	0.000	-0.005
			10	-0.029	-0.018	-0.017	-0.017	-0.019	-0.021	-0.018	-0.013	-0.014	-0.012
	τ^2 = 0.444		**0**	-0.006	0.018	0.002	-0.023	0.000	-0.006	0.018	-0.008	-0.002	0.008
			5	-0.011	-0.006	-0.021	-0.011	0.007	-0.003	-0.009	-0.025	-0.005	-0.003
			10	-0.012	-0.005	-0.019	-0.005	-0.008	-0.025	-0.008	-0.018	-0.014	0.001
β_1 = 0.074	**τ^2 = 0**	**Number of Missing Studies**	**0**	-0.002	0.001	0.002	0.000	-0.001	-0.001	0.001	0.003	0.000	0.000
			5	-0.014	-0.005	-0.003	-0.002	-0.001	-0.014	-0.005	-0.002	-0.003	-0.001
			10	-0.030	-0.016	-0.011	-0.009	-0.006	-0.027	-0.015	-0.011	-0.008	-0.006
	τ^2 = 0.049		**0**	0.001	-0.004	-0.002	0.002	0.002	0.005	0.000	0.003	0.005	-0.001
			5	-0.011	-0.012	-0.011	-0.010	-0.003	-0.008	-0.005	-0.007	-0.004	-0.001
			10	-0.036	-0.031	-0.018	-0.014	-0.011	-0.034	-0.026	-0.014	-0.013	-0.007
	τ^2 = 0.148		**0**	-0.006	0.004	-0.004	0.004	-0.002	0.000	0.008	0.002	0.004	0.008
			5	-0.016	-0.016	-0.007	-0.015	-0.006	-0.016	-0.010	-0.002	-0.013	-0.006
			10	-0.035	-0.034	-0.026	-0.008	-0.014	-0.033	-0.030	-0.018	-0.010	-0.011
	τ^2 = 0.444		**0**	0.022	0.026	-0.018	0.007	-0.009	0.032	0.018	0.007	0.021	0.006
			5	-0.017	0.002	-0.016	-0.011	-0.001	-0.008	-0.002	-0.004	-0.014	-0.010
			10	-0.029	-0.035	-0.034	-0.020	-0.014	-0.027	-0.028	-0.019	-0.022	-0.006
β_1 = 0.148	**τ^2 = 0**	**Number of Missing Studies**	**0**	0.000	-0.001	-0.001	-0.002	0.002	0.002	0.001	0.001	-0.001	0.003
			5	-0.021	-0.010	-0.008	-0.005	-0.005	-0.018	-0.009	-0.007	-0.005	-0.004
			10	-0.050	-0.029	-0.021	-0.015	-0.011	-0.048	-0.027	-0.021	-0.015	-0.010
	τ^2 = 0.049		**0**	0.002	0.008	0.001	0.001	0.004	0.005	0.016	0.008	0.007	0.009
			5	-0.032	-0.021	-0.019	-0.010	-0.006	-0.024	-0.020	-0.015	-0.007	-0.003
			10	-0.061	-0.044	-0.037	-0.031	-0.022	-0.055	-0.035	-0.030	-0.027	-0.016
	τ^2 = 0.148		**0**	0.005	-0.002	-0.011	0.001	-0.001	0.012	0.011	0.009	0.010	0.006
			5	-0.033	-0.036	-0.026	-0.029	-0.015	-0.024	-0.021	-0.018	-0.021	-0.008
			10	-0.057	-0.042	-0.042	-0.034	-0.038	-0.055	-0.028	-0.037	-0.027	-0.026
	τ^2 = 0.444		**0**	-0.003	0.009	-0.003	0.005	0.002	0.015	0.020	0.005	0.006	0.011
			5	-0.048	-0.026	-0.015	-0.033	-0.024	-0.037	-0.013	-0.019	-0.019	-0.014
			10	-0.090	-0.068	-0.041	-0.053	-0.026	-0.073	-0.063	-0.038	-0.031	-0.026

Table E9. Absolute bias in the estimated slope, with L studies imputed (from 1-dimensional algorithmic variant) (continued)

L Missing Studies Imputed			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
			25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
β_1 = 0.296	$\tau^2 = 0$	**0**	0.001	0.003	0.002	0.001	0.002	0.004	0.006	0.006	0.004	0.005
		5	-0.042	-0.021	-0.016	-0.010	-0.006	-0.038	-0.018	-0.013	-0.009	-0.004
		10	-0.108	-0.060	-0.038	-0.026	-0.018	-0.103	-0.058	-0.036	-0.024	-0.016
	τ^2 = 0.049	**0**	-0.002	0.000	0.002	0.001	0.011	0.009	0.014	0.013	0.021	0.023
		5	-0.067	-0.046	-0.031	-0.027	-0.012	-0.056	-0.039	-0.019	-0.020	-0.008
		10	-0.121	-0.093	-0.071	-0.061	-0.047	-0.109	-0.075	-0.058	-0.052	-0.038
	τ^2 = 0.148	**0**	0.000	0.018	0.008	0.000	-0.003	0.017	0.030	0.027	0.018	0.021
		5	-0.083	-0.051	-0.052	-0.046	-0.032	-0.070	-0.045	-0.039	-0.028	-0.018
		10	-0.128	-0.111	-0.089	-0.069	-0.058	-0.108	-0.089	-0.069	-0.052	-0.047
	τ^2 = 0.444	**0**	0.019	-0.017	-0.001	0.003	0.001	0.031	0.008	0.024	0.023	0.021
		5	-0.110	-0.065	-0.069	-0.053	-0.045	-0.082	-0.060	-0.043	-0.039	-0.026
		10	-0.137	-0.103	-0.104	-0.083	-0.076	-0.115	-0.078	-0.083	-0.066	-0.055
β_1 = 0.444	$\tau^2 = 0$	**0**	0.001	0.003	0.000	0.005	0.004	0.007	0.008	0.006	0.011	0.009
		5	-0.060	-0.030	-0.019	-0.013	-0.008	-0.055	-0.024	-0.013	-0.008	-0.004
		10	-0.148	-0.086	-0.056	-0.035	-0.021	-0.143	-0.081	-0.051	-0.031	-0.017
	τ^2 = 0.049	**0**	0.000	0.001	0.008	0.011	0.008	0.019	0.022	0.030	0.029	0.026
		5	-0.101	-0.069	-0.044	-0.029	-0.025	-0.078	-0.054	-0.031	-0.021	-0.013
		10	-0.184	-0.132	-0.100	-0.080	-0.062	-0.164	-0.113	-0.083	-0.066	-0.049
	τ^2 = 0.148	**0**	-0.001	-0.002	0.011	0.011	0.017	0.030	0.025	0.032	0.029	0.036
		5	-0.124	-0.081	-0.072	-0.049	-0.033	-0.094	-0.061	-0.061	-0.032	-0.022
		10	-0.194	-0.152	-0.130	-0.107	-0.094	-0.169	-0.132	-0.102	-0.086	-0.068
	τ^2 = 0.444	**0**	-0.016	0.016	0.011	0.015	0.019	0.030	0.043	0.042	0.044	0.046
		5	-0.131	-0.100	-0.083	-0.066	-0.055	-0.113	-0.074	-0.057	-0.046	-0.029
		10	-0.211	-0.160	-0.140	-0.118	-0.104	-0.173	-0.137	-0.112	-0.084	-0.083

Table E10. Coverage probability of the estimated slope, with no correction for publication

No Correction for Publication Bias			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
		Number of Missing Studies	25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	95.1%	95.2%	94.9%	95.0%	95.4%	96.4%	96.3%	95.8%	96.2%	96.3%
		5	95.9%	95.4%	95.6%	95.3%	95.0%	96.2%	95.9%	96.1%	95.8%	95.3%
		10	95.9%	94.9%	95.1%	95.2%	94.8%	96.3%	95.3%	95.4%	95.3%	95.2%
	$\tau^2 = 0.049$	0	64.0%	61.4%	58.2%	56.1%	54.9%	92.3%	92.4%	93.1%	93.5%	93.6%
		5	70.7%	64.6%	60.9%	58.0%	55.6%	90.1%	90.6%	92.0%	92.8%	93.3%
		10	82.8%	71.4%	64.9%	61.4%	57.6%	90.4%	88.6%	89.6%	91.7%	92.2%
	$\tau^2 = 0.148$	0	45.8%	41.4%	39.0%	39.0%	35.9%	92.7%	93.0%	93.0%	93.6%	93.8%
		5	54.9%	47.5%	42.6%	39.6%	38.3%	91.9%	93.3%	93.3%	94.0%	94.3%
		10	68.0%	55.2%	48.2%	45.0%	41.6%	89.9%	92.0%	92.8%	93.2%	94.0%
	$\tau^2 = 0.444$	0	28.8%	26.2%	24.5%	22.3%	22.2%	92.3%	92.9%	93.6%	93.3%	94.0%
		5	37.6%	31.9%	27.0%	25.4%	23.6%	92.9%	93.2%	93.4%	94.1%	94.1%
		10	47.7%	38.4%	32.6%	29.3%	26.2%	90.9%	93.9%	93.8%	94.1%	93.6%
β_1 = 0.074	$\tau^2 = 0$	0	95.2%	95.2%	95.1%	95.2%	95.5%	96.2%	96.6%	96.1%	96.2%	96.5%
		5	95.8%	95.5%	95.7%	95.5%	95.5%	96.1%	95.8%	96.0%	95.9%	95.8%
		10	96.0%	95.2%	94.4%	95.1%	94.9%	96.4%	95.6%	94.7%	95.3%	95.1%
	$\tau^2 = 0.049$	0	63.2%	60.0%	56.7%	56.9%	53.7%	92.4%	93.2%	92.9%	93.6%	93.4%
		5	71.3%	64.3%	59.8%	56.5%	54.3%	89.8%	90.0%	91.5%	92.2%	93.2%
		10	82.6%	71.3%	63.7%	61.2%	57.9%	90.1%	88.1%	89.0%	91.6%	91.9%
	$\tau^2 = 0.148$	0	45.6%	41.3%	39.7%	37.3%	35.9%	93.1%	93.2%	93.6%	94.0%	94.5%
		5	54.7%	46.8%	42.0%	39.9%	38.9%	91.3%	92.7%	93.5%	93.4%	94.1%
		10	67.1%	54.4%	48.7%	45.9%	41.2%	90.0%	91.1%	92.6%	93.5%	93.6%
	$\tau^2 = 0.444$	0	28.6%	25.4%	25.0%	22.8%	20.9%	93.1%	93.0%	93.2%	93.5%	93.7%
		5	37.1%	31.9%	29.0%	27.0%	24.7%	92.5%	93.6%	94.0%	93.6%	94.0%
		10	47.7%	36.9%	32.4%	28.9%	26.5%	90.7%	92.6%	93.5%	93.0%	93.9%
β_1 = 0.148	$\tau^2 = 0$	0	94.2%	95.0%	94.6%	95.0%	95.0%	95.4%	96.3%	95.7%	96.3%	95.8%
		5	95.5%	95.1%	95.3%	95.4%	95.3%	95.8%	95.5%	95.8%	95.9%	95.6%
		10	94.7%	94.8%	95.1%	94.5%	95.1%	95.2%	95.0%	95.3%	94.9%	95.4%
	$\tau^2 = 0.049$	0	64.0%	62.3%	58.0%	56.8%	53.2%	91.8%	93.7%	93.0%	94.2%	93.8%
		5	71.3%	64.9%	59.7%	57.5%	55.3%	89.4%	90.0%	91.5%	92.5%	92.5%
		10	81.3%	71.8%	64.9%	61.0%	58.0%	89.7%	88.4%	89.1%	90.1%	91.5%
	$\tau^2 = 0.148$	0	45.4%	41.9%	39.1%	36.3%	35.4%	92.5%	93.6%	93.3%	94.0%	93.3%
		5	55.0%	46.9%	43.5%	39.7%	38.0%	91.5%	92.6%	93.6%	93.6%	93.5%
		10	67.2%	54.8%	46.6%	42.4%	40.5%	89.5%	90.4%	92.7%	93.1%	93.4%
	$\tau^2 = 0.444$	0	29.0%	26.1%	24.1%	21.9%	22.3%	92.4%	93.2%	92.6%	93.2%	93.6%
		5	37.2%	31.5%	27.9%	26.0%	23.7%	92.5%	92.9%	93.6%	94.3%	93.0%
		10	47.7%	37.9%	31.7%	29.9%	27.1%	90.6%	93.0%	93.4%	93.9%	93.0%

Table E10. Coverage probability of the estimated slope, with no correction for publication (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.296$	$\tau^2 = 0$	Number of Missing Studies	0	95.0%	95.3%	95.1%	95.4%	94.7%	96.1%	96.1%	96.6%	96.4%	96.0%
			5	93.9%	95.0%	95.0%	94.9%	95.0%	94.5%	95.3%	95.5%	95.2%	95.4%
			10	89.5%	91.3%	92.8%	93.0%	94.4%	90.2%	91.7%	93.2%	93.3%	94.6%
	$\tau^2 = 0.049$		0	63.7%	59.6%	59.1%	55.6%	53.5%	92.5%	93.1%	93.8%	93.7%	94.2%
			5	69.2%	63.9%	59.9%	57.6%	54.1%	87.8%	89.9%	91.9%	92.0%	92.7%
			10	76.2%	66.4%	61.6%	58.1%	55.7%	84.8%	83.9%	85.4%	86.8%	88.8%
	$\tau^2 = 0.148$		0	45.1%	41.8%	39.0%	37.3%	35.6%	92.7%	92.9%	93.9%	93.4%	93.6%
			5	53.6%	45.9%	42.3%	37.7%	37.1%	90.1%	91.8%	92.3%	93.0%	93.1%
			10	63.3%	51.9%	46.4%	41.9%	39.2%	86.2%	88.3%	90.3%	90.7%	91.4%
	$\tau^2 = 0.444$		0	28.1%	26.6%	23.8%	22.3%	22.6%	91.2%	93.4%	93.4%	93.6%	93.3%
			5	37.7%	31.1%	27.7%	25.8%	24.2%	92.2%	92.9%	92.9%	93.1%	94.0%
			10	45.0%	37.3%	32.3%	28.5%	27.4%	89.4%	91.5%	92.8%	92.4%	92.7%
$\beta_1 = 0.444$	$\tau^2 = 0$	Number of Missing Studies	0	94.9%	95.2%	95.4%	95.0%	94.6%	96.2%	96.1%	96.2%	95.8%	95.9%
			5	93.1%	94.8%	94.2%	94.7%	94.9%	93.8%	94.9%	94.5%	95.0%	95.1%
			10	85.7%	86.9%	89.1%	91.1%	92.5%	86.5%	87.3%	89.6%	91.2%	92.7%
	$\tau^2 = 0.049$		0	64.6%	59.3%	58.4%	54.9%	54.9%	92.5%	92.3%	93.4%	93.3%	94.3%
			5	68.0%	61.3%	58.9%	56.1%	54.1%	85.5%	87.8%	89.6%	90.5%	91.3%
			10	68.1%	61.3%	57.6%	55.7%	54.0%	79.1%	78.3%	80.6%	82.7%	84.9%
	$\tau^2 = 0.148$		0	45.4%	42.4%	40.3%	36.2%	34.9%	93.0%	93.5%	93.8%	93.7%	93.3%
			5	52.7%	45.3%	40.3%	39.7%	37.6%	88.6%	89.9%	90.6%	92.3%	92.3%
			10	59.8%	50.3%	44.9%	40.5%	37.7%	82.8%	83.9%	86.0%	87.8%	88.4%
	$\tau^2 = 0.444$		0	27.8%	26.5%	24.3%	23.1%	21.1%	92.5%	93.0%	93.9%	93.3%	94.1%
			5	36.1%	31.0%	28.0%	25.8%	23.7%	90.5%	92.1%	92.2%	92.7%	92.8%
			10	45.4%	35.7%	31.0%	28.3%	25.8%	87.8%	89.2%	90.1%	91.3%	90.7%

Table E11. Coverage probability of the estimated slope, with R studies imputed (from 1-dimensional algorithmic variant)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	0	94.7%	94.9%	94.7%	94.8%	95.3%	96.0%	96.1%	95.6%	96.1%	96.2%
			5	93.5%	92.9%	93.7%	93.5%	93.0%	94.3%	93.7%	94.4%	94.2%	94.1%
			10	94.4%	93.0%	92.8%	92.3%	92.3%	94.7%	93.4%	93.5%	92.9%	93.1%
	$\tau^2 =$ 0.049		0	63.8%	61.4%	58.0%	55.9%	54.9%	91.2%	91.8%	92.5%	92.8%	92.9%
			5	67.1%	62.5%	58.9%	55.8%	54.8%	85.8%	86.2%	87.6%	88.6%	89.1%
			10	79.4%	67.2%	62.0%	57.7%	53.9%	87.1%	85.0%	84.7%	86.3%	86.4%
	$\tau^2 =$ 0.148		0	45.7%	41.6%	38.4%	38.7%	35.8%	90.4%	91.1%	91.0%	92.3%	92.8%
			5	52.0%	45.0%	41.3%	38.1%	36.5%	85.7%	87.7%	87.8%	87.7%	88.3%
			10	63.9%	49.9%	44.3%	41.0%	37.6%	85.1%	84.6%	85.1%	86.5%	86.3%
	$\tau^2 =$ 0.444		0	28.3%	26.0%	24.6%	22.5%	22.4%	89.0%	90.2%	91.1%	91.2%	91.8%
			5	35.1%	29.2%	25.4%	24.6%	22.4%	85.2%	86.3%	87.0%	86.4%	86.8%
			10	44.4%	34.4%	29.0%	26.0%	23.4%	84.7%	85.5%	85.5%	84.8%	85.0%
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	0	95.0%	95.0%	94.9%	94.9%	95.4%	96.1%	96.4%	96.0%	96.0%	96.5%
			5	93.3%	93.1%	93.8%	93.7%	94.2%	94.0%	93.7%	94.4%	94.4%	95.1%
			10	94.7%	92.4%	90.9%	92.7%	92.6%	95.0%	93.2%	91.8%	93.4%	93.6%
	$\tau^2 =$ 0.049		0	63.1%	59.8%	56.4%	56.7%	53.8%	91.2%	92.5%	92.2%	93.0%	92.7%
			5	67.6%	62.0%	57.7%	55.2%	53.2%	86.1%	86.4%	87.4%	88.6%	89.8%
			10	79.3%	67.2%	61.1%	58.2%	56.1%	87.9%	84.2%	84.7%	86.6%	86.5%
	$\tau^2 =$ 0.148		0	45.6%	41.5%	39.5%	37.6%	35.6%	90.5%	91.2%	92.1%	92.4%	93.2%
			5	52.4%	44.3%	39.4%	38.1%	37.6%	85.6%	86.1%	86.6%	86.9%	88.4%
			10	63.7%	50.2%	44.1%	42.3%	37.9%	84.7%	84.8%	85.3%	86.3%	86.2%
	$\tau^2 =$ 0.444		0	28.4%	25.7%	24.8%	23.1%	21.0%	89.8%	90.1%	90.5%	90.9%	91.5%
			5	33.8%	30.1%	27.2%	24.4%	23.2%	86.2%	86.3%	87.0%	87.3%	87.3%
			10	44.0%	33.1%	29.9%	26.7%	23.3%	84.2%	84.6%	85.6%	85.5%	85.6%

Table E11. Coverage probability of the estimated slope, with R studies imputed (from 1-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.148	τ^2 = 0	Number of Missing Studies	0	93.8%	94.7%	94.3%	94.8%	94.9%	95.1%	96.1%	95.6%	96.3%	95.9%
			5	92.9%	92.8%	93.2%	93.5%	94.1%	93.8%	93.5%	94.0%	94.2%	95.3%
			10	93.8%	92.8%	92.5%	92.0%	92.5%	94.3%	93.4%	93.1%	92.9%	93.2%
	τ^2 = 0.049		0	63.5%	62.3%	58.0%	56.5%	53.1%	90.8%	92.9%	92.5%	93.6%	93.4%
			5	68.2%	62.3%	57.9%	56.3%	53.7%	85.7%	86.4%	87.9%	88.8%	88.5%
			10	78.5%	68.5%	61.5%	57.6%	56.0%	87.0%	85.0%	85.3%	86.4%	86.3%
	τ^2 = 0.148		0	46.1%	42.3%	39.2%	36.5%	35.5%	90.4%	91.8%	91.9%	92.6%	92.2%
			5	51.5%	44.1%	41.7%	38.4%	36.2%	85.2%	86.4%	86.4%	88.2%	87.6%
			10	62.3%	50.8%	43.2%	39.3%	38.2%	84.6%	84.6%	85.5%	85.9%	85.8%
	τ^2 = 0.444		0	28.6%	25.9%	24.1%	21.7%	22.0%	89.3%	90.6%	90.5%	91.2%	91.5%
			5	34.7%	29.2%	26.2%	24.1%	23.0%	86.0%	85.7%	86.7%	87.3%	86.5%
			10	43.9%	33.8%	29.2%	27.4%	24.3%	83.9%	85.1%	84.3%	86.3%	85.0%
β_1 = 0.296	τ^2 = 0	Number of Missing Studies	0	94.5%	94.8%	94.7%	94.9%	94.7%	95.8%	95.9%	96.3%	96.2%	96.1%
			5	90.9%	92.2%	92.6%	93.4%	93.5%	92.0%	93.6%	93.9%	94.0%	94.3%
			10	90.6%	89.5%	89.8%	90.6%	92.2%	91.5%	90.7%	91.5%	92.1%	93.3%
	τ^2 = 0.049		0	63.4%	59.6%	59.2%	55.4%	53.2%	91.0%	92.6%	93.2%	92.8%	93.5%
			5	66.8%	61.4%	57.9%	56.3%	53.1%	84.4%	86.8%	88.5%	88.3%	89.5%
			10	75.1%	65.3%	59.3%	56.3%	53.8%	84.2%	83.4%	84.0%	84.7%	86.8%
	τ^2 = 0.148		0	44.6%	41.7%	39.1%	37.1%	35.6%	90.7%	91.0%	91.7%	91.9%	92.2%
			5	50.1%	42.8%	40.0%	37.3%	35.9%	85.0%	86.3%	87.0%	87.7%	88.1%
			10	61.6%	48.3%	44.2%	38.8%	37.0%	83.8%	84.1%	85.4%	85.7%	85.5%
	τ^2 = 0.444		0	27.8%	26.5%	23.5%	22.1%	22.1%	88.7%	90.3%	90.8%	91.6%	91.3%
			5	35.0%	29.3%	26.1%	24.9%	23.2%	86.7%	86.1%	86.5%	86.9%	88.3%
			10	41.8%	34.3%	29.1%	26.2%	24.3%	83.6%	84.8%	85.2%	85.5%	86.0%
β_1 = 0.444	τ^2 = 0	Number of Missing Studies	0	94.1%	94.9%	95.1%	94.8%	94.5%	95.4%	95.8%	95.8%	95.7%	95.7%
			5	89.4%	91.4%	91.1%	92.3%	93.4%	91.7%	93.3%	93.0%	93.3%	94.1%
			10	88.2%	86.5%	87.6%	88.4%	89.7%	89.2%	88.6%	89.9%	91.4%	91.5%
	τ^2 = 0.049		0	64.3%	59.3%	58.4%	54.9%	54.6%	91.3%	91.6%	92.4%	92.8%	94.0%
			5	65.4%	58.3%	56.9%	55.1%	53.5%	84.3%	86.1%	87.3%	88.8%	89.4%
			10	69.1%	62.0%	57.0%	55.2%	53.0%	81.5%	81.3%	82.8%	84.6%	86.1%
	τ^2 = 0.148		0	45.0%	42.3%	40.3%	36.0%	34.9%	91.0%	91.5%	92.0%	92.1%	91.8%
			5	50.6%	43.5%	39.3%	38.3%	36.2%	85.4%	85.6%	86.1%	88.0%	88.0%
			10	58.2%	48.6%	43.0%	39.5%	36.3%	81.5%	82.5%	84.8%	85.8%	85.9%
	τ^2 = 0.444		0	27.6%	26.5%	24.3%	23.1%	20.7%	89.7%	90.0%	90.8%	90.7%	91.8%
			5	33.5%	28.7%	26.1%	23.2%	22.0%	84.3%	85.6%	86.2%	86.5%	86.7%
			10	42.0%	32.5%	27.8%	25.2%	24.3%	83.2%	83.9%	84.1%	84.9%	84.5%

Table E12. Coverage probability of the estimated slope, with L studies imputed (from 1-dimensional algorithmic variant)

L Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model, Number of Studies: 25	35	45	55	65	Random Effects in the Final Model, Number of Studies: 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	94.1%	94.6%	94.3%	94.4%	94.8%	95.3%	96.0%	95.5%	95.7%	96.2%
		5	94.6%	93.7%	93.8%	93.8%	93.3%	95.2%	94.3%	94.6%	94.4%	93.9%
		10	94.7%	94.1%	93.7%	93.2%	93.4%	95.1%	94.4%	94.5%	93.6%	94.2%
	τ^2 = 0.049	0	63.3%	61.3%	57.8%	55.5%	55.2%	90.2%	90.2%	90.7%	91.3%	90.6%
		5	68.2%	63.2%	59.5%	56.4%	55.0%	86.4%	87.1%	87.9%	88.4%	89.2%
		10	80.5%	70.5%	63.9%	60.1%	55.9%	88.1%	86.0%	86.2%	87.6%	88.0%
	τ^2 = 0.148	0	45.4%	41.0%	38.3%	38.4%	35.8%	88.7%	88.2%	89.0%	89.8%	90.2%
		5	53.3%	46.8%	41.6%	38.4%	37.7%	86.9%	89.0%	88.2%	88.4%	88.7%
		10	66.4%	53.6%	46.8%	43.5%	39.8%	86.5%	86.8%	87.2%	88.1%	88.0%
	τ^2 = 0.444	0	28.3%	25.8%	24.0%	21.8%	21.7%	87.3%	88.0%	89.0%	88.9%	89.1%
		5	36.6%	30.9%	25.9%	25.2%	22.9%	86.8%	87.7%	88.1%	88.1%	87.5%
		10	46.4%	36.6%	31.4%	27.9%	25.3%	86.4%	88.0%	88.0%	87.0%	87.3%
β_1 = 0.074	$\tau^2 = 0$	0	94.3%	94.7%	94.5%	94.7%	94.6%	95.7%	95.9%	95.7%	95.7%	96.2%
		5	94.1%	93.8%	94.2%	93.9%	94.2%	94.8%	94.3%	94.8%	94.6%	94.9%
		10	95.2%	93.2%	92.7%	93.5%	93.1%	95.5%	94.0%	93.6%	94.2%	94.0%
	τ^2 = 0.049	0	63.2%	59.6%	56.5%	56.7%	53.8%	89.7%	90.4%	90.5%	91.4%	91.0%
		5	69.4%	62.9%	59.5%	56.5%	54.2%	87.1%	86.8%	87.8%	88.6%	89.5%
		10	81.4%	70.1%	63.5%	60.3%	57.2%	88.9%	86.1%	86.2%	87.7%	87.4%
	τ^2 = 0.148	0	45.3%	40.9%	39.1%	37.0%	35.3%	89.3%	89.5%	89.1%	90.3%	90.2%
		5	53.2%	45.6%	41.0%	38.2%	38.1%	85.9%	87.2%	87.7%	88.0%	89.2%
		10	65.8%	53.3%	46.3%	44.8%	39.9%	86.3%	86.4%	86.9%	87.8%	88.0%
	τ^2 = 0.444	0	27.6%	24.9%	24.5%	22.4%	21.1%	88.0%	88.1%	87.9%	87.9%	88.8%
		5	35.6%	30.7%	28.7%	25.3%	23.6%	86.8%	87.5%	88.3%	88.1%	87.7%
		10	46.8%	35.7%	31.3%	27.9%	25.6%	86.2%	86.6%	87.3%	86.9%	88.3%
β_1 = 0.148	$\tau^2 = 0$	0	93.3%	94.1%	94.0%	94.4%	94.5%	94.8%	95.6%	95.4%	96.0%	95.8%
		5	93.5%	93.3%	93.5%	93.6%	93.9%	94.2%	94.1%	94.3%	94.4%	94.9%
		10	94.2%	93.6%	93.5%	92.7%	93.5%	94.5%	93.9%	93.9%	93.3%	94.1%
	τ^2 = 0.049	0	63.3%	61.7%	57.8%	56.7%	53.6%	89.6%	90.9%	90.8%	91.7%	91.7%
		5	70.2%	63.5%	59.6%	56.8%	54.1%	86.8%	86.8%	88.6%	89.0%	88.9%
		10	79.5%	70.3%	63.4%	59.7%	56.9%	87.8%	86.4%	86.4%	87.1%	87.1%
	τ^2 = 0.148	0	45.9%	42.1%	38.6%	36.0%	35.0%	88.2%	89.7%	89.7%	89.8%	89.5%
		5	52.9%	46.1%	42.6%	38.3%	37.0%	86.6%	87.5%	87.6%	88.4%	87.8%
		10	65.0%	53.1%	45.5%	41.1%	39.6%	86.2%	86.1%	87.5%	87.2%	87.3%
	τ^2 = 0.444	0	28.3%	25.8%	23.6%	21.9%	21.4%	87.7%	87.9%	87.4%	88.5%	88.7%
		5	35.4%	30.5%	26.8%	24.6%	23.4%	87.1%	86.9%	87.5%	88.0%	87.3%
		10	46.4%	36.7%	30.9%	29.0%	26.1%	85.4%	87.5%	87.1%	87.8%	87.0%

Table E12. Coverage probability of the estimated slope, with L studies imputed (from 1-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.296$	$\tau^2 = 0$	Number of Missing Studies	0	93.8%	94.1%	94.0%	94.1%	94.2%	95.2%	95.2%	95.7%	95.2%	95.5%
			5	91.5%	92.6%	92.5%	93.4%	93.3%	92.4%	93.7%	93.7%	94.4%	93.8%
			10	91.5%	91.1%	91.1%	91.6%	92.6%	92.1%	91.7%	92.3%	92.8%	93.3%
	$\tau^2 = 0.049$		0	62.5%	58.7%	59.2%	55.5%	53.1%	89.9%	90.7%	91.6%	90.1%	91.1%
			5	68.0%	62.5%	59.3%	56.6%	53.6%	85.5%	87.2%	88.9%	88.4%	89.0%
			10	76.3%	67.1%	61.0%	57.9%	55.7%	84.7%	83.7%	84.9%	85.5%	87.3%
	$\tau^2 = 0.148$		0	44.1%	41.1%	38.5%	36.6%	35.0%	88.5%	88.7%	89.3%	89.3%	89.1%
			5	51.9%	44.5%	40.5%	37.9%	36.7%	85.9%	87.7%	87.6%	88.3%	88.2%
			10	63.0%	50.7%	45.9%	41.4%	38.3%	84.9%	85.4%	87.0%	86.7%	87.0%
	$\tau^2 = 0.444$		0	27.8%	25.4%	23.1%	21.6%	21.8%	86.5%	88.7%	88.3%	88.5%	88.5%
			5	36.1%	30.3%	26.4%	25.8%	23.5%	87.6%	87.0%	87.6%	87.9%	88.6%
			10	43.3%	36.4%	30.7%	27.4%	26.3%	85.4%	86.8%	87.5%	87.4%	87.5%
$\beta_1 = 0.444$	$\tau^2 = 0$	Number of Missing Studies	0	93.2%	93.7%	94.0%	94.1%	93.6%	94.7%	94.7%	95.0%	94.9%	94.9%
			5	91.3%	92.2%	91.7%	91.9%	92.7%	92.8%	93.2%	93.0%	93.0%	93.5%
			10	88.6%	87.8%	89.2%	89.8%	90.3%	89.4%	89.0%	90.0%	91.1%	91.1%
	$\tau^2 = 0.049$		0	63.2%	58.6%	57.7%	54.1%	53.4%	89.9%	89.6%	90.4%	90.0%	91.3%
			5	66.9%	59.1%	57.7%	55.7%	53.2%	85.0%	85.5%	87.0%	88.3%	88.3%
			10	69.9%	62.3%	58.4%	55.9%	53.6%	81.7%	81.2%	82.5%	84.1%	84.9%
	$\tau^2 = 0.148$		0	44.8%	40.9%	39.8%	35.6%	34.3%	88.9%	89.4%	89.7%	89.0%	88.8%
			5	51.6%	44.3%	39.4%	38.2%	37.1%	85.9%	86.3%	86.9%	87.6%	88.2%
			10	59.0%	50.0%	44.4%	40.1%	36.5%	81.6%	83.2%	85.2%	86.0%	86.0%
	$\tau^2 = 0.444$		0	27.0%	25.6%	24.0%	23.0%	20.9%	87.8%	87.7%	88.1%	87.8%	88.5%
			5	35.2%	29.9%	27.1%	23.9%	22.3%	85.5%	87.0%	86.9%	87.3%	87.9%
			10	43.4%	34.1%	30.1%	27.4%	25.6%	84.0%	85.1%	85.8%	86.4%	86.1%

Table E13. Relative bias in the estimated slope, with no correction for publication bias (from 1-dimensional algorithmic variant)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	0	2.2%	-4.4%	-3.8%	-0.8%	-1.3%	3.0%	-4.5%	-3.8%	-0.2%	-1.3%
			5	-17.1%	-10.1%	-8.5%	-1.9%	-5.6%	-17.7%	-10.6%	-8.7%	-2.7%	-6.3%
			10	-61.1%	-29.6%	-19.0%	-17.9%	-6.1%	-60.9%	-30.3%	-19.6%	-18.0%	-6.1%
	τ^2 = 0.049		0	0.5%	-14.2%	6.2%	2.9%	-8.2%	-0.7%	-15.2%	-3.6%	4.0%	-8.1%
			5	-39.0%	-15.4%	-9.5%	-13.2%	-4.0%	-39.3%	-22.5%	-21.3%	-12.2%	-7.6%
			10	-81.2%	-40.7%	-39.9%	-24.4%	-19.1%	-79.3%	-44.7%	-39.3%	-21.9%	-20.1%
	τ^2 = 0.148		0	37.6%	16.0%	2.5%	-6.3%	13.8%	20.3%	4.6%	-5.4%	1.3%	4.0%
			5	-37.0%	-32.8%	-34.3%	-16.3%	-5.1%	-35.3%	-28.7%	-23.3%	-19.5%	-19.5%
			10	-66.9%	-44.6%	-43.4%	-39.6%	-44.8%	-54.3%	-54.7%	-37.7%	-40.8%	-35.6%
	τ^2 = 0.444		0	-17.0%	27.8%	16.8%	-42.0%	-6.5%	-18.8%	20.3%	-21.0%	-8.9%	2.2%
			5	-39.6%	-5.0%	-40.8%	-26.6%	7.6%	-17.2%	-23.2%	-51.1%	-23.5%	-14.8%
			10	-18.3%	-19.0%	-52.8%	-13.0%	-16.1%	-56.2%	-36.8%	-54.9%	-40.9%	-17.3%
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	0	-2.0%	1.4%	2.0%	-0.7%	-0.6%	-1.5%	0.7%	2.0%	-0.9%	-0.4%
			5	-24.1%	-10.1%	-5.7%	-4.8%	-3.0%	-25.0%	-10.8%	-6.3%	-5.7%	-3.5%
			10	-63.1%	-31.2%	-18.5%	-14.9%	-11.1%	-63.1%	-31.8%	-19.0%	-15.3%	-11.5%
	τ^2 = 0.049		0	1.0%	-7.8%	-1.9%	-1.6%	1.4%	1.8%	-3.8%	1.1%	0.2%	-5.1%
			5	-24.3%	-23.4%	-19.9%	-16.9%	-5.6%	-25.5%	-21.8%	-21.2%	-16.5%	-8.9%
			10	-63.0%	-48.7%	-33.6%	-27.9%	-23.3%	-66.2%	-48.2%	-34.6%	-33.3%	-24.6%
	τ^2 = 0.148		0	-8.4%	1.5%	-3.7%	3.6%	-6.4%	-7.8%	4.5%	-4.9%	-0.9%	4.4%
			5	-28.5%	-24.7%	-16.9%	-27.8%	-14.0%	-33.0%	-28.1%	-18.2%	-29.8%	-20.4%
			10	-61.8%	-52.4%	-44.8%	-22.8%	-28.5%	-63.0%	-52.3%	-40.1%	-30.4%	-33.5%
	τ^2 = 0.444		0	23.9%	30.6%	-28.2%	3.0%	-8.4%	26.6%	12.0%	-1.4%	16.7%	-0.5%
			5	-31.4%	-14.2%	-26.4%	-23.1%	-2.7%	-31.5%	-26.8%	-22.7%	-30.4%	-18.9%
			10	-49.0%	-56.0%	-50.7%	-40.3%	-22.7%	-50.5%	-49.3%	-41.3%	-48.4%	-27.2%
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	0	-1.0%	-0.9%	-0.5%	-1.2%	0.9%	-0.5%	-0.8%	-0.4%	-1.2%	0.6%
			5	-18.5%	-9.8%	-7.4%	-5.2%	-5.0%	-18.7%	-10.3%	-7.6%	-5.5%	-5.3%
			10	-56.3%	-30.4%	-21.0%	-14.2%	-11.1%	-56.9%	-30.5%	-21.5%	-14.6%	-11.3%
	τ^2 = 0.049		0	2.1%	3.9%	-0.9%	-0.6%	1.0%	1.2%	4.9%	-1.0%	-1.1%	0.9%
			5	-28.9%	-18.4%	-18.1%	-11.4%	-8.8%	-29.8%	-24.7%	-20.9%	-16.0%	-12.4%
			10	-53.7%	-40.6%	-33.2%	-27.7%	-20.6%	-54.6%	-41.3%	-36.1%	-32.9%	-24.8%
	τ^2 = 0.148		0	3.7%	-3.5%	-8.0%	-1.4%	-5.1%	0.0%	-0.7%	-3.1%	-2.7%	-3.7%
			5	-29.8%	-35.0%	-23.6%	-24.7%	-16.2%	-31.2%	-30.9%	-26.7%	-26.4%	-17.4%
			10	-49.1%	-42.0%	-36.6%	-29.2%	-33.1%	-54.4%	-42.0%	-42.1%	-34.9%	-32.2%
	τ^2 = 0.444		0	-1.9%	3.1%	-6.1%	-0.8%	0.9%	0.7%	1.8%	-3.3%	-7.1%	-4.0%
			5	-39.7%	-26.7%	-19.3%	-25.7%	-19.7%	-38.5%	-27.6%	-27.0%	-24.9%	-21.5%
			10	-67.3%	-52.1%	-38.3%	-41.2%	-24.7%	-62.0%	-55.5%	-44.5%	-35.7%	-32.4%

Table E13. Relative bias in the estimated slope, with no correction for publication bias (from 1-dimensional algorithmic variant) (continued)

No Correction for Publication Bias		Number of Missing Studies	Fixed Effects in the Final Model Number of Studies 25	35	45	55	65	Random Effects in the Final Model Number of Studies 25	35	45	55	65
$\beta_1 =$ 0.296	$\tau^2 = 0$	0	0.2%	0.7%	0.2%	0.0%	0.4%	0.1%	0.7%	0.2%	0.1%	0.4%
		5	-17.9%	-10.1%	-7.7%	-5.4%	-4.1%	-18.5%	-10.6%	-8.0%	-5.7%	-4.2%
		10	-56.7%	-29.7%	-18.9%	-13.1%	-9.7%	-57.1%	-30.2%	-19.3%	-13.4%	-10.0%
	$\tau^2 =$ 0.049	0	-1.5%	-1.0%	-0.4%	-1.3%	2.2%	-1.5%	-0.5%	-0.3%	1.1%	1.7%
		5	-29.5%	-21.0%	-14.2%	-13.4%	-8.3%	-31.5%	-24.5%	-16.6%	-17.0%	-12.9%
		10	-55.8%	-42.5%	-32.8%	-27.7%	-22.4%	-56.5%	-43.0%	-35.0%	-31.0%	-26.1%
	$\tau^2 =$ 0.148	0	-0.3%	4.1%	0.5%	-2.4%	-3.1%	0.1%	2.4%	0.9%	-2.1%	-0.5%
		5	-33.4%	-21.7%	-21.6%	-20.2%	-14.9%	-35.5%	-27.4%	-25.2%	-22.0%	-18.5%
		10	-55.8%	-47.3%	-38.4%	-31.7%	-26.9%	-55.6%	-47.2%	-39.6%	-34.2%	-31.4%
	$\tau^2 =$ 0.444	0	5.1%	-5.5%	-2.0%	-0.6%	-3.5%	3.1%	-4.4%	-0.8%	0.1%	-1.9%
		5	-43.2%	-27.5%	-29.4%	-25.5%	-20.7%	-42.8%	-31.7%	-28.4%	-26.7%	-22.1%
		10	-55.4%	-44.0%	-41.6%	-36.8%	-34.1%	-54.0%	-42.1%	-43.4%	-38.6%	-33.9%
$\beta_1 =$ 0.444	$\tau^2 = 0$	0	-0.1%	0.1%	-0.5%	0.5%	0.2%	-0.1%	0.1%	-0.6%	0.5%	0.0%
		5	-18.0%	-10.1%	-6.9%	-5.3%	-4.1%	-18.7%	-10.5%	-7.3%	-5.6%	-4.4%
		10	-49.2%	-28.5%	-18.7%	-12.9%	-9.4%	-49.8%	-28.9%	-19.1%	-13.3%	-9.6%
	$\tau^2 =$ 0.049	0	-1.2%	-0.9%	0.2%	0.5%	0.1%	-0.7%	-0.7%	0.8%	0.1%	0.0%
		5	-29.3%	-20.3%	-14.3%	-11.0%	-9.8%	-30.1%	-23.4%	-17.9%	-14.8%	-13.0%
		10	-54.5%	-40.1%	-31.6%	-25.6%	-20.3%	-54.7%	-41.8%	-34.1%	-29.1%	-24.2%
	$\tau^2 =$ 0.148	0	-1.2%	-1.6%	1.7%	0.1%	1.9%	0.0%	-1.0%	0.4%	-1.2%	-0.2%
		5	-35.0%	-24.6%	-21.5%	-16.3%	-12.1%	-35.1%	-27.6%	-25.9%	-20.3%	-16.8%
		10	-55.3%	-43.2%	-38.9%	-31.9%	-28.9%	-55.8%	-46.1%	-40.2%	-34.7%	-31.1%
	$\tau^2 =$ 0.444	0	-4.1%	1.7%	0.4%	0.8%	2.0%	-1.7%	1.2%	0.8%	0.4%	0.5%
		5	-36.1%	-29.1%	-24.7%	-18.8%	-17.2%	-40.4%	-31.2%	-26.3%	-23.4%	-19.6%
		10	-55.3%	-44.4%	-40.2%	-35.0%	-31.4%	-55.4%	-47.3%	-41.7%	-34.6%	-33.8%

Table E14. Relative bias in the estimated slope, with R studies imputed (from 1-dimensional algorithmic variant)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.049$	$\tau^2 = 0$	Number of Missing Studies	0	2.8%	-3.8%	-2.5%	-0.6%	-1.0%	4.9%	-3.8%	-1.6%	0.0%	-0.6%
			5	-15.6%	-5.4%	-4.5%	2.5%	-2.1%	-14.7%	-4.7%	-3.6%	2.6%	-2.5%
			10	-31.8%	-18.8%	-15.0%	-12.6%	1.3%	-30.4%	-18.1%	-14.6%	-12.0%	2.1%
	$\tau^2 = 0.049$		0	-1.0%	-11.3%	5.6%	3.5%	-7.9%	-0.4%	-12.3%	-2.5%	6.9%	-6.7%
			5	-27.7%	-12.1%	-6.7%	-7.6%	3.1%	-23.2%	-10.7%	-12.8%	0.3%	6.9%
			10	-56.4%	-22.7%	-23.4%	-11.2%	-10.5%	-51.9%	-21.0%	-19.0%	-3.4%	-2.7%
	$\tau^2 = 0.148$		0	28.6%	18.5%	2.3%	-1.5%	15.8%	16.7%	10.3%	-0.4%	9.5%	8.7%
			5	-37.2%	-26.8%	-22.1%	-7.9%	-3.3%	-18.6%	-12.9%	-6.6%	4.6%	-6.7%
			10	-49.2%	-35.2%	-34.1%	-27.8%	-37.3%	-37.5%	-34.5%	-23.9%	-19.4%	-21.1%
	$\tau^2 = 0.444$		0	-14.9%	35.8%	13.5%	-40.0%	-5.3%	-19.2%	28.8%	-15.1%	-8.0%	6.5%
			5	-13.1%	-7.9%	-37.7%	-23.6%	18.4%	-0.1%	-12.4%	-46.7%	-7.7%	-0.9%
			10	-15.5%	-8.6%	-28.3%	-6.0%	-10.8%	-42.2%	-10.1%	-30.1%	-20.7%	11.3%
$\beta_1 = 0.074$	$\tau^2 = 0$	Number of Missing Studies	0	-1.6%	2.4%	2.5%	-0.1%	-0.5%	-0.4%	2.2%	2.8%	-0.1%	-0.2%
			5	-18.5%	-4.5%	-1.9%	-1.3%	-0.3%	-18.5%	-3.7%	-1.3%	-2.4%	-0.3%
			10	-36.3%	-20.6%	-12.3%	-9.8%	-5.3%	-33.4%	-19.2%	-12.4%	-9.5%	-5.8%
	$\tau^2 = 0.049$		0	1.1%	-7.7%	-1.1%	-1.1%	1.4%	4.6%	-2.4%	4.2%	2.0%	-3.4%
			5	-11.8%	-15.4%	-14.7%	-14.1%	-3.2%	-8.6%	-5.1%	-9.2%	-4.9%	-1.0%
			10	-44.9%	-39.1%	-22.9%	-15.5%	-11.9%	-43.2%	-32.5%	-17.7%	-14.4%	-6.2%
	$\tau^2 = 0.148$		0	-11.2%	2.6%	-3.6%	2.6%	-5.6%	-4.6%	8.0%	-0.2%	1.8%	7.0%
			5	-17.0%	-17.9%	-6.0%	-21.7%	-5.2%	-15.8%	-10.9%	-2.1%	-16.5%	-6.0%
			10	-45.2%	-41.4%	-27.8%	-10.2%	-16.4%	-43.5%	-37.3%	-18.4%	-10.5%	-11.9%
	$\tau^2 = 0.444$		0	32.0%	28.0%	-23.9%	9.6%	-8.9%	45.9%	20.0%	3.8%	23.4%	5.1%
			5	-23.0%	4.7%	-23.1%	-7.3%	2.5%	-11.5%	1.9%	-3.3%	-13.7%	-10.7%
			10	-35.5%	-37.6%	-43.3%	-16.8%	-19.6%	-29.3%	-29.3%	-23.2%	-23.4%	-7.4%
$\beta_1 = 0.148$	$\tau^2 = 0$	Number of Missing Studies	0	0.0%	-0.4%	-0.3%	-0.8%	1.0%	1.2%	0.1%	0.1%	-0.6%	0.9%
			5	-14.1%	-5.1%	-3.3%	-2.5%	-2.5%	-11.6%	-4.8%	-2.7%	-2.2%	-2.2%
			10	-31.6%	-18.4%	-12.6%	-8.4%	-5.4%	-30.3%	-16.9%	-12.1%	-7.9%	-5.0%
	$\tau^2 = 0.049$		0	1.1%	4.6%	-0.2%	-0.6%	1.4%	2.9%	7.5%	1.3%	0.4%	2.5%
			5	-20.1%	-13.4%	-12.3%	-6.2%	-3.8%	-15.4%	-12.5%	-8.7%	-3.4%	-1.3%
			10	-38.2%	-27.3%	-23.8%	-19.9%	-13.4%	-34.3%	-21.8%	-19.6%	-16.6%	-9.3%
	$\tau^2 = 0.148$		0	1.4%	-2.3%	-7.6%	-0.1%	-4.2%	4.1%	3.3%	1.7%	1.0%	-0.9%
			5	-19.7%	-23.5%	-16.1%	-19.4%	-8.8%	-14.4%	-12.6%	-10.7%	-13.4%	-4.4%
			10	-34.2%	-24.1%	-22.7%	-20.3%	-22.7%	-33.0%	-15.3%	-20.7%	-15.1%	-14.3%
	$\tau^2 = 0.444$		0	-0.8%	7.4%	-3.1%	1.6%	3.2%	6.1%	8.1%	1.7%	-1.3%	1.1%
			5	-30.1%	-14.9%	-10.7%	-20.4%	-16.3%	-23.9%	-6.4%	-12.9%	-9.9%	-6.8%
			10	-58.7%	-40.3%	-24.6%	-28.6%	-14.0%	-45.1%	-37.9%	-20.8%	-13.9%	-12.2%

Table E14. Relative bias in the estimated slope, with R studies imputed (from 1-dimensional algorithmic variant) (continued)

R Missing Studies Imputed			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
		Number of Missing Studies	25	35	45	55	65	25	35	45	55	65
$\beta_1 = 0.296$	$\tau^2 = 0$	0	0.7%	1.1%	0.6%	0.3%	0.7%	0.9%	1.3%	0.9%	0.5%	0.8%
		5	-13.7%	-6.3%	-4.4%	-2.4%	-1.3%	-12.0%	-5.1%	-3.6%	-1.8%	-0.5%
		10	-33.8%	-19.1%	-11.8%	-7.5%	-4.9%	-32.5%	-18.1%	-11.0%	-6.6%	-4.2%
	$\tau^2 = 0.049$	0	-1.0%	-0.6%	0.0%	-0.9%	2.7%	1.0%	1.5%	1.4%	3.0%	3.4%
		5	-22.5%	-15.3%	-9.8%	-8.8%	-3.9%	-18.6%	-12.4%	-4.8%	-6.3%	-2.4%
		10	-38.1%	-27.6%	-21.8%	-18.2%	-14.3%	-34.1%	-21.8%	-16.8%	-14.9%	-10.6%
	$\tau^2 = 0.148$	0	-0.4%	4.7%	1.1%	-2.4%	-2.5%	3.2%	6.3%	4.4%	0.9%	2.6%
		5	-26.5%	-15.3%	-15.8%	-14.4%	-10.0%	-21.7%	-13.1%	-11.0%	-8.7%	-5.1%
		10	-40.0%	-33.3%	-27.1%	-20.4%	-16.6%	-32.2%	-26.0%	-19.8%	-14.2%	-12.0%
	$\tau^2 = 0.444$	0	4.2%	-6.8%	-0.6%	0.0%	-0.8%	7.4%	-0.5%	4.0%	4.2%	2.5%
		5	-33.4%	-19.9%	-21.6%	-17.4%	-13.9%	-23.9%	-18.1%	-11.6%	-11.1%	-6.0%
		10	-43.1%	-30.4%	-28.8%	-22.6%	-21.2%	-34.6%	-21.3%	-23.0%	-17.3%	-13.8%
$\beta_1 = 0.444$	$\tau^2 = 0$	0	0.1%	0.5%	-0.2%	0.8%	0.4%	0.8%	1.0%	0.0%	1.1%	0.5%
		5	-13.8%	-6.5%	-3.7%	-2.3%	-1.4%	-12.2%	-4.8%	-2.4%	-1.3%	-0.7%
		10	-31.2%	-18.8%	-12.1%	-7.5%	-4.0%	-30.1%	-17.4%	-10.7%	-6.4%	-2.9%
	$\tau^2 = 0.049$	0	-0.9%	-0.5%	0.6%	0.9%	0.6%	1.9%	1.9%	2.9%	2.0%	1.6%
		5	-21.7%	-15.4%	-9.5%	-6.4%	-5.8%	-16.3%	-11.5%	-6.4%	-4.0%	-2.7%
		10	-38.8%	-27.2%	-20.0%	-16.1%	-12.8%	-34.2%	-22.7%	-15.8%	-12.3%	-9.1%
	$\tau^2 = 0.148$	0	-1.5%	-1.6%	1.7%	1.3%	2.4%	3.4%	2.2%	3.8%	2.3%	2.9%
		5	-26.3%	-17.1%	-15.8%	-10.4%	-6.9%	-19.7%	-12.2%	-12.3%	-5.9%	-3.7%
		10	-40.3%	-30.3%	-26.0%	-21.2%	-18.1%	-34.7%	-25.4%	-19.4%	-16.0%	-11.8%
	$\tau^2 = 0.444$	0	-3.7%	2.6%	0.9%	1.5%	2.7%	3.5%	6.5%	5.5%	4.9%	5.5%
		5	-28.0%	-20.8%	-17.1%	-13.2%	-11.2%	-23.4%	-15.6%	-10.7%	-7.9%	-5.2%
		10	-43.5%	-31.1%	-26.5%	-22.7%	-18.4%	-34.7%	-26.1%	-20.2%	-14.7%	-13.4%

Table E15. Relative bias in the estimated slope, with L studies imputed (from 1-dimensional algorithmic variant)

L Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model: Number of Studies 25	35	45	55	65	Random Effects in the Final Model: Number of Studies 25	35	45	55	65
$\beta_1 =$ 0.049	$\tau^2 = 0$	0	0.6%	-3.3%	-3.4%	-0.6%	-0.8%	2.6%	-2.9%	-2.6%	0.6%	0.0%
		5	-16.3%	-7.2%	-6.5%	0.4%	-4.0%	-15.7%	-6.3%	-5.6%	0.0%	-4.3%
		10	-36.0%	-19.8%	-15.2%	-14.3%	-1.8%	-34.4%	-19.7%	-15.2%	-13.8%	-0.9%
	$\tau^2 =$ 0.049	0	0.4%	-8.6%	3.2%	4.3%	-9.0%	3.3%	-8.2%	-1.6%	9.7%	-3.4%
		5	-31.7%	-14.1%	-8.2%	-9.0%	0.8%	-25.1%	-14.8%	-12.6%	-1.8%	4.6%
		10	-63.3%	-26.8%	-27.7%	-14.2%	-13.0%	-58.7%	-24.0%	-19.6%	-5.0%	-5.7%
	$\tau^2 =$ 0.148	0	29.0%	12.9%	3.6%	-1.3%	18.2%	17.1%	11.8%	5.8%	13.2%	11.5%
		5	-35.1%	-28.6%	-23.7%	-11.5%	-7.6%	-21.2%	-14.0%	-5.4%	0.2%	-10.1%
		10	-58.3%	-35.8%	-33.4%	-34.4%	-38.7%	-41.7%	-36.2%	-25.5%	-28.6%	-24.1%
	$\tau^2 =$ 0.444	0	-13.1%	37.3%	3.6%	-46.0%	0.7%	-11.7%	35.9%	-17.0%	-3.6%	15.4%
		5	-22.9%	-13.0%	-42.4%	-22.1%	13.5%	-7.1%	-17.6%	-50.3%	-9.5%	-6.0%
		10	-23.6%	-10.9%	-38.9%	-9.8%	-16.6%	-49.8%	-16.0%	-35.9%	-27.5%	1.2%
$\beta_1 =$ 0.074	$\tau^2 = 0$	0	-2.5%	1.4%	2.6%	-0.1%	-0.7%	-1.0%	1.3%	3.9%	0.2%	-0.3%
		5	-18.9%	-6.7%	-4.0%	-3.0%	-1.9%	-19.4%	-6.2%	-3.3%	-3.8%	-1.7%
		10	-39.9%	-21.1%	-14.8%	-11.7%	-7.7%	-36.1%	-20.0%	-14.9%	-11.4%	-8.3%
	$\tau^2 =$ 0.049	0	0.8%	-4.9%	-2.4%	2.1%	2.4%	7.0%	0.6%	4.0%	6.1%	-1.0%
		5	-15.2%	-16.4%	-14.7%	-13.5%	-4.0%	-10.3%	-6.9%	-9.9%	-5.2%	-1.3%
		10	-48.9%	-41.5%	-24.3%	-19.1%	-15.4%	-45.4%	-34.8%	-19.4%	-17.5%	-10.1%
	$\tau^2 =$ 0.148	0	-7.7%	5.3%	-4.8%	4.8%	-3.1%	-0.3%	10.9%	3.0%	5.6%	11.0%
		5	-22.0%	-21.1%	-9.2%	-20.1%	-7.6%	-21.8%	-13.4%	-3.2%	-17.0%	-7.9%
		10	-47.5%	-45.6%	-34.7%	-10.9%	-19.0%	-45.2%	-40.6%	-24.9%	-13.2%	-15.4%
	$\tau^2 =$ 0.444	0	29.7%	35.3%	-24.4%	9.4%	-12.3%	43.7%	24.2%	10.1%	29.0%	8.0%
		5	-23.5%	2.2%	-21.9%	-15.0%	-1.6%	-10.8%	-2.8%	-5.1%	-18.5%	-13.4%
		10	-38.7%	-46.8%	-45.2%	-27.0%	-19.2%	-36.1%	-38.3%	-26.2%	-29.3%	-8.5%
$\beta_1 =$ 0.148	$\tau^2 = 0$	0	0.0%	-0.6%	-0.4%	-1.1%	1.1%	1.6%	0.8%	0.8%	-0.4%	1.8%
		5	-14.5%	-6.8%	-5.2%	-3.6%	-3.6%	-12.3%	-6.4%	-4.5%	-3.2%	-2.9%
		10	-34.0%	-19.7%	-14.5%	-10.3%	-7.3%	-32.4%	-18.3%	-14.2%	-10.1%	-6.8%
	$\tau^2 =$ 0.049	0	1.4%	5.3%	0.9%	0.6%	2.4%	3.6%	10.7%	5.4%	4.8%	6.3%
		5	-21.4%	-14.0%	-13.1%	-6.9%	-4.3%	-16.1%	-13.3%	-10.0%	-4.4%	-2.0%
		10	-40.8%	-29.5%	-24.7%	-20.9%	-14.7%	-37.1%	-23.9%	-20.6%	-18.5%	-10.8%
	$\tau^2 =$ 0.148	0	3.2%	-1.2%	-7.5%	0.9%	-1.0%	8.2%	7.7%	6.2%	6.5%	3.9%
		5	-22.0%	-24.3%	-17.5%	-19.8%	-9.8%	-16.4%	-14.1%	-12.2%	-14.1%	-5.3%
		10	-38.3%	-28.3%	-28.2%	-23.2%	-25.4%	-37.1%	-19.0%	-24.8%	-18.1%	-17.8%
	$\tau^2 =$ 0.444	0	-1.8%	6.0%	-2.2%	3.6%	1.4%	10.2%	13.3%	3.4%	4.1%	7.4%
		5	-32.7%	-17.6%	-9.9%	-22.4%	-16.3%	-24.8%	-8.8%	-12.8%	-12.7%	-9.2%
		10	-60.9%	-45.9%	-27.9%	-35.5%	-17.7%	-49.0%	-42.4%	-25.4%	-20.8%	-17.5%

Table E15. Relative bias in the estimated slope, with L studies imputed (from 1-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	τ^2 = 0	Number of Missing Studies	0	0.3%	1.0%	0.7%	0.3%	0.8%	1.3%	2.0%	1.9%	1.4%	1.7%
			5	-14.1%	-7.2%	-5.5%	-3.5%	-2.1%	-12.7%	-6.2%	-4.5%	-2.9%	-1.2%
			10	-36.3%	-20.2%	-12.7%	-8.7%	-6.2%	-34.8%	-19.5%	-12.1%	-8.0%	-5.5%
	τ^2 = 0.049		0	-0.8%	0.0%	0.6%	0.3%	3.5%	3.0%	4.8%	4.5%	7.2%	7.7%
			5	-22.5%	-15.5%	-10.5%	-9.1%	-4.2%	-18.9%	-13.3%	-6.3%	-6.7%	-2.8%
			10	-41.0%	-31.3%	-24.0%	-20.5%	-15.9%	-36.8%	-25.2%	-19.7%	-17.7%	-12.8%
	τ^2 = 0.148		0	0.1%	5.9%	2.6%	0.0%	-1.1%	5.8%	10.2%	9.0%	5.9%	7.1%
			5	-27.9%	-17.1%	-17.7%	-15.4%	-10.7%	-23.5%	-15.2%	-13.0%	-9.6%	-6.0%
			10	-43.3%	-37.4%	-30.1%	-23.2%	-19.5%	-36.3%	-30.0%	-23.3%	-17.6%	-16.0%
	τ^2 = 0.444		0	6.5%	-5.7%	-0.2%	1.0%	0.5%	10.5%	2.7%	8.1%	7.9%	7.0%
			5	-37.3%	-22.1%	-23.4%	-17.7%	-15.1%	-27.6%	-20.2%	-14.4%	-13.1%	-8.8%
			10	-46.3%	-34.9%	-35.0%	-28.0%	-25.6%	-38.8%	-26.2%	-28.2%	-22.4%	-18.6%
β_1 = 0.444	τ^2 = 0	Number of Missing Studies	0	0.1%	0.6%	0.1%	1.1%	0.8%	1.6%	1.9%	1.4%	2.4%	2.0%
			5	-13.6%	-6.8%	-4.3%	-2.9%	-1.9%	-12.3%	-5.4%	-2.9%	-1.7%	-0.8%
			10	-33.3%	-19.2%	-12.6%	-7.9%	-4.8%	-32.1%	-18.2%	-11.5%	-7.1%	-3.8%
	τ^2 = 0.049		0	0.0%	0.3%	1.8%	2.5%	1.9%	4.3%	5.0%	6.8%	6.4%	5.9%
			5	-22.7%	-15.4%	-9.9%	-6.5%	-5.6%	-17.6%	-12.2%	-7.0%	-4.7%	-2.9%
			10	-41.4%	-29.7%	-22.5%	-18.1%	-13.9%	-36.8%	-25.3%	-18.6%	-14.9%	-10.9%
	τ^2 = 0.148		0	-0.3%	-0.5%	2.5%	2.5%	3.9%	6.7%	5.6%	7.3%	6.5%	8.0%
			5	-27.9%	-18.1%	-16.3%	-11.0%	-7.4%	-21.1%	-13.8%	-13.6%	-7.2%	-5.0%
			10	-43.7%	-34.2%	-29.3%	-24.1%	-21.2%	-38.0%	-29.7%	-22.9%	-19.2%	-15.3%
	τ^2 = 0.444		0	-3.6%	3.5%	2.5%	3.4%	4.4%	6.7%	9.8%	9.5%	9.8%	10.3%
			5	-29.5%	-22.5%	-18.6%	-14.9%	-12.4%	-25.4%	-16.7%	-12.8%	-10.3%	-6.6%
			10	-47.4%	-35.9%	-31.5%	-26.5%	-23.5%	-38.8%	-30.9%	-25.3%	-18.8%	-18.6%

Table E16. Mean number of imputed studies, with R studies imputed (from 1-dimensional algorithmic variant)

R Missing Studies Imputed

		Number of Missing Studies	Number of Studies: 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	0.519	0.482	0.495	0.507	0.495
		5	4.757	5.040	4.978	5.035	4.970
		10	6.601	9.086	9.834	9.970	9.889
	τ^2 = 0.049	0	0.842	0.775	0.716	0.728	0.727
		5	4.505	5.644	6.183	6.472	6.493
		10	4.434	7.498	9.423	10.812	11.790
	τ^2 = 0.148	0	1.255	1.354	1.304	1.186	1.103
		5	4.254	5.515	6.594	7.365	7.497
		10	3.833	6.373	8.618	10.313	11.433
	τ^2 = 0.444	0	1.673	1.868	1.968	2.151	1.904
		5	3.959	5.484	6.872	7.507	8.167
		10	3.259	5.792	7.908	9.676	11.325
β_1 = 0.074	$\tau^2 = 0$	0	0.535	0.526	0.509	0.483	0.492
		5	4.767	4.967	4.914	5.091	5.054
		10	6.523	8.990	9.808	9.936	9.981
	τ^2 = 0.049	0	0.854	0.816	0.819	0.726	0.752
		5	4.605	5.648	6.172	6.525	6.703
		10	4.519	7.411	9.662	10.660	11.961
	τ^2 = 0.148	0	1.244	1.239	1.327	1.220	1.184
		5	4.132	5.774	6.778	7.384	7.562
		10	3.806	6.543	8.605	10.105	11.595
	τ^2 = 0.444	0	1.706	1.741	1.984	2.121	1.996
		5	3.742	5.395	6.547	7.287	8.205
		10	3.251	5.764	7.795	9.723	11.476
β_1 = 0.148	$\tau^2 = 0$	0	0.502	0.515	0.499	0.513	0.470
		5	4.784	4.980	5.050	5.052	5.128
		10	6.348	9.138	9.890	10.115	10.087
	τ^2 = 0.049	0	0.867	0.799	0.767	0.768	0.706
		5	4.602	5.729	6.125	6.701	6.782
		10	4.449	7.292	9.474	10.669	11.622
	τ^2 = 0.148	0	1.241	1.284	1.283	1.222	1.251
		5	4.293	5.704	6.549	7.462	7.657
		10	3.768	6.600	8.515	10.168	11.104
	τ^2 = 0.444	0	1.754	1.813	1.972	2.054	1.932
		5	3.831	5.629	6.800	7.636	8.604
		10	3.279	5.735	7.977	10.009	11.235
β_1 = 0.296	$\tau^2 = 0$	0	0.533	0.518	0.544	0.536	0.490
		5	4.910	5.285	5.325	5.273	5.263
		10	5.739	8.776	9.994	10.488	10.821
	τ^2 = 0.049	0	0.888	0.882	0.798	0.732	0.815
		5	4.459	5.773	6.473	6.788	6.711
		10	4.413	7.377	9.255	10.805	11.819
	τ^2 = 0.148	0	1.299	1.287	1.364	1.267	1.270
		5	3.953	5.580	6.728	7.727	7.630
		10	3.677	6.473	8.636	10.102	11.443
	τ^2 = 0.444	0	1.572	1.839	1.915	2.012	1.843
		5	3.844	5.444	6.418	7.567	8.045
		10	3.255	5.792	7.779	9.780	10.936

Table E16. Mean number of imputed studies, with R studies imputed (from 1-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Number of Studies				
				25	35	45	55	65
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	0.645	0.584	0.569	0.558	0.564
			5	4.901	5.786	5.781	5.718	5.526
			10	5.195	8.306	10.135	11.031	11.451
	τ^2 = 0.049		0	0.951	0.898	0.812	0.843	0.793
			5	4.406	5.872	6.624	6.747	6.987
			10	4.291	7.216	9.159	10.447	11.744
	τ^2 = 0.148		0	1.289	1.319	1.366	1.315	1.307
			5	4.147	5.866	6.828	7.378	7.669
			10	3.771	6.185	8.549	10.194	11.627
	τ^2 = 0.444		0	1.664	1.917	1.981	1.897	1.907
			5	3.902	5.459	6.454	7.599	8.270
			10	3.195	5.697	8.039	9.745	11.002

Table E17. Mean number of imputed studies, with L studies imputed (from 1-dimensional algorithmic variant)

L Missing Studies Imputed

				Number of Studies				
				25	**35**	**45**	**55**	**65**
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	**0**	1.211	1.342	1.616	1.774	1.884
			5	3.887	4.485	4.701	5.061	5.135
			10	4.668	6.606	7.602	8.197	8.501
	$\tau^2 = 0.049$		**0**	1.900	2.385	2.771	3.178	3.641
			5	3.319	4.376	5.194	5.941	6.637
			10	3.080	4.762	6.100	7.283	8.287
	$\tau^2 = 0.148$		**0**	2.325	3.075	3.653	4.308	4.803
			5	3.025	4.025	5.050	6.141	6.883
			10	2.531	3.915	5.115	6.319	7.278
	$\tau^2 = 0.444$		**0**	2.692	3.610	4.531	5.635	6.247
			5	2.705	3.744	4.822	5.881	7.020
			10	2.086	3.259	4.429	5.556	6.692
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	**0**	1.222	1.436	1.573	1.774	1.917
			5	3.894	4.421	4.652	5.016	5.237
			10	4.574	6.507	7.535	8.194	8.635
	$\tau^2 = 0.049$		**0**	1.902	2.361	2.890	3.164	3.634
			5	3.394	4.336	5.101	6.002	6.607
			10	3.107	4.743	6.238	7.238	8.368
	$\tau^2 = 0.148$		**0**	2.304	2.929	3.694	4.279	5.013
			5	2.942	4.116	5.113	6.062	6.929
			10	2.497	3.882	5.188	6.113	7.454
	$\tau^2 = 0.444$		**0**	2.765	3.547	4.810	5.594	6.303
			5	2.609	3.779	4.877	5.768	6.831
			10	2.058	3.252	4.335	5.576	6.794
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	**0**	1.240	1.453	1.685	1.829	1.971
			5	3.905	4.350	4.791	5.023	5.237
			10	4.503	6.508	7.453	8.177	8.579
	$\tau^2 = 0.049$		**0**	1.791	2.296	2.772	3.168	3.586
			5	3.364	4.398	5.155	6.069	6.674
			10	3.042	4.661	6.104	7.187	8.215
	$\tau^2 = 0.148$		**0**	2.296	3.028	3.696	4.470	4.957
			5	3.005	4.066	5.024	6.214	6.872
			10	2.455	3.921	5.052	6.242	7.189
	$\tau^2 = 0.444$		**0**	2.696	3.682	4.738	5.638	6.349
			5	2.631	3.822	4.966	5.951	7.098
			10	2.063	3.169	4.459	5.744	6.687
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	**0**	1.331	1.573	1.890	2.151	2.266
			5	3.821	4.548	4.983	5.272	5.505
			10	4.043	6.053	7.289	8.112	8.757
	$\tau^2 = 0.049$		**0**	1.933	2.353	2.867	3.470	3.829
			5	3.289	4.409	5.377	6.143	6.604
			10	3.009	4.691	5.935	7.179	8.116
	$\tau^2 = 0.148$		**0**	2.337	2.971	3.853	4.406	5.202
			5	2.796	4.053	5.081	6.207	6.760
			10	2.442	3.865	5.143	6.128	7.343
	$\tau^2 = 0.444$		**0**	2.694	3.645	4.594	5.369	6.221
			5	2.589	3.717	4.741	5.809	6.826
			10	2.050	3.325	4.337	5.648	6.576

Table E17. Mean number of imputed studies, with L studies imputed (from 1-dimensional algorithmic variant) (continued)

L Missing Studies Imputed

				Number of Studies				
				25	**35**	**45**	**55**	**65**
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	**0**	1.526	1.769	2.109	2.400	2.750
			5	3.740	4.669	5.193	5.670	5.955
			10	3.652	5.575	7.001	7.970	8.786
	τ^2 = 0.049		**0**	2.000	2.541	2.905	3.509	3.948
			5	3.235	4.474	5.294	5.959	6.831
			10	2.950	4.491	5.733	6.929	8.089
	τ^2 = 0.148		**0**	2.367	3.063	3.826	4.429	5.244
			5	2.877	4.214	5.122	6.150	6.873
			10	2.491	3.646	5.107	6.210	7.348
	τ^2 = 0.444		**0**	2.688	3.824	4.613	5.460	6.304
			5	2.651	3.755	4.788	5.912	6.986
			10	2.030	3.201	4.416	5.655	6.477

Table E18. Absolute bias in the estimated intercept, with no correction for publication bias (from 2-dimensional algorithmic variant)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	τ^2 = 0	Number of Missing Studies	0	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000
			5	0.041	0.026	0.019	0.014	0.010	0.043	0.027	0.020	0.015	0.011
			10	0.111	0.062	0.040	0.030	0.024	0.115	0.064	0.042	0.031	0.025
	τ^2 = 0.049		0	0.002	0.003	-0.001	0.001	0.000	0.003	0.001	-0.002	0.002	-0.001
			5	0.081	0.050	0.037	0.027	0.018	0.099	0.067	0.054	0.045	0.035
			10	0.188	0.119	0.084	0.069	0.052	0.198	0.136	0.104	0.089	0.073
	τ^2 = 0.148		0	0.001	-0.007	-0.004	0.001	0.002	0.002	0.000	-0.001	-0.002	0.000
			5	0.135	0.082	0.066	0.047	0.042	0.154	0.112	0.091	0.074	0.066
			10	0.271	0.180	0.143	0.118	0.089	0.292	0.209	0.171	0.146	0.123
	τ^2 = 0.444		0	-0.001	-0.018	-0.005	0.001	0.007	0.002	-0.006	-0.001	-0.001	-0.001
			5	0.213	0.167	0.130	0.107	0.092	0.244	0.190	0.154	0.132	0.111
			10	0.450	0.319	0.251	0.209	0.174	0.467	0.352	0.277	0.235	0.201
β_1 = 0.074	τ^2 = 0	Number of Missing Studies	0	0.001	-0.002	-0.001	0.001	0.001	0.001	-0.003	-0.001	0.001	0.001
			5	0.043	0.026	0.019	0.014	0.012	0.046	0.028	0.020	0.015	0.013
			10	0.123	0.065	0.043	0.032	0.025	0.127	0.068	0.045	0.033	0.026
	τ^2 = 0.049		0	0.005	0.003	-0.001	0.000	0.001	0.003	0.003	-0.002	0.002	0.000
			5	0.080	0.057	0.037	0.028	0.023	0.099	0.076	0.057	0.046	0.039
			10	0.196	0.127	0.088	0.070	0.054	0.207	0.142	0.109	0.091	0.079
	τ^2 = 0.148		0	-0.002	-0.001	-0.006	0.002	0.000	0.001	0.002	-0.002	-0.001	0.000
			5	0.129	0.091	0.071	0.058	0.039	0.156	0.113	0.098	0.080	0.065
			10	0.287	0.197	0.145	0.127	0.103	0.304	0.218	0.177	0.150	0.127
	τ^2 = 0.444		0	-0.008	-0.010	0.007	0.003	0.003	-0.001	-0.004	0.008	0.005	0.001
			5	0.223	0.165	0.128	0.116	0.099	0.250	0.195	0.155	0.133	0.115
			10	0.450	0.320	0.261	0.206	0.181	0.475	0.347	0.287	0.238	0.207
β_1 = 0.148	τ^2 = 0	Number of Missing Studies	0	0.001	0.001	0.001	-0.001	-0.001	0.001	0.001	0.001	-0.001	-0.001
			5	0.050	0.030	0.022	0.016	0.013	0.054	0.032	0.023	0.017	0.014
			10	0.144	0.076	0.051	0.036	0.028	0.148	0.079	0.052	0.038	0.029
	τ^2 = 0.049		0	-0.004	-0.002	-0.001	0.002	0.001	-0.001	0.001	0.003	0.000	0.002
			5	0.090	0.064	0.040	0.032	0.025	0.110	0.082	0.061	0.051	0.044
			10	0.217	0.140	0.101	0.077	0.066	0.229	0.158	0.122	0.102	0.090
	τ^2 = 0.148		0	-0.002	0.002	0.000	0.001	-0.001	-0.007	0.001	-0.001	0.001	0.000
			5	0.150	0.100	0.077	0.062	0.054	0.173	0.129	0.102	0.088	0.076
			10	0.304	0.217	0.163	0.134	0.108	0.324	0.238	0.190	0.161	0.139
	τ^2 = 0.444		0	-0.011	-0.005	-0.006	0.004	0.004	-0.003	0.001	0.000	-0.002	0.002
			5	0.255	0.182	0.145	0.111	0.096	0.274	0.203	0.170	0.144	0.120
			10	0.476	0.338	0.264	0.224	0.196	0.495	0.364	0.298	0.252	0.224

Table E18. Absolute bias in the estimated intercept, with no correction for publication bias (from 2-dimensional algorithmic variant) (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
β_1 = 0.296	**τ^2 = 0**	**Number of Missing Studies**	**0**	0.000	0.001	-0.001	-0.001	0.001	0.000	0.001	-0.002	-0.001	0.001
			5	0.067	0.040	0.027	0.020	0.016	0.071	0.042	0.029	0.021	0.017
			10	0.187	0.099	0.066	0.047	0.037	0.191	0.102	0.068	0.049	0.038
	τ^2 = 0.049		**0**	-0.001	-0.001	0.000	-0.002	-0.001	-0.001	0.002	0.000	-0.001	0.000
			5	0.114	0.078	0.054	0.038	0.032	0.137	0.098	0.076	0.063	0.055
			10	0.261	0.175	0.128	0.102	0.080	0.273	0.192	0.150	0.126	0.107
	τ^2 = 0.148		**0**	-0.006	0.004	0.002	0.001	-0.002	-0.002	0.001	0.002	-0.001	-0.001
			5	0.177	0.122	0.087	0.072	0.061	0.199	0.151	0.115	0.105	0.087
			10	0.337	0.243	0.192	0.152	0.129	0.359	0.270	0.220	0.185	0.162
	τ^2 = 0.444		**0**	0.008	-0.012	0.003	-0.006	-0.007	0.002	-0.003	0.001	0.000	-0.003
			5	0.276	0.206	0.163	0.139	0.115	0.300	0.230	0.187	0.158	0.142
			10	0.512	0.377	0.299	0.252	0.212	0.534	0.405	0.327	0.283	0.241
β_1 = 0.444	**τ^2 = 0**	**Number of Missing Studies**	**0**	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	-0.001
			5	0.078	0.046	0.031	0.025	0.019	0.083	0.049	0.033	0.027	0.020
			10	0.221	0.120	0.078	0.059	0.044	0.226	0.124	0.081	0.060	0.046
	τ^2 = 0.049		**0**	-0.002	0.001	0.001	0.001	-0.001	0.000	0.002	0.002	0.001	-0.002
			5	0.138	0.092	0.061	0.050	0.036	0.159	0.114	0.088	0.074	0.060
			10	0.299	0.202	0.148	0.114	0.094	0.313	0.223	0.175	0.143	0.123
	τ^2 = 0.148		**0**	-0.006	-0.006	-0.003	-0.001	-0.001	-0.004	-0.003	0.001	0.002	0.004
			5	0.191	0.147	0.110	0.089	0.068	0.221	0.173	0.140	0.119	0.100
			10	0.388	0.283	0.219	0.171	0.156	0.410	0.307	0.250	0.208	0.186
	τ^2 = 0.444		**0**	0.003	-0.002	-0.008	-0.009	-0.004	0.004	0.002	0.000	0.002	-0.002
			5	0.295	0.234	0.176	0.152	0.125	0.321	0.258	0.206	0.173	0.152
			10	0.559	0.404	0.336	0.282	0.244	0.583	0.439	0.361	0.308	0.272

Table E19. Absolute bias in the estimated intercept, with R studies imputed (from 2-dimensional algorithmic variant)

R Missing Studies Imputed			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
			25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	-0.003	-0.001	-0.002	0.000	-0.001	-0.004	-0.002	-0.002	0.000	-0.001
		5	0.015	0.006	0.004	0.003	0.000	0.016	0.007	0.004	0.003	0.001
		10	0.069	0.026	0.012	0.006	0.005	0.071	0.027	0.013	0.007	0.005
	τ^2 = 0.049	0	-0.005	-0.001	-0.005	-0.001	-0.002	-0.010	-0.008	-0.009	-0.004	-0.006
		5	0.046	0.018	0.013	0.005	0.000	0.047	0.015	0.010	0.004	0.000
		10	0.149	0.078	0.046	0.033	0.019	0.148	0.078	0.045	0.031	0.016
	τ^2 = 0.148	0	-0.013	-0.017	-0.011	-0.005	-0.003	-0.025	-0.023	-0.018	-0.016	-0.011
		5	0.093	0.038	0.029	0.013	0.012	0.082	0.034	0.020	0.007	0.005
		10	0.228	0.128	0.092	0.069	0.042	0.228	0.124	0.086	0.061	0.039
	τ^2 = 0.444	0	-0.031	-0.039	-0.023	-0.014	-0.006	-0.058	-0.053	-0.040	-0.034	-0.029
		5	0.154	0.102	0.068	0.048	0.036	0.136	0.075	0.043	0.023	0.009
		10	0.391	0.249	0.179	0.134	0.101	0.364	0.228	0.152	0.109	0.073
β_1 = 0.074	$\tau^2 = 0$	0	-0.002	-0.004	-0.002	-0.001	0.000	-0.003	-0.005	-0.003	-0.001	0.000
		5	0.015	0.007	0.004	0.002	0.003	0.016	0.008	0.004	0.002	0.003
		10	0.077	0.028	0.015	0.008	0.005	0.078	0.029	0.016	0.009	0.006
	τ^2 = 0.049	0	-0.001	-0.002	-0.004	-0.002	-0.001	-0.009	-0.006	-0.009	-0.004	-0.004
		5	0.045	0.026	0.012	0.006	0.004	0.047	0.025	0.011	0.004	0.003
		10	0.152	0.085	0.047	0.033	0.021	0.153	0.085	0.047	0.031	0.021
	τ^2 = 0.148	0	-0.017	-0.012	-0.013	-0.004	-0.004	-0.030	-0.021	-0.018	-0.014	-0.011
		5	0.088	0.045	0.031	0.023	0.006	0.084	0.035	0.026	0.014	0.002
		10	0.240	0.144	0.092	0.073	0.053	0.235	0.133	0.089	0.059	0.042
	τ^2 = 0.444	0	-0.032	-0.032	-0.012	-0.012	-0.010	-0.057	-0.051	-0.031	-0.028	-0.026
		5	0.159	0.100	0.066	0.062	0.044	0.132	0.078	0.044	0.029	0.015
		10	0.396	0.249	0.187	0.130	0.109	0.382	0.222	0.156	0.109	0.084
β_1 = 0.148	$\tau^2 = 0$	0	-0.002	-0.001	-0.001	-0.002	-0.001	-0.003	-0.002	-0.001	-0.002	-0.002
		5	0.023	0.010	0.007	0.004	0.004	0.025	0.011	0.007	0.005	0.004
		10	0.091	0.037	0.020	0.013	0.009	0.092	0.038	0.021	0.014	0.010
	τ^2 = 0.049	0	-0.010	-0.006	-0.004	0.000	0.000	-0.014	-0.008	-0.004	-0.005	-0.002
		5	0.052	0.030	0.013	0.010	0.006	0.052	0.027	0.015	0.009	0.007
		10	0.168	0.091	0.057	0.037	0.031	0.170	0.089	0.055	0.037	0.030
	τ^2 = 0.148	0	-0.016	-0.007	-0.007	-0.004	-0.005	-0.035	-0.020	-0.019	-0.012	-0.012
		5	0.103	0.055	0.038	0.026	0.021	0.095	0.048	0.030	0.017	0.014
		10	0.256	0.162	0.105	0.080	0.056	0.251	0.147	0.094	0.069	0.048
	τ^2 = 0.444	0	-0.039	-0.026	-0.025	-0.012	-0.009	-0.062	-0.046	-0.038	-0.035	-0.026
		5	0.193	0.115	0.082	0.048	0.040	0.161	0.082	0.056	0.032	0.016
		10	0.413	0.263	0.186	0.145	0.119	0.387	0.237	0.162	0.120	0.090

Table E19. Absolute bias in the estimated intercept, with R studies imputed (from 2-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
$\beta_1 =$ 0.296	$\tau^2 = 0$	Number of Missing Studies	**0**	-0.003	-0.001	-0.003	-0.002	0.000	-0.003	-0.001	-0.003	-0.003	0.000
			5	0.035	0.019	0.014	0.010	0.008	0.036	0.021	0.016	0.011	0.009
			10	0.116	0.052	0.034	0.024	0.019	0.116	0.053	0.036	0.026	0.021
	$\tau^2 =$ 0.049		**0**	-0.007	-0.006	-0.003	-0.004	-0.003	-0.012	-0.008	-0.007	-0.007	-0.005
			5	0.073	0.043	0.027	0.017	0.014	0.074	0.042	0.028	0.024	0.019
			10	0.199	0.117	0.077	0.059	0.044	0.196	0.113	0.074	0.057	0.045
	$\tau^2 =$ 0.148		**0**	-0.021	-0.007	-0.006	-0.004	-0.007	-0.032	-0.022	-0.016	-0.015	-0.012
			5	0.124	0.073	0.042	0.036	0.028	0.111	0.066	0.037	0.036	0.024
			10	0.274	0.174	0.128	0.091	0.072	0.267	0.164	0.114	0.082	0.065
	$\tau^2 =$ 0.444		**0**	-0.021	-0.035	-0.015	-0.022	-0.020	-0.052	-0.053	-0.037	-0.031	-0.032
			5	0.198	0.135	0.093	0.070	0.056	0.171	0.103	0.066	0.039	0.037
			10	0.440	0.291	0.209	0.161	0.129	0.413	0.263	0.180	0.133	0.098
$\beta_1 =$ 0.444	$\tau^2 = 0$	Number of Missing Studies	**0**	-0.003	-0.002	-0.001	-0.002	-0.001	-0.003	-0.003	-0.001	-0.002	-0.002
			5	0.046	0.027	0.018	0.015	0.011	0.049	0.029	0.020	0.017	0.013
			10	0.135	0.071	0.048	0.038	0.028	0.135	0.073	0.051	0.040	0.031
	$\tau^2 =$ 0.049		**0**	-0.008	-0.003	-0.002	-0.001	-0.002	-0.013	-0.006	-0.005	-0.005	-0.007
			5	0.090	0.056	0.034	0.029	0.019	0.090	0.056	0.039	0.034	0.026
			10	0.225	0.137	0.096	0.069	0.057	0.221	0.134	0.097	0.071	0.061
	$\tau^2 =$ 0.148		**0**	-0.019	-0.015	-0.010	-0.006	-0.005	-0.032	-0.024	-0.017	-0.012	-0.008
			5	0.132	0.095	0.063	0.050	0.034	0.126	0.084	0.057	0.043	0.033
			10	0.316	0.206	0.148	0.107	0.097	0.306	0.189	0.133	0.101	0.087
	$\tau^2 =$ 0.444		**0**	-0.023	-0.027	-0.029	-0.025	-0.015	-0.051	-0.047	-0.042	-0.032	-0.029
			5	0.220	0.157	0.106	0.088	0.062	0.190	0.126	0.080	0.059	0.040
			10	0.475	0.308	0.241	0.191	0.152	0.447	0.282	0.202	0.153	0.122

Table E20. Absolute bias in the estimated intercept, with L studies imputed (from 2-dimensional algorithmic variant)

L Missing Studies Imputed		Number of Missing Studies		Fixed Effects in the Final Model, Number of Studies: 25	35	45	55	65	Random Effects in the Final Model, Number of Studies: 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$		0	-0.007	-0.004	-0.005	-0.003	-0.004	-0.008	-0.005	-0.006	-0.003	-0.004
			5	0.019	0.008	0.005	0.002	0.000	0.021	0.010	0.006	0.003	0.001
			10	0.076	0.033	0.016	0.010	0.007	0.078	0.035	0.018	0.011	0.008
	τ^2 = 0.049		0	-0.013	-0.011	-0.014	-0.011	-0.011	-0.026	-0.024	-0.028	-0.022	-0.024
			5	0.051	0.020	0.013	0.003	-0.003	0.054	0.019	0.011	0.002	-0.004
			10	0.156	0.087	0.054	0.038	0.024	0.157	0.090	0.056	0.040	0.024
	τ^2 = 0.148		0	-0.029	-0.035	-0.034	-0.024	-0.025	-0.055	-0.056	-0.058	-0.050	-0.053
			5	0.096	0.043	0.030	0.009	0.006	0.088	0.040	0.022	0.003	-0.003
			10	0.236	0.140	0.103	0.080	0.051	0.238	0.142	0.102	0.076	0.052
	τ^2 = 0.444		0	-0.054	-0.074	-0.063	-0.056	-0.047	-0.101	-0.111	-0.107	-0.104	-0.098
			5	0.160	0.110	0.072	0.047	0.030	0.146	0.085	0.047	0.023	-0.001
			10	0.402	0.269	0.199	0.155	0.118	0.381	0.255	0.179	0.136	0.095
β_1 = 0.074	$\tau^2 = 0$		0	-0.006	-0.008	-0.006	-0.003	-0.003	-0.007	-0.009	-0.006	-0.004	-0.003
			5	0.018	0.009	0.004	0.002	0.003	0.020	0.010	0.005	0.003	0.003
			10	0.083	0.035	0.020	0.012	0.008	0.085	0.036	0.022	0.013	0.009
	τ^2 = 0.049		0	-0.010	-0.010	-0.013	-0.011	-0.011	-0.024	-0.022	-0.026	-0.022	-0.023
			5	0.049	0.027	0.012	0.004	0.000	0.054	0.028	0.011	0.003	-0.002
			10	0.161	0.094	0.056	0.039	0.025	0.164	0.097	0.060	0.041	0.027
	τ^2 = 0.148		0	-0.032	-0.030	-0.032	-0.023	-0.026	-0.057	-0.054	-0.054	-0.051	-0.050
			5	0.090	0.050	0.031	0.020	0.000	0.089	0.042	0.025	0.011	-0.006
			10	0.248	0.157	0.104	0.085	0.062	0.246	0.151	0.106	0.074	0.054
	τ^2 = 0.444		0	-0.061	-0.067	-0.048	-0.051	-0.052	-0.105	-0.109	-0.092	-0.095	-0.093
			5	0.165	0.107	0.072	0.060	0.040	0.141	0.086	0.051	0.027	0.008
			10	0.407	0.269	0.205	0.150	0.125	0.398	0.252	0.182	0.134	0.107
β_1 = 0.148	$\tau^2 = 0$		0	-0.006	-0.005	-0.004	-0.005	-0.004	-0.007	-0.006	-0.004	-0.006	-0.005
			5	0.026	0.011	0.007	0.004	0.003	0.029	0.013	0.008	0.005	0.004
			10	0.097	0.043	0.024	0.016	0.011	0.099	0.045	0.026	0.017	0.012
	τ^2 = 0.049		0	-0.020	-0.015	-0.013	-0.009	-0.010	-0.030	-0.025	-0.022	-0.024	-0.022
			5	0.055	0.033	0.013	0.008	0.003	0.058	0.032	0.015	0.007	0.001
			10	0.175	0.101	0.065	0.043	0.034	0.178	0.102	0.067	0.046	0.036
	τ^2 = 0.148		0	-0.031	-0.026	-0.026	-0.024	-0.026	-0.061	-0.052	-0.054	-0.048	-0.049
			5	0.107	0.060	0.037	0.025	0.016	0.100	0.056	0.030	0.016	0.006
			10	0.265	0.175	0.118	0.090	0.064	0.264	0.166	0.112	0.084	0.060
	τ^2 = 0.444		0	-0.070	-0.060	-0.062	-0.053	-0.050	-0.112	-0.103	-0.102	-0.104	-0.095
			5	0.200	0.123	0.088	0.046	0.034	0.171	0.090	0.061	0.028	0.009
			10	0.427	0.281	0.206	0.162	0.136	0.406	0.260	0.190	0.141	0.113

Table E20. Absolute bias in the estimated intercept, with L studies imputed (from 2-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 =$ 0.296	$\tau^2 = 0$	Number of Missing Studies	0	-0.007	-0.004	-0.006	-0.005	-0.003	-0.008	-0.005	-0.007	-0.006	-0.003
			5	0.038	0.020	0.013	0.008	0.006	0.040	0.023	0.015	0.009	0.007
			10	0.124	0.058	0.037	0.024	0.018	0.124	0.060	0.039	0.027	0.021
	$\tau^2 =$ 0.049		0	-0.017	-0.015	-0.013	-0.014	-0.013	-0.030	-0.024	-0.026	-0.026	-0.024
			5	0.077	0.045	0.025	0.014	0.009	0.080	0.044	0.025	0.018	0.011
			10	0.209	0.127	0.085	0.064	0.047	0.207	0.125	0.085	0.064	0.050
	$\tau^2 =$ 0.148		0	-0.037	-0.026	-0.026	-0.027	-0.028	-0.061	-0.056	-0.051	-0.053	-0.050
			5	0.130	0.076	0.043	0.032	0.021	0.120	0.071	0.037	0.030	0.014
			10	0.285	0.191	0.141	0.103	0.081	0.282	0.185	0.132	0.099	0.077
	$\tau^2 =$ 0.444		0	-0.054	-0.070	-0.057	-0.067	-0.063	-0.109	-0.106	-0.101	-0.103	-0.104
			5	0.209	0.142	0.094	0.074	0.051	0.184	0.112	0.068	0.042	0.028
			10	0.455	0.312	0.233	0.182	0.146	0.432	0.291	0.210	0.160	0.121
$\beta_1 =$ 0.444	$\tau^2 = 0$	Number of Missing Studies	0	-0.007	-0.006	-0.004	-0.004	-0.004	-0.009	-0.007	-0.005	-0.005	-0.005
			5	0.046	0.025	0.016	0.013	0.009	0.049	0.027	0.017	0.014	0.011
			10	0.141	0.074	0.047	0.035	0.024	0.142	0.076	0.050	0.037	0.027
	$\tau^2 =$ 0.049		0	-0.017	-0.014	-0.012	-0.010	-0.012	-0.028	-0.025	-0.024	-0.023	-0.025
			5	0.094	0.056	0.030	0.024	0.013	0.094	0.056	0.034	0.027	0.015
			10	0.234	0.146	0.102	0.072	0.058	0.231	0.145	0.104	0.075	0.061
	$\tau^2 =$ 0.148		0	-0.036	-0.033	-0.030	-0.027	-0.028	-0.062	-0.057	-0.052	-0.048	-0.048
			5	0.136	0.097	0.062	0.044	0.025	0.131	0.087	0.054	0.035	0.020
			10	0.327	0.223	0.161	0.118	0.105	0.320	0.209	0.151	0.115	0.097
	$\tau^2 =$ 0.444		0	-0.051	-0.062	-0.068	-0.070	-0.057	-0.097	-0.104	-0.108	-0.104	-0.100
			5	0.226	0.162	0.108	0.085	0.054	0.197	0.131	0.082	0.056	0.028
			10	0.492	0.331	0.264	0.210	0.167	0.469	0.311	0.232	0.179	0.142

Table E21. Coverage probability of the estimated intercept, with no correction for publication bias (from 2-dimensional algorithmic variant)

No Correction for Publication Bias		Number of Missing Studies	Fixed Effects in the Final Model Number of Studies: 25	35	45	55	65	Random Effects in the Final Model Number of Studies: 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	94.8%	95.2%	95.1%	95.0%	94.8%	96.1%	96.3%	96.3%	96.2%	95.9%
		5	93.9%	94.3%	94.2%	94.2%	94.9%	94.2%	94.6%	94.6%	94.4%	95.1%
		10	87.8%	89.9%	91.8%	92.7%	92.6%	87.9%	90.0%	91.9%	92.9%	92.8%
	τ^2 = 0.049	0	62.7%	61.6%	56.4%	53.9%	51.8%	91.7%	93.2%	93.1%	93.2%	93.8%
		5	64.5%	60.6%	56.6%	54.7%	54.9%	81.9%	86.1%	88.3%	89.3%	91.2%
		10	58.8%	56.2%	55.3%	53.4%	52.9%	65.7%	69.5%	75.4%	77.2%	81.7%
	τ^2 = 0.148	0	45.0%	40.1%	39.7%	37.3%	35.3%	93.0%	92.9%	93.7%	93.9%	94.2%
		5	48.5%	44.6%	39.5%	38.5%	35.6%	81.8%	86.3%	87.6%	89.6%	90.1%
		10	41.9%	39.8%	38.8%	36.6%	35.8%	59.4%	67.3%	73.0%	75.4%	78.8%
	τ^2 = 0.444	0	28.1%	25.4%	24.0%	21.1%	21.5%	92.1%	93.3%	93.2%	93.6%	94.0%
		5	32.1%	27.8%	26.4%	23.8%	23.8%	82.0%	85.0%	86.7%	87.7%	88.6%
		10	25.5%	24.9%	24.7%	23.1%	22.6%	56.5%	64.0%	69.5%	74.0%	76.4%
β_1 = 0.074	$\tau^2 = 0$	0	94.6%	95.1%	95.2%	94.2%	95.1%	96.0%	96.1%	96.5%	95.5%	96.2%
		5	93.7%	94.5%	94.1%	94.0%	94.7%	94.0%	94.9%	94.4%	94.5%	94.9%
		10	84.9%	89.1%	90.3%	92.0%	92.8%	85.5%	89.2%	90.3%	92.0%	92.9%
	τ^2 = 0.049	0	62.3%	59.6%	55.9%	54.2%	54.1%	92.2%	93.3%	93.4%	94.3%	94.0%
		5	64.3%	59.6%	58.3%	54.0%	53.9%	81.8%	84.9%	87.0%	88.7%	90.9%
		10	57.4%	55.3%	55.2%	53.5%	52.7%	64.9%	68.2%	74.6%	78.2%	80.5%
	τ^2 = 0.148	0	43.3%	40.4%	38.2%	36.7%	36.3%	92.3%	93.0%	93.8%	94.3%	93.9%
		5	48.6%	43.5%	39.6%	38.4%	37.2%	82.2%	85.3%	87.7%	88.5%	90.7%
		10	40.0%	39.6%	38.9%	35.3%	34.9%	57.8%	66.5%	71.5%	74.7%	78.4%
	τ^2 = 0.444	0	29.4%	24.3%	23.1%	23.0%	21.2%	93.0%	92.9%	93.1%	93.2%	94.0%
		5	31.4%	27.9%	26.2%	23.2%	21.5%	80.2%	84.1%	85.6%	86.9%	88.4%
		10	25.7%	25.6%	24.1%	22.8%	21.7%	55.6%	64.2%	69.0%	72.2%	74.7%
β_1 = 0.148	$\tau^2 = 0$	0	94.7%	95.5%	95.0%	94.9%	94.9%	96.2%	96.5%	96.2%	96.2%	95.8%
		5	92.5%	93.6%	94.1%	94.6%	94.3%	92.9%	93.9%	94.3%	94.8%	94.8%
		10	82.0%	86.0%	88.7%	90.8%	92.3%	82.4%	86.2%	88.9%	90.7%	92.3%
	τ^2 = 0.049	0	62.8%	59.0%	57.3%	55.1%	52.2%	91.8%	92.7%	92.7%	93.8%	94.3%
		5	63.9%	59.1%	57.8%	54.1%	53.8%	81.4%	84.1%	86.5%	88.5%	90.0%
		10	53.5%	53.1%	52.6%	52.3%	50.2%	60.6%	65.6%	71.3%	75.4%	78.0%
	τ^2 = 0.148	0	45.2%	41.7%	40.1%	37.5%	35.3%	92.3%	93.5%	93.7%	94.1%	93.6%
		5	47.4%	42.1%	39.3%	37.4%	36.8%	80.1%	83.9%	86.0%	87.6%	88.8%
		10	37.9%	37.4%	35.8%	35.4%	35.0%	53.7%	63.6%	69.1%	73.1%	75.6%
	τ^2 = 0.444	0	28.1%	26.6%	22.8%	23.5%	22.9%	92.8%	93.2%	93.1%	93.2%	94.0%
		5	29.0%	28.7%	25.7%	23.3%	22.3%	78.5%	83.5%	85.2%	85.9%	88.0%
		10	23.7%	24.3%	23.0%	22.3%	21.7%	53.7%	61.3%	66.0%	69.6%	72.6%

Table E21. Coverage probability of the estimated intercept, with no correction for publication bias (from 2-dimensional algorithmic variant) (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	95.5%	95.5%	95.1%	94.8%	95.2%	96.7%	96.6%	96.1%	95.7%	96.1%
			5	90.4%	91.9%	92.8%	94.0%	93.6%	90.7%	92.1%	93.2%	94.2%	94.0%
			10	75.2%	81.2%	84.1%	87.5%	89.0%	75.7%	81.4%	84.1%	87.6%	89.0%
	$\tau^2 =$ 0.049		0	63.4%	60.0%	56.3%	54.7%	53.6%	92.3%	93.0%	93.8%	94.2%	93.7%
			5	60.4%	59.0%	55.4%	55.1%	52.9%	78.1%	82.5%	85.3%	86.8%	88.3%
			10	46.0%	46.8%	48.5%	47.8%	47.4%	53.0%	58.7%	64.3%	68.8%	71.9%
	$\tau^2 =$ 0.148		0	45.1%	40.0%	39.4%	37.0%	36.3%	92.6%	92.9%	94.3%	93.6%	94.0%
			5	42.0%	41.8%	40.0%	37.4%	36.8%	76.9%	81.7%	84.9%	85.7%	87.0%
			10	33.7%	33.1%	33.4%	32.7%	33.6%	50.2%	57.9%	63.6%	67.6%	69.4%
	$\tau^2 =$ 0.444		0	28.5%	26.3%	23.3%	23.2%	21.6%	93.2%	93.4%	92.8%	93.6%	94.1%
			5	30.3%	27.2%	25.7%	23.1%	22.1%	78.1%	80.9%	83.9%	85.6%	85.5%
			10	22.6%	22.6%	22.6%	21.1%	21.2%	49.9%	56.7%	62.4%	65.0%	68.9%
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	94.5%	94.9%	95.2%	94.8%	94.8%	95.9%	96.0%	96.4%	95.6%	95.9%
			5	88.7%	91.2%	92.3%	93.3%	93.2%	89.2%	91.5%	92.7%	93.4%	93.5%
			10	71.3%	76.6%	81.2%	83.9%	87.1%	71.9%	76.5%	81.1%	83.9%	86.8%
	$\tau^2 =$ 0.049		0	63.0%	60.3%	56.5%	55.4%	53.3%	92.4%	93.3%	93.4%	93.5%	93.8%
			5	58.8%	56.4%	55.5%	54.2%	52.0%	75.5%	79.5%	82.4%	85.0%	86.9%
			10	40.7%	40.5%	43.3%	46.1%	44.5%	48.1%	51.9%	58.0%	63.7%	66.4%
	$\tau^2 =$ 0.148		0	43.5%	41.3%	39.2%	36.5%	36.1%	92.5%	93.6%	93.1%	93.8%	94.2%
			5	43.3%	40.3%	38.4%	36.9%	36.5%	74.3%	78.2%	81.3%	83.6%	85.5%
			10	28.8%	29.3%	29.6%	30.6%	30.0%	43.8%	50.0%	56.5%	61.9%	63.7%
	$\tau^2 =$ 0.444		0	28.4%	26.4%	24.8%	23.4%	22.2%	92.7%	93.1%	93.3%	93.7%	93.1%
			5	30.1%	26.1%	24.6%	23.9%	23.2%	76.1%	77.5%	81.2%	83.6%	84.6%
			10	19.1%	21.1%	20.2%	19.6%	19.9%	45.6%	52.1%	57.3%	60.8%	64.6%

Table E22. Coverage probability of the estimated intercept, with R studies imputed (from 2-dimensional algorithmic variant)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	τ^2 = 0	Number of Missing Studies	0	94.3%	94.9%	94.9%	94.9%	94.8%	95.8%	96.3%	96.1%	96.2%	96.1%
			5	92.9%	93.2%	94.0%	93.9%	94.2%	93.6%	94.2%	95.0%	94.9%	95.0%
			10	88.8%	91.3%	92.9%	93.0%	93.2%	89.7%	91.9%	93.6%	93.7%	94.0%
	τ^2 = 0.049		0	62.3%	61.3%	56.0%	54.1%	51.7%	90.6%	92.6%	92.4%	93.0%	93.5%
			5	62.7%	58.4%	55.5%	53.3%	53.8%	82.1%	85.0%	87.2%	88.2%	89.7%
			10	60.5%	57.3%	55.9%	53.2%	52.8%	70.1%	75.9%	80.4%	82.7%	84.5%
	τ^2 = 0.148		0	43.8%	39.4%	39.2%	36.8%	34.8%	91.2%	90.8%	91.9%	92.7%	93.5%
			5	45.7%	40.8%	37.5%	36.9%	34.4%	81.7%	84.9%	85.7%	86.6%	86.9%
			10	43.2%	40.4%	38.6%	36.8%	35.4%	65.3%	73.9%	78.1%	78.6%	82.2%
	τ^2 = 0.444		0	27.5%	24.7%	23.5%	20.8%	20.8%	88.8%	89.5%	89.5%	91.3%	91.2%
			5	30.7%	25.2%	24.6%	22.0%	22.1%	80.7%	82.8%	83.8%	84.3%	84.1%
			10	26.8%	26.1%	25.0%	22.8%	21.3%	61.7%	71.5%	75.9%	77.9%	78.5%
β_1 = 0.074	τ^2 = 0	Number of Missing Studies	0	94.3%	95.0%	95.1%	94.1%	94.9%	95.8%	96.0%	96.5%	95.5%	96.2%
			5	92.7%	93.7%	93.8%	93.7%	94.4%	93.9%	94.4%	94.7%	95.2%	95.3%
			10	87.1%	91.3%	92.0%	92.7%	93.7%	87.9%	92.0%	92.5%	93.5%	94.8%
	τ^2 = 0.049		0	61.2%	59.0%	55.9%	54.0%	54.2%	91.4%	92.6%	92.7%	93.9%	93.7%
			5	63.1%	58.1%	56.3%	53.8%	52.2%	82.9%	84.5%	86.1%	87.8%	89.4%
			10	59.7%	57.3%	56.4%	54.0%	51.5%	69.5%	75.0%	80.6%	82.3%	84.1%
	τ^2 = 0.148		0	42.2%	39.8%	37.7%	36.3%	36.3%	90.1%	91.1%	92.3%	92.8%	92.7%
			5	46.7%	41.4%	37.8%	36.6%	35.2%	81.8%	83.2%	85.6%	86.2%	87.3%
			10	41.8%	40.3%	39.5%	35.0%	34.6%	64.4%	72.8%	76.9%	78.9%	81.6%
	τ^2 = 0.444		0	28.2%	23.5%	22.8%	22.7%	21.2%	89.7%	89.2%	90.4%	91.3%	91.5%
			5	29.9%	26.8%	24.1%	21.0%	21.0%	80.2%	82.4%	83.8%	84.5%	85.2%
			10	27.0%	25.7%	25.0%	23.4%	22.4%	61.9%	70.5%	75.0%	77.3%	78.6%
β_1 = 0.148	τ^2 = 0	Number of Missing Studies	0	94.2%	95.3%	94.9%	94.8%	94.7%	95.8%	96.4%	96.1%	96.2%	95.8%
			5	92.3%	93.2%	94.1%	94.7%	94.5%	93.4%	94.3%	95.0%	95.6%	95.5%
			10	86.1%	89.5%	91.5%	92.6%	93.6%	86.9%	90.4%	92.3%	93.5%	94.3%
	τ^2 = 0.049		0	62.5%	58.6%	57.0%	55.0%	52.2%	91.0%	91.9%	92.5%	93.4%	94.0%
			5	62.2%	58.7%	56.5%	53.5%	52.4%	81.8%	84.8%	86.1%	88.4%	89.3%
			10	57.0%	56.8%	55.1%	53.7%	52.0%	67.3%	74.4%	79.1%	82.1%	83.2%
	τ^2 = 0.148		0	44.4%	41.0%	39.2%	37.1%	35.2%	90.3%	91.4%	91.9%	92.9%	92.1%
			5	45.5%	40.9%	38.0%	36.2%	35.7%	80.5%	83.7%	84.5%	85.5%	86.9%
			10	40.1%	39.5%	37.1%	36.1%	34.6%	60.3%	72.3%	76.2%	79.3%	81.0%
	τ^2 = 0.444		0	26.9%	25.8%	22.6%	23.2%	22.3%	89.4%	90.0%	90.6%	91.1%	91.5%
			5	28.0%	26.8%	24.3%	22.7%	20.5%	79.7%	82.1%	82.4%	83.5%	84.6%
			10	26.4%	24.9%	25.5%	23.5%	21.5%	59.7%	69.4%	75.2%	76.7%	78.0%

Table E22. Coverage probability of the estimated intercept, with R studies imputed (from 2-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	95.3%	95.3%	94.9%	94.7%	95.2%	96.6%	96.7%	96.1%	95.8%	96.3%
			5	91.1%	93.1%	93.3%	94.5%	94.4%	92.0%	93.8%	94.4%	95.1%	95.5%
			10	82.0%	87.6%	90.5%	91.3%	92.4%	82.9%	88.4%	91.0%	91.8%	92.8%
	τ^2 = 0.049		0	62.6%	59.5%	56.0%	54.6%	53.5%	91.5%	92.2%	93.2%	93.7%	93.4%
			5	60.3%	59.1%	55.6%	54.8%	53.1%	80.9%	84.6%	86.8%	87.8%	88.4%
			10	52.3%	53.1%	52.9%	52.3%	50.4%	63.0%	70.7%	75.6%	79.4%	81.5%
	τ^2 = 0.148		0	43.9%	38.9%	39.1%	36.9%	36.1%	90.7%	91.2%	92.5%	92.5%	92.9%
			5	42.8%	41.5%	38.4%	36.1%	36.2%	78.8%	83.4%	84.7%	85.3%	86.1%
			10	37.9%	39.0%	37.1%	35.2%	35.2%	60.2%	70.7%	74.6%	76.8%	78.1%
	τ^2 = 0.444		0	27.9%	25.6%	22.7%	22.5%	21.4%	90.1%	90.7%	90.2%	91.0%	91.7%
			5	29.3%	25.8%	24.9%	22.0%	20.5%	79.2%	81.1%	83.0%	82.9%	83.7%
			10	25.0%	25.1%	23.8%	22.2%	21.0%	58.9%	65.9%	72.1%	73.7%	75.7%
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	94.2%	94.7%	95.1%	94.6%	94.7%	95.7%	95.9%	96.4%	95.8%	95.8%
			5	90.5%	92.5%	93.6%	94.7%	93.9%	91.3%	93.3%	94.3%	95.2%	94.5%
			10	79.4%	85.1%	87.8%	89.6%	91.6%	80.6%	86.0%	88.6%	90.1%	92.1%
	τ^2 = 0.049		0	62.0%	59.9%	56.2%	55.3%	53.2%	91.7%	92.9%	92.9%	93.1%	93.2%
			5	61.0%	57.8%	56.2%	54.8%	53.0%	79.8%	83.4%	85.2%	87.0%	88.2%
			10	49.2%	49.6%	50.2%	52.2%	49.8%	59.9%	68.5%	72.5%	78.1%	78.2%
	τ^2 = 0.148		0	43.2%	41.0%	39.4%	35.9%	35.6%	90.2%	92.0%	91.4%	92.2%	93.1%
			5	43.8%	41.3%	39.7%	38.0%	36.2%	77.3%	81.4%	83.7%	84.9%	85.2%
			10	34.7%	35.1%	35.8%	34.9%	33.6%	55.7%	65.6%	71.3%	74.4%	76.4%
	τ^2 = 0.444		0	27.4%	25.3%	24.0%	23.0%	22.1%	89.7%	89.8%	90.7%	91.2%	90.9%
			5	30.1%	25.1%	24.5%	23.1%	22.4%	77.9%	79.0%	81.8%	83.4%	83.4%
			10	22.3%	23.9%	22.8%	21.4%	21.4%	55.5%	64.9%	69.4%	71.1%	74.6%

Table E23. Coverage probability of the estimated intercept, with L studies imputed (from 2-dimensional algorithmic variant)

L Missing Studies Imputed			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
			25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	93.9%	94.4%	94.2%	94.2%	94.3%	95.4%	96.0%	95.7%	96.0%	95.9%
		5	93.3%	93.2%	93.7%	93.8%	93.7%	94.1%	94.1%	94.6%	94.8%	94.7%
		10	88.8%	91.6%	93.5%	93.2%	92.8%	89.5%	92.4%	94.2%	93.9%	93.7%
	τ^2 = 0.049	0	60.6%	59.7%	54.3%	51.8%	49.7%	89.1%	90.7%	89.3%	90.0%	89.7%
		5	63.3%	58.5%	55.3%	52.9%	52.3%	82.5%	84.8%	86.9%	87.1%	87.9%
		10	60.3%	57.6%	56.2%	53.4%	52.3%	69.9%	74.9%	79.4%	81.5%	83.2%
	τ^2 = 0.148	0	41.7%	37.3%	36.8%	34.9%	32.3%	88.1%	87.6%	86.7%	87.2%	87.2%
		5	45.8%	42.2%	36.5%	35.5%	32.9%	81.5%	84.6%	84.2%	85.3%	85.5%
		10	42.3%	39.7%	38.2%	35.7%	34.5%	63.5%	72.3%	77.1%	78.2%	80.4%
	τ^2 = 0.444	0	26.3%	23.3%	21.8%	19.2%	19.5%	85.5%	84.8%	84.2%	83.5%	83.3%
		5	30.2%	25.5%	24.5%	22.0%	21.4%	80.8%	82.4%	83.3%	83.0%	82.2%
		10	26.0%	25.0%	24.4%	22.7%	21.0%	60.8%	69.7%	74.2%	76.8%	77.3%
β_1 = 0.074	$\tau^2 = 0$	0	94.1%	94.5%	94.6%	93.7%	94.6%	95.7%	95.7%	96.2%	95.4%	96.0%
		5	93.2%	93.8%	93.4%	93.7%	94.0%	94.1%	94.8%	94.6%	94.7%	94.8%
		10	87.4%	91.4%	92.1%	93.0%	93.6%	88.0%	92.1%	92.6%	93.6%	94.7%
	τ^2 = 0.049	0	60.0%	57.4%	54.6%	52.1%	52.9%	90.0%	90.9%	90.1%	90.6%	90.6%
		5	63.3%	57.7%	55.8%	52.1%	50.8%	82.0%	84.2%	85.1%	86.4%	87.5%
		10	58.9%	56.9%	55.5%	53.7%	50.9%	69.0%	73.6%	79.4%	81.3%	82.6%
	τ^2 = 0.148	0	41.2%	37.6%	35.6%	33.7%	34.3%	88.0%	88.1%	87.6%	87.5%	86.6%
		5	46.7%	41.0%	37.0%	35.7%	34.1%	81.5%	83.3%	85.1%	84.9%	85.2%
		10	41.0%	40.0%	39.2%	35.1%	33.8%	63.3%	71.5%	76.0%	77.9%	80.1%
	τ^2 = 0.444	0	27.1%	22.8%	21.2%	21.2%	19.8%	86.5%	84.7%	85.3%	84.5%	84.1%
		5	29.7%	26.7%	24.3%	21.2%	20.0%	80.9%	82.2%	83.2%	83.1%	83.4%
		10	26.3%	25.0%	23.8%	23.5%	21.5%	60.4%	69.4%	73.1%	76.3%	77.9%
β_1 = 0.148	$\tau^2 = 0$	0	93.7%	95.0%	94.2%	94.1%	94.1%	95.4%	96.2%	95.7%	96.0%	95.9%
		5	92.5%	93.2%	93.6%	94.5%	93.8%	93.5%	94.2%	94.7%	95.2%	95.0%
		10	86.3%	89.5%	90.9%	92.1%	93.2%	86.9%	90.2%	91.7%	92.8%	93.9%
	τ^2 = 0.049	0	60.9%	57.2%	55.1%	53.5%	50.6%	89.3%	89.6%	90.2%	90.6%	91.0%
		5	62.2%	58.5%	55.8%	52.9%	51.2%	81.8%	84.3%	85.0%	87.1%	87.0%
		10	56.3%	55.7%	53.8%	52.9%	51.0%	66.6%	72.5%	77.3%	80.6%	82.2%
	τ^2 = 0.148	0	42.7%	39.0%	36.9%	35.2%	33.0%	87.7%	87.4%	87.2%	86.6%	86.6%
		5	45.3%	40.3%	37.3%	35.9%	34.1%	80.1%	82.9%	83.4%	84.0%	85.2%
		10	39.5%	38.5%	36.1%	35.3%	34.2%	59.4%	70.2%	74.4%	77.5%	79.0%
	τ^2 = 0.444	0	26.2%	24.5%	21.2%	21.1%	20.1%	85.2%	85.9%	84.1%	83.4%	83.6%
		5	27.8%	26.7%	23.4%	22.0%	19.9%	79.7%	81.4%	82.2%	81.8%	82.0%
		10	25.0%	24.6%	24.1%	22.2%	21.5%	58.9%	67.4%	72.6%	74.4%	75.9%

The third column is labelled "Number of Missing Studies" (vertical label on the page).

Table E23. Coverage probability of the estimated intercept, with L studies imputed (from 2-dimensional algorithmic variant) (continued)

L Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model, Number of Studies: 25	35	45	55	65	Random Effects in the Final Model, Number of Studies: 25	35	45	55	65
$\beta_1 = 0.296$	$\tau^2 = 0$	0	94.9%	94.7%	94.4%	94.2%	94.4%	96.4%	96.2%	95.7%	95.5%	95.9%
		5	91.4%	92.3%	92.8%	94.0%	93.8%	92.2%	92.9%	93.9%	94.7%	94.8%
		10	81.9%	86.7%	89.6%	90.7%	91.6%	82.6%	87.8%	90.4%	91.3%	92.3%
	$\tau^2 = 0.049$	0	61.1%	57.6%	54.3%	52.4%	51.2%	89.8%	89.8%	90.6%	90.7%	89.6%
		5	60.5%	57.6%	54.0%	53.4%	51.6%	80.8%	83.3%	85.1%	85.6%	86.5%
		10	51.1%	51.3%	51.1%	49.9%	48.2%	61.7%	68.3%	72.9%	77.1%	79.3%
	$\tau^2 = 0.148$	0	42.5%	36.9%	36.8%	34.5%	34.2%	87.9%	87.8%	88.1%	87.0%	87.3%
		5	41.7%	40.7%	37.6%	35.2%	34.0%	78.2%	82.4%	83.4%	83.3%	83.3%
		10	36.9%	37.4%	35.4%	33.7%	32.3%	58.0%	67.3%	71.1%	74.0%	74.8%
	$\tau^2 = 0.444$	0	26.5%	23.9%	21.1%	20.6%	19.6%	86.3%	86.5%	83.9%	83.8%	83.2%
		5	28.7%	25.5%	23.6%	21.1%	20.1%	78.8%	80.5%	81.8%	81.7%	81.8%
		10	23.9%	23.7%	22.9%	21.2%	20.3%	56.5%	63.5%	69.3%	71.1%	73.4%
$\beta_1 = 0.444$	$\tau^2 = 0$	0	93.7%	94.3%	94.6%	94.2%	94.3%	95.4%	95.7%	96.1%	95.7%	95.7%
		5	89.7%	91.8%	92.8%	94.1%	93.3%	90.5%	92.8%	93.9%	94.5%	94.2%
		10	78.8%	84.3%	87.6%	89.6%	90.9%	79.9%	85.0%	88.2%	90.1%	91.6%
	$\tau^2 = 0.049$	0	60.7%	58.4%	54.5%	53.8%	51.6%	90.0%	90.5%	90.7%	90.2%	90.3%
		5	59.9%	56.4%	54.8%	53.2%	50.6%	78.7%	81.7%	83.7%	84.9%	86.0%
		10	47.9%	48.3%	48.0%	50.6%	47.9%	58.7%	65.3%	69.8%	76.0%	75.7%
	$\tau^2 = 0.148$	0	41.6%	39.2%	37.3%	33.9%	33.0%	87.9%	88.3%	87.5%	87.6%	86.8%
		5	43.1%	40.1%	37.5%	35.7%	34.2%	76.5%	80.8%	81.9%	83.3%	82.0%
		10	32.6%	32.5%	33.9%	33.2%	31.9%	53.3%	62.4%	67.7%	71.4%	72.5%
	$\tau^2 = 0.444$	0	26.6%	23.5%	22.5%	20.9%	19.9%	86.6%	85.2%	84.2%	84.1%	82.3%
		5	29.7%	24.8%	23.2%	22.7%	21.6%	77.4%	78.5%	80.6%	81.3%	81.0%
		10	21.0%	22.2%	21.6%	20.2%	19.7%	54.2%	61.3%	66.1%	68.7%	71.7%

Table E24. Absolute bias in the estimated slope, with no correction for publication bias (from 2-dimensional algorithmic variant)

No Correction for Publication Bias				Fixed Effects in the Final Model, Number of Studies					Random Effects in the Final Model, Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
β_1 = 0.049	**τ^2 = 0**	**Number of Missing Studies**	**0**	0.000	-0.001	0.002	-0.002	-0.001	0.000	-0.001	0.001	-0.003	-0.001
			5	-0.009	-0.006	-0.006	-0.002	-0.001	-0.009	-0.007	-0.006	-0.003	-0.001
			10	-0.025	-0.016	-0.008	-0.006	-0.005	-0.026	-0.016	-0.008	-0.006	-0.005
	τ^2 = 0.049		**0**	-0.003	-0.002	0.000	-0.003	-0.001	-0.003	0.002	0.001	-0.004	0.002
			5	-0.018	-0.009	-0.010	-0.010	0.000	-0.020	-0.007	-0.009	-0.011	-0.005
			10	-0.024	-0.020	-0.013	-0.019	-0.011	-0.022	-0.020	-0.014	-0.018	-0.012
	τ^2 = 0.148		**0**	-0.005	0.016	-0.002	0.004	0.001	-0.003	0.001	-0.001	0.003	0.003
			5	-0.023	-0.009	-0.008	-0.006	-0.006	-0.020	-0.012	-0.012	-0.010	-0.010
			10	-0.021	-0.014	-0.016	-0.019	-0.004	-0.025	-0.020	-0.018	-0.022	-0.015
	τ^2 = 0.444		**0**	0.000	0.024	0.007	-0.003	-0.001	-0.007	0.011	0.000	0.000	0.003
			5	-0.002	-0.018	-0.017	-0.022	-0.013	-0.012	-0.022	-0.018	-0.018	-0.008
			10	-0.041	-0.023	-0.024	-0.017	-0.009	-0.028	-0.033	-0.023	-0.019	-0.008
β_1 = 0.074	**τ^2 = 0**	**Number of Missing Studies**	**0**	-0.001	0.003	0.002	-0.001	-0.001	0.000	0.003	0.002	-0.001	-0.001
			5	-0.011	-0.007	-0.004	-0.003	-0.005	-0.011	-0.008	-0.004	-0.003	-0.004
			10	-0.047	-0.024	-0.015	-0.010	-0.008	-0.047	-0.024	-0.015	-0.011	-0.008
	τ^2 = 0.049		**0**	-0.007	-0.005	0.001	0.002	-0.001	-0.005	-0.007	0.002	-0.001	-0.001
			5	-0.016	-0.020	-0.014	-0.011	-0.008	-0.021	-0.022	-0.017	-0.014	-0.009
			10	-0.040	-0.030	-0.025	-0.023	-0.015	-0.041	-0.032	-0.027	-0.022	-0.020
	τ^2 = 0.148		**0**	0.000	0.004	0.010	0.001	-0.002	-0.001	-0.003	0.002	0.000	-0.002
			5	-0.020	-0.020	-0.018	-0.015	-0.001	-0.025	-0.014	-0.025	-0.017	-0.008
			10	-0.047	-0.038	-0.021	-0.045	-0.027	-0.043	-0.033	-0.029	-0.032	-0.022
	τ^2 = 0.444		**0**	0.008	0.005	-0.003	-0.005	0.006	-0.004	0.001	-0.011	-0.006	-0.002
			5	-0.020	-0.023	-0.010	-0.027	-0.024	-0.022	-0.026	-0.022	-0.022	-0.015
			10	-0.034	-0.031	-0.041	-0.023	-0.019	-0.048	-0.032	-0.039	-0.030	-0.021
β_1 = 0.148	**τ^2 = 0**	**Number of Missing Studies**	**0**	-0.003	0.000	-0.001	0.001	0.001	-0.002	-0.001	-0.001	0.001	0.001
			5	-0.027	-0.014	-0.012	-0.007	-0.007	-0.028	-0.014	-0.012	-0.007	-0.006
			10	-0.087	-0.044	-0.030	-0.018	-0.014	-0.087	-0.045	-0.030	-0.019	-0.014
	τ^2 = 0.049		**0**	0.007	0.003	0.003	-0.007	-0.002	0.003	-0.004	-0.002	-0.003	-0.003
			5	-0.041	-0.039	-0.017	-0.015	-0.015	-0.046	-0.040	-0.024	-0.021	-0.020
			10	-0.083	-0.061	-0.049	-0.037	-0.039	-0.085	-0.061	-0.051	-0.043	-0.044
	τ^2 = 0.148		**0**	0.005	-0.005	-0.004	0.002	0.002	0.012	-0.003	-0.001	0.000	0.000
			5	-0.058	-0.032	-0.029	-0.026	-0.024	-0.060	-0.043	-0.033	-0.033	-0.028
			10	-0.083	-0.071	-0.058	-0.054	-0.047	-0.086	-0.065	-0.058	-0.054	-0.047
	τ^2 = 0.444		**0**	0.018	0.010	0.009	-0.002	-0.006	0.005	-0.001	-0.002	0.006	-0.003
			5	-0.071	-0.053	-0.039	-0.031	-0.032	-0.065	-0.046	-0.049	-0.043	-0.029
			10	-0.092	-0.067	-0.054	-0.053	-0.059	-0.087	-0.066	-0.067	-0.054	-0.058

Table E24. Absolute bias in the estimated slope, with no correction for publication bias (from 2-dimensional algorithmic variant) (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	0.001	-0.002	0.002	0.001	-0.002	0.001	-0.003	0.003	0.001	-0.002
			5	-0.059	-0.032	-0.022	-0.016	-0.013	-0.060	-0.034	-0.023	-0.017	-0.014
			10	-0.163	-0.085	-0.057	-0.038	-0.031	-0.164	-0.086	-0.058	-0.039	-0.032
	τ^2 = 0.049		0	-0.001	0.005	0.003	0.001	0.005	0.000	-0.001	0.004	0.000	0.002
			5	-0.082	-0.066	-0.049	-0.030	-0.028	-0.091	-0.070	-0.057	-0.046	-0.042
			10	-0.174	-0.127	-0.098	-0.084	-0.066	-0.173	-0.127	-0.102	-0.090	-0.077
	τ^2 = 0.148		0	0.009	-0.007	-0.001	-0.003	0.004	0.003	-0.002	-0.003	0.002	0.001
			5	-0.108	-0.076	-0.054	-0.046	-0.046	-0.108	-0.086	-0.060	-0.067	-0.055
			10	-0.150	-0.128	-0.111	-0.087	-0.084	-0.156	-0.131	-0.116	-0.099	-0.093
	τ^2 = 0.444		0	-0.009	0.021	0.000	0.010	0.011	-0.001	0.010	0.000	-0.003	0.004
			5	-0.109	-0.105	-0.085	-0.075	-0.060	-0.111	-0.102	-0.086	-0.071	-0.070
			10	-0.159	-0.139	-0.121	-0.112	-0.091	-0.162	-0.145	-0.122	-0.114	-0.095
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	0.003	0.001	-0.002	0.001	0.000	0.003	0.001	-0.002	0.001	0.000
			5	-0.077	-0.046	-0.030	-0.023	-0.019	-0.079	-0.048	-0.031	-0.024	-0.020
			10	-0.222	-0.126	-0.081	-0.059	-0.043	-0.223	-0.129	-0.083	-0.060	-0.044
	τ^2 = 0.049		0	0.001	-0.002	-0.003	0.001	0.004	0.000	-0.004	-0.003	-0.001	0.006
			5	-0.132	-0.091	-0.063	-0.048	-0.037	-0.140	-0.101	-0.080	-0.066	-0.055
			10	-0.241	-0.181	-0.136	-0.109	-0.093	-0.242	-0.186	-0.149	-0.125	-0.111
	τ^2 = 0.148		0	0.012	0.010	0.003	0.001	0.004	0.008	0.003	-0.004	-0.004	-0.004
			5	-0.143	-0.125	-0.095	-0.084	-0.061	-0.152	-0.130	-0.108	-0.097	-0.078
			10	-0.254	-0.205	-0.168	-0.131	-0.129	-0.256	-0.204	-0.175	-0.148	-0.139
	τ^2 = 0.444		0	0.003	0.010	0.000	0.008	0.007	-0.007	0.000	-0.002	-0.006	0.005
			5	-0.163	-0.153	-0.110	-0.098	-0.092	-0.167	-0.154	-0.118	-0.102	-0.099
			10	-0.254	-0.206	-0.198	-0.171	-0.154	-0.258	-0.212	-0.189	-0.168	-0.153

Table E25. Absolute bias in the estimated slope, with R studies imputed (from 2-dimensional algorithmic variant)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
β_1 = 0.049	**τ^2 = 0**	**Number of Missing Studies**	**0**	0.000	-0.001	0.001	-0.002	-0.001	0.000	-0.001	0.001	-0.003	-0.001
			5	-0.008	-0.006	-0.006	-0.002	0.000	-0.008	-0.006	-0.005	-0.003	-0.001
			10	-0.015	-0.010	-0.006	-0.004	-0.004	-0.014	-0.010	-0.007	-0.004	-0.004
	τ^2 = 0.049		**0**	-0.002	-0.002	0.001	-0.004	-0.001	-0.003	0.002	0.002	-0.005	0.001
			5	-0.012	-0.003	-0.009	-0.008	0.000	-0.013	0.000	-0.006	-0.008	-0.005
			10	-0.016	-0.015	-0.008	-0.017	-0.007	-0.012	-0.012	-0.006	-0.014	-0.005
	τ^2 = 0.148		**0**	-0.004	0.016	-0.002	0.004	0.001	-0.004	0.003	-0.001	0.003	0.003
			5	-0.019	-0.004	-0.009	-0.005	-0.005	-0.013	-0.010	-0.010	-0.006	-0.007
			10	-0.015	-0.007	-0.007	-0.017	-0.002	-0.018	-0.009	-0.011	-0.018	-0.011
	τ^2 = 0.444		**0**	-0.001	0.016	0.005	-0.003	0.000	-0.008	0.000	-0.003	-0.002	0.004
			5	-0.001	-0.010	-0.013	-0.019	-0.006	-0.012	-0.012	-0.013	-0.013	0.003
			10	-0.029	-0.016	-0.017	-0.011	-0.004	-0.010	-0.021	-0.017	-0.011	0.002
β_1 = 0.074	**τ^2 = 0**	**Number of Missing Studies**	**0**	-0.002	0.003	0.001	-0.001	-0.001	-0.002	0.003	0.002	-0.001	-0.001
			5	-0.006	-0.005	-0.004	-0.002	-0.004	-0.006	-0.006	-0.004	-0.003	-0.005
			10	-0.029	-0.016	-0.013	-0.008	-0.006	-0.028	-0.015	-0.014	-0.008	-0.006
	τ^2 = 0.049		**0**	-0.007	-0.005	0.001	0.001	-0.001	-0.005	-0.007	0.001	-0.001	-0.001
			5	-0.012	-0.017	-0.011	-0.008	-0.005	-0.015	-0.018	-0.011	-0.008	-0.006
			10	-0.025	-0.022	-0.018	-0.016	-0.011	-0.024	-0.022	-0.017	-0.014	-0.011
	τ^2 = 0.148		**0**	0.001	0.007	0.009	0.000	-0.003	0.001	-0.001	0.000	0.000	-0.002
			5	-0.020	-0.012	-0.011	-0.011	0.006	-0.024	-0.007	-0.018	-0.011	0.000
			10	-0.033	-0.026	-0.013	-0.033	-0.017	-0.028	-0.016	-0.022	-0.019	-0.010
	τ^2 = 0.444		**0**	0.002	0.002	-0.002	-0.006	0.005	-0.006	-0.001	-0.014	-0.011	-0.004
			5	-0.012	-0.017	-0.006	-0.027	-0.021	-0.005	-0.019	-0.018	-0.017	-0.008
			10	-0.026	-0.023	-0.032	-0.014	-0.017	-0.041	-0.016	-0.020	-0.018	-0.018
β_1 = 0.148	**τ^2 = 0**	**Number of Missing Studies**	**0**	-0.003	-0.001	-0.001	0.001	0.001	-0.002	-0.001	-0.001	0.001	0.001
			5	-0.022	-0.010	-0.009	-0.005	-0.006	-0.023	-0.010	-0.010	-0.006	-0.006
			10	-0.053	-0.028	-0.021	-0.014	-0.010	-0.052	-0.028	-0.022	-0.015	-0.012
	τ^2 = 0.049		**0**	0.007	0.002	0.002	-0.007	-0.002	0.004	-0.005	-0.002	-0.003	-0.004
			5	-0.029	-0.028	-0.012	-0.011	-0.013	-0.029	-0.024	-0.016	-0.013	-0.015
			10	-0.061	-0.039	-0.035	-0.024	-0.030	-0.059	-0.033	-0.030	-0.025	-0.031
	τ^2 = 0.148		**0**	0.006	-0.006	-0.005	0.001	0.001	0.013	-0.005	0.000	-0.002	0.000
			5	-0.045	-0.024	-0.021	-0.020	-0.017	-0.042	-0.028	-0.024	-0.021	-0.019
			10	-0.067	-0.054	-0.040	-0.038	-0.035	-0.064	-0.038	-0.035	-0.034	-0.030
	τ^2 = 0.444		**0**	0.018	0.007	0.010	0.000	-0.004	0.006	-0.003	-0.006	0.008	-0.003
			5	-0.061	-0.039	-0.030	-0.020	-0.025	-0.051	-0.025	-0.034	-0.029	-0.017
			10	-0.072	-0.049	-0.037	-0.036	-0.048	-0.056	-0.041	-0.039	-0.031	-0.038

Table E25. Absolute bias in the estimated slope, with R studies imputed (from 2-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	τ^2 = 0	Number of Missing Studies	**0**	0.001	-0.002	0.002	0.001	-0.002	0.001	-0.002	0.003	0.001	-0.002
			5	-0.043	-0.026	-0.019	-0.015	-0.012	-0.043	-0.028	-0.022	-0.017	-0.014
			10	-0.099	-0.054	-0.042	-0.030	-0.026	-0.096	-0.053	-0.043	-0.033	-0.028
	τ^2 = 0.049		**0**	-0.002	0.006	0.003	0.001	0.005	-0.002	0.001	0.003	0.000	0.002
			5	-0.059	-0.049	-0.037	-0.025	-0.023	-0.061	-0.049	-0.041	-0.039	-0.033
			10	-0.124	-0.090	-0.067	-0.061	-0.048	-0.113	-0.078	-0.060	-0.057	-0.051
	τ^2 = 0.148		**0**	0.010	-0.005	0.000	-0.004	0.005	0.003	0.001	-0.001	0.000	0.001
			5	-0.079	-0.056	-0.037	-0.037	-0.039	-0.070	-0.058	-0.040	-0.052	-0.042
			10	-0.109	-0.086	-0.078	-0.057	-0.059	-0.101	-0.074	-0.067	-0.055	-0.059
	τ^2 = 0.444		**0**	-0.005	0.021	0.002	0.011	0.011	-0.003	0.010	0.000	-0.005	0.004
			5	-0.074	-0.084	-0.061	-0.054	-0.048	-0.067	-0.071	-0.054	-0.039	-0.050
			10	-0.121	-0.100	-0.084	-0.076	-0.064	-0.109	-0.091	-0.073	-0.067	-0.051
β_1 = 0.444	τ^2 = 0	Number of Missing Studies	**0**	0.003	0.001	-0.002	0.001	0.000	0.003	0.002	-0.002	0.001	0.000
			5	-0.056	-0.038	-0.026	-0.021	-0.017	-0.058	-0.041	-0.028	-0.023	-0.019
			10	-0.132	-0.086	-0.061	-0.049	-0.037	-0.128	-0.087	-0.064	-0.052	-0.040
	τ^2 = 0.049		**0**	0.001	-0.002	-0.003	0.001	0.003	0.000	-0.004	-0.003	-0.001	0.005
			5	-0.100	-0.070	-0.052	-0.037	-0.032	-0.096	-0.072	-0.060	-0.051	-0.045
			10	-0.169	-0.126	-0.098	-0.078	-0.071	-0.157	-0.116	-0.097	-0.081	-0.077
	τ^2 = 0.148		**0**	0.010	0.009	0.003	0.000	0.003	0.006	0.003	-0.004	-0.005	-0.005
			5	-0.106	-0.098	-0.072	-0.065	-0.045	-0.102	-0.092	-0.073	-0.067	-0.052
			10	-0.195	-0.146	-0.121	-0.093	-0.093	-0.178	-0.124	-0.105	-0.093	-0.089
	τ^2 = 0.444		**0**	-0.002	0.013	0.002	0.008	0.006	-0.012	0.000	-0.003	-0.009	0.002
			5	-0.126	-0.120	-0.084	-0.073	-0.067	-0.112	-0.110	-0.077	-0.066	-0.064
			10	-0.196	-0.148	-0.149	-0.130	-0.112	-0.181	-0.135	-0.118	-0.105	-0.094

Table E26. Absolute bias in the estimated slope, with L studies imputed (from 2-dimensional algorithmic variant)

L Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model: Number of Studies 25	35	45	55	65	Random Effects in the Final Model: Number of Studies 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	0.000	-0.002	0.002	-0.002	-0.001	-0.001	-0.002	0.001	-0.003	-0.001
		5	-0.009	-0.005	-0.006	-0.002	-0.001	-0.009	-0.006	-0.005	-0.002	-0.001
		10	-0.016	-0.011	-0.006	-0.004	-0.005	-0.016	-0.011	-0.007	-0.005	-0.004
	τ^2 = 0.049	0	-0.004	-0.001	0.001	-0.004	-0.001	-0.004	0.002	0.003	-0.005	0.001
		5	-0.013	-0.004	-0.010	-0.009	0.000	-0.015	-0.001	-0.008	-0.009	-0.005
		10	-0.019	-0.015	-0.009	-0.014	-0.009	-0.014	-0.012	-0.007	-0.013	-0.008
	τ^2 = 0.148	0	-0.006	0.014	0.002	0.002	0.003	-0.004	0.004	0.003	0.002	0.007
		5	-0.017	-0.007	-0.009	-0.004	-0.005	-0.012	-0.010	-0.009	-0.007	-0.007
		10	-0.018	-0.008	-0.009	-0.017	-0.003	-0.020	-0.011	-0.012	-0.017	-0.012
	τ^2 = 0.444	0	-0.010	0.019	0.008	-0.002	-0.002	-0.016	0.001	0.002	0.001	0.004
		5	0.000	-0.013	-0.016	-0.018	-0.005	-0.013	-0.016	-0.014	-0.016	0.002
		10	-0.033	-0.022	-0.020	-0.015	-0.006	-0.013	-0.027	-0.020	-0.016	0.001
β_1 = 0.074	$\tau^2 = 0$	0	-0.001	0.003	0.001	-0.001	-0.002	-0.001	0.003	0.001	-0.001	-0.001
		5	-0.006	-0.006	-0.003	-0.003	-0.005	-0.007	-0.007	-0.004	-0.003	-0.005
		10	-0.030	-0.016	-0.013	-0.008	-0.006	-0.029	-0.016	-0.015	-0.009	-0.007
	τ^2 = 0.049	0	-0.007	-0.006	0.001	0.000	0.001	-0.006	-0.008	0.001	-0.003	0.001
		5	-0.013	-0.017	-0.011	-0.010	-0.005	-0.017	-0.017	-0.011	-0.010	-0.007
		10	-0.030	-0.023	-0.020	-0.018	-0.011	-0.028	-0.024	-0.020	-0.016	-0.012
	τ^2 = 0.148	0	0.000	0.006	0.007	0.000	-0.003	0.001	-0.001	0.000	0.000	-0.003
		5	-0.017	-0.013	-0.011	-0.011	0.006	-0.023	-0.009	-0.016	-0.011	0.000
		10	-0.036	-0.031	-0.014	-0.036	-0.019	-0.030	-0.021	-0.023	-0.021	-0.012
	τ^2 = 0.444	0	0.002	0.002	-0.004	-0.008	0.003	-0.005	-0.004	-0.016	-0.011	-0.009
		5	-0.013	-0.021	-0.010	-0.028	-0.023	-0.005	-0.021	-0.023	-0.019	-0.009
		10	-0.031	-0.023	-0.032	-0.020	-0.017	-0.044	-0.020	-0.021	-0.023	-0.017
β_1 = 0.148	$\tau^2 = 0$	0	-0.003	-0.001	-0.001	0.001	0.001	-0.002	0.000	-0.002	0.001	0.001
		5	-0.022	-0.011	-0.010	-0.006	-0.006	-0.023	-0.011	-0.011	-0.006	-0.006
		10	-0.057	-0.031	-0.022	-0.015	-0.011	-0.055	-0.031	-0.023	-0.016	-0.012
	τ^2 = 0.049	0	0.006	0.003	0.002	-0.007	-0.002	0.003	-0.006	-0.003	-0.003	-0.003
		5	-0.032	-0.030	-0.013	-0.013	-0.013	-0.032	-0.027	-0.018	-0.015	-0.015
		10	-0.061	-0.043	-0.037	-0.025	-0.030	-0.060	-0.038	-0.033	-0.026	-0.031
	τ^2 = 0.148	0	0.004	-0.008	-0.006	0.002	0.001	0.008	-0.006	-0.001	-0.001	-0.001
		5	-0.047	-0.024	-0.021	-0.024	-0.018	-0.043	-0.031	-0.024	-0.025	-0.019
		10	-0.070	-0.057	-0.045	-0.040	-0.037	-0.068	-0.043	-0.040	-0.036	-0.033
	τ^2 = 0.444	0	0.020	0.006	0.008	0.000	-0.008	0.006	-0.004	-0.004	0.008	-0.006
		5	-0.064	-0.045	-0.035	-0.021	-0.026	-0.053	-0.028	-0.036	-0.030	-0.020
		10	-0.079	-0.050	-0.042	-0.041	-0.052	-0.064	-0.039	-0.045	-0.035	-0.043

Table E26. Absolute bias in the estimated slope, with L studies imputed (from 2-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
$\beta_1 =$ 0.296	$\tau^2 = 0$	Number of Missing Studies	**0**	0.001	-0.002	0.003	0.002	-0.002	0.001	-0.003	0.003	0.002	-0.002
			5	-0.045	-0.027	-0.019	-0.015	-0.012	-0.045	-0.029	-0.022	-0.017	-0.014
			10	-0.105	-0.058	-0.044	-0.031	-0.026	-0.100	-0.058	-0.045	-0.033	-0.029
	$\tau^2 =$ 0.049		**0**	-0.001	0.006	0.003	0.001	0.005	0.000	-0.001	0.003	0.000	0.002
			5	-0.063	-0.052	-0.038	-0.027	-0.023	-0.065	-0.051	-0.041	-0.039	-0.034
			10	-0.131	-0.095	-0.073	-0.065	-0.051	-0.120	-0.083	-0.065	-0.060	-0.054
	$\tau^2 =$ 0.148		**0**	0.011	-0.007	0.002	-0.003	0.004	0.006	0.001	-0.001	0.001	0.000
			5	-0.085	-0.058	-0.039	-0.039	-0.038	-0.076	-0.061	-0.041	-0.053	-0.042
			10	-0.116	-0.097	-0.084	-0.064	-0.064	-0.110	-0.086	-0.073	-0.063	-0.065
	$\tau^2 =$ 0.444		**0**	0.000	0.020	0.006	0.017	0.009	0.007	0.004	0.001	0.002	0.003
			5	-0.081	-0.088	-0.061	-0.062	-0.049	-0.074	-0.076	-0.057	-0.048	-0.052
			10	-0.130	-0.109	-0.093	-0.083	-0.069	-0.116	-0.102	-0.080	-0.075	-0.060
$\beta_1 =$ 0.444	$\tau^2 = 0$	Number of Missing Studies	**0**	0.004	0.001	-0.002	0.001	0.000	0.004	0.002	-0.002	0.002	0.000
			5	-0.057	-0.038	-0.025	-0.021	-0.018	-0.059	-0.040	-0.027	-0.023	-0.020
			10	-0.138	-0.087	-0.062	-0.048	-0.035	-0.133	-0.088	-0.064	-0.051	-0.038
	$\tau^2 =$ 0.049		**0**	0.000	-0.001	-0.004	0.001	0.004	-0.002	-0.004	-0.003	0.000	0.004
			5	-0.102	-0.071	-0.051	-0.039	-0.033	-0.097	-0.073	-0.060	-0.051	-0.044
			10	-0.178	-0.132	-0.102	-0.082	-0.073	-0.164	-0.122	-0.101	-0.084	-0.078
	$\tau^2 =$ 0.148		**0**	0.012	0.007	0.004	-0.001	0.006	0.008	0.003	-0.004	-0.007	-0.003
			5	-0.110	-0.101	-0.074	-0.065	-0.045	-0.105	-0.095	-0.075	-0.067	-0.053
			10	-0.204	-0.158	-0.128	-0.102	-0.100	-0.188	-0.136	-0.115	-0.102	-0.096
	$\tau^2 =$ 0.444		**0**	-0.005	0.017	-0.001	0.007	0.001	-0.014	0.006	-0.004	-0.011	0.002
			5	-0.128	-0.122	-0.086	-0.075	-0.067	-0.113	-0.109	-0.080	-0.070	-0.064
			10	-0.211	-0.162	-0.160	-0.137	-0.115	-0.195	-0.147	-0.132	-0.115	-0.101

Table E27. Coverage probability of the estimated slope, with no correction for publication bias (from 2-dimensional algorithmic variant)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies 25	35	45	55	65	Random Effects in the Final Model Number of Studies 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	0	95.3%	94.7%	94.9%	95.1%	94.7%	96.2%	96.0%	96.1%	96.0%	96.0%
			5	95.4%	95.4%	95.0%	94.9%	95.7%	95.7%	95.8%	95.5%	95.3%	96.0%
			10	96.2%	95.5%	95.2%	94.9%	95.0%	96.6%	95.8%	95.4%	95.2%	95.2%
	τ^2 = 0.049		0	63.8%	62.4%	57.5%	55.7%	53.3%	91.6%	93.6%	93.5%	93.4%	94.3%
			5	71.6%	64.9%	59.5%	57.4%	55.1%	89.7%	90.9%	92.2%	92.7%	94.0%
			10	83.3%	71.3%	65.8%	60.3%	57.0%	90.1%	87.9%	89.9%	90.6%	91.9%
	τ^2 = 0.148		0	45.2%	41.8%	40.3%	36.5%	35.7%	92.5%	93.2%	93.7%	94.3%	94.4%
			5	55.5%	47.1%	43.9%	40.2%	37.7%	91.2%	93.3%	93.8%	94.5%	94.4%
			10	67.4%	55.4%	48.5%	44.3%	42.2%	88.8%	91.1%	93.1%	92.6%	94.1%
	τ^2 = 0.444		0	28.9%	26.5%	24.3%	23.4%	21.6%	92.5%	93.2%	93.3%	93.7%	93.8%
			5	37.6%	30.8%	27.5%	24.7%	24.7%	92.4%	93.3%	93.8%	94.1%	94.6%
			10	48.3%	37.8%	32.7%	29.2%	27.5%	91.6%	93.2%	93.8%	94.5%	94.5%
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	0	94.9%	94.5%	95.3%	94.8%	95.0%	96.2%	95.9%	96.1%	95.8%	95.7%
			5	95.7%	95.8%	95.5%	94.6%	95.2%	96.2%	96.2%	95.8%	95.1%	95.6%
			10	95.3%	94.9%	94.6%	95.0%	95.4%	95.8%	95.4%	95.0%	95.2%	95.6%
	τ^2 = 0.049		0	63.7%	61.9%	57.9%	54.4%	53.5%	92.4%	93.1%	93.5%	94.1%	94.2%
			5	70.9%	64.0%	60.5%	56.0%	55.0%	89.9%	90.2%	91.4%	92.2%	93.0%
			10	82.5%	70.6%	65.6%	61.2%	57.6%	90.2%	87.2%	90.1%	90.9%	92.3%
	τ^2 = 0.148		0	44.5%	40.4%	39.1%	37.1%	36.1%	92.6%	93.1%	93.7%	94.2%	93.8%
			5	54.0%	47.8%	42.9%	39.2%	37.5%	91.3%	92.6%	93.7%	94.1%	94.4%
			10	65.0%	55.5%	49.6%	44.7%	40.7%	89.4%	91.6%	92.7%	93.6%	93.8%
	τ^2 = 0.444		0	29.6%	26.5%	23.0%	23.1%	21.8%	92.7%	92.9%	92.7%	93.2%	93.8%
			5	36.7%	30.5%	27.0%	24.7%	23.1%	92.5%	93.4%	93.6%	94.0%	93.8%
			10	48.4%	37.3%	31.5%	28.4%	26.4%	91.2%	92.8%	94.2%	93.4%	93.7%
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	0	95.0%	95.7%	94.8%	95.0%	95.0%	96.4%	96.6%	96.1%	96.0%	96.1%
			5	95.4%	95.4%	95.0%	95.3%	94.9%	95.8%	95.7%	95.4%	95.6%	95.3%
			10	94.2%	93.4%	94.1%	94.6%	94.8%	94.8%	93.8%	94.3%	94.9%	95.0%
	τ^2 = 0.049		0	62.7%	60.5%	58.3%	55.9%	54.1%	91.9%	92.7%	92.7%	94.2%	94.0%
			5	71.7%	63.8%	60.4%	56.8%	56.4%	89.4%	90.4%	91.7%	92.7%	93.5%
			10	80.8%	72.0%	64.8%	60.4%	57.3%	89.4%	88.2%	88.9%	90.6%	91.0%
	τ^2 = 0.148		0	44.9%	41.4%	39.2%	37.2%	36.8%	92.6%	93.9%	93.5%	94.0%	93.7%
			5	55.1%	46.3%	43.1%	39.3%	38.9%	90.4%	91.7%	93.0%	93.7%	94.1%
			10	67.3%	54.4%	47.9%	44.4%	40.3%	88.7%	90.6%	92.3%	92.4%	93.9%
	τ^2 = 0.444		0	28.4%	26.1%	24.4%	22.1%	22.3%	92.4%	93.3%	93.1%	93.5%	94.1%
			5	36.9%	31.4%	28.4%	25.8%	23.9%	92.2%	93.5%	93.4%	93.7%	93.7%
			10	47.3%	37.9%	32.3%	29.3%	27.7%	90.9%	92.5%	93.0%	93.5%	93.5%

Table E27. Coverage probability of the estimated slope, with no correction for publication bias (from 2-dimensional algorithmic variant) (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 =$ 0.296	$\tau^2 = 0$	Number of Missing Studies	0	95.4%	95.2%	94.9%	95.0%	95.3%	96.5%	96.3%	95.8%	95.7%	96.2%
			5	94.4%	94.1%	94.6%	95.2%	94.6%	95.0%	94.6%	95.0%	95.6%	95.1%
			10	90.3%	91.2%	92.2%	93.2%	93.4%	90.7%	91.6%	92.6%	93.3%	93.6%
	$\tau^2 =$ 0.049		0	64.9%	61.8%	58.3%	55.8%	53.7%	92.8%	93.6%	93.5%	93.8%	94.2%
			5	70.0%	62.8%	59.2%	57.2%	56.0%	88.0%	89.4%	90.8%	91.3%	92.5%
			10	76.0%	66.8%	61.7%	57.9%	55.7%	84.9%	83.9%	86.0%	87.1%	89.1%
	$\tau^2 =$ 0.148		0	45.9%	41.6%	39.4%	37.7%	36.7%	92.5%	93.0%	94.2%	93.9%	94.0%
			5	52.1%	47.1%	42.5%	40.1%	38.8%	89.5%	92.3%	92.3%	93.0%	93.3%
			10	63.9%	53.0%	45.1%	42.8%	39.5%	86.2%	88.5%	90.3%	90.6%	91.1%
	$\tau^2 =$ 0.444		0	28.5%	25.3%	24.3%	23.7%	21.0%	92.5%	93.3%	92.7%	93.5%	93.6%
			5	36.6%	30.3%	28.1%	25.5%	23.4%	92.4%	92.9%	92.8%	93.9%	93.8%
			10	45.8%	36.3%	32.6%	29.0%	26.5%	89.2%	91.0%	92.2%	92.1%	92.9%
$\beta_1 =$ 0.444	$\tau^2 = 0$	Number of Missing Studies	0	94.5%	95.0%	95.1%	94.7%	95.0%	95.9%	96.1%	96.0%	95.9%	96.2%
			5	92.4%	94.1%	94.6%	94.5%	94.8%	93.2%	94.4%	95.0%	94.7%	95.1%
			10	85.6%	88.1%	89.9%	90.8%	92.8%	86.4%	88.3%	90.1%	90.9%	93.0%
	$\tau^2 =$ 0.049		0	64.5%	61.0%	56.5%	57.0%	54.3%	92.2%	93.9%	93.4%	94.1%	94.1%
			5	67.5%	62.6%	59.3%	58.7%	53.8%	86.1%	87.4%	89.1%	90.0%	91.4%
			10	69.9%	62.0%	57.6%	56.2%	53.5%	79.7%	79.6%	80.4%	84.1%	85.2%
	$\tau^2 =$ 0.148		0	44.5%	40.4%	38.9%	36.9%	36.8%	92.3%	93.3%	93.7%	93.6%	94.4%
			5	51.4%	44.6%	41.2%	39.5%	37.9%	88.7%	90.3%	91.1%	92.1%	92.3%
			10	58.0%	47.3%	43.4%	40.6%	38.0%	81.6%	84.6%	87.0%	87.8%	88.5%
	$\tau^2 =$ 0.444		0	27.9%	26.7%	24.7%	23.4%	22.3%	92.1%	93.5%	93.2%	93.4%	93.5%
			5	35.8%	30.5%	27.5%	25.3%	24.2%	90.8%	90.9%	91.7%	92.9%	93.4%
			10	42.8%	34.9%	29.1%	26.4%	26.5%	87.0%	89.7%	89.7%	90.8%	90.8%

Table E28. Coverage probability of the estimated slope, with R studies imputed (from 2-dimensional algorithmic variant)

R Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model, Number of Studies: 25	35	45	55	65	Random Effects in the Final Model, Number of Studies: 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	95.0%	94.4%	94.7%	95.1%	94.7%	95.9%	95.9%	96.1%	96.2%	96.2%
		5	92.8%	93.4%	93.9%	94.2%	94.5%	93.2%	94.2%	94.7%	94.9%	95.2%
		10	93.5%	93.1%	93.3%	93.4%	93.3%	93.8%	93.5%	93.8%	93.8%	93.9%
	τ^2 = 0.049	0	63.8%	62.5%	57.7%	55.7%	53.5%	91.2%	93.1%	92.7%	93.1%	94.3%
		5	68.5%	62.7%	59.5%	56.9%	55.2%	86.7%	87.7%	89.6%	90.1%	91.4%
		10	78.2%	67.0%	63.3%	58.2%	56.1%	86.3%	84.8%	86.8%	87.1%	88.6%
	τ^2 = 0.148	0	44.9%	42.0%	40.3%	36.8%	36.1%	91.1%	91.9%	92.5%	93.4%	93.9%
		5	52.3%	44.7%	42.9%	39.4%	37.7%	86.9%	88.0%	89.5%	89.7%	90.5%
		10	62.3%	51.2%	44.8%	41.8%	39.6%	85.0%	85.6%	87.0%	87.0%	87.6%
	τ^2 = 0.444	0	28.4%	26.4%	24.7%	23.8%	21.7%	90.5%	90.9%	90.6%	92.1%	92.2%
		5	34.2%	28.9%	26.8%	24.7%	23.9%	86.4%	87.2%	88.1%	88.1%	88.9%
		10	44.0%	34.2%	29.6%	26.5%	25.0%	86.6%	86.5%	86.7%	87.8%	87.3%
β_1 = 0.074	$\tau^2 = 0$	0	94.6%	94.5%	95.1%	94.7%	94.9%	95.9%	95.8%	96.0%	95.9%	95.7%
		5	93.7%	94.1%	93.5%	93.9%	94.5%	94.3%	95.1%	94.0%	94.9%	95.1%
		10	92.6%	92.8%	92.8%	92.6%	93.5%	93.2%	93.2%	93.0%	93.4%	94.1%
	τ^2 = 0.049	0	63.5%	61.9%	57.8%	54.5%	53.7%	92.0%	92.5%	93.0%	93.9%	94.0%
		5	68.2%	62.5%	59.2%	56.5%	55.4%	87.0%	87.5%	88.7%	89.6%	91.0%
		10	78.2%	67.7%	63.6%	59.5%	55.7%	86.7%	84.7%	86.8%	87.8%	88.7%
	τ^2 = 0.148	0	44.7%	40.4%	39.5%	37.7%	36.1%	91.5%	91.8%	92.7%	93.6%	93.1%
		5	50.5%	45.5%	41.1%	38.3%	37.5%	87.3%	87.5%	89.2%	89.7%	90.7%
		10	61.7%	50.8%	46.3%	41.9%	39.2%	85.8%	85.6%	86.3%	87.2%	87.7%
	τ^2 = 0.444	0	29.3%	26.0%	23.3%	23.0%	22.0%	90.5%	90.5%	91.6%	91.5%	92.6%
		5	33.7%	28.7%	25.0%	23.1%	22.0%	87.0%	88.1%	87.7%	88.3%	89.1%
		10	43.3%	33.5%	29.0%	26.0%	24.9%	86.4%	86.3%	87.6%	86.5%	87.0%
β_1 = 0.148	$\tau^2 = 0$	0	94.7%	95.4%	94.6%	94.9%	95.0%	96.0%	96.5%	96.0%	96.1%	96.1%
		5	93.2%	93.8%	93.9%	94.6%	93.9%	93.6%	94.6%	94.6%	95.6%	94.9%
		10	91.8%	91.5%	92.1%	92.9%	93.7%	92.1%	92.3%	92.3%	93.3%	94.2%
	τ^2 = 0.049	0	62.7%	60.7%	58.7%	56.1%	54.2%	91.2%	92.3%	92.5%	94.0%	93.9%
		5	68.4%	62.1%	59.9%	56.2%	57.2%	86.3%	88.1%	89.2%	90.9%	91.2%
		10	77.3%	69.2%	63.1%	59.4%	56.8%	86.2%	85.6%	85.8%	87.9%	88.0%
	τ^2 = 0.148	0	45.0%	41.6%	39.4%	37.4%	36.7%	91.0%	92.5%	92.5%	93.1%	93.1%
		5	51.2%	44.7%	41.1%	38.8%	38.3%	86.5%	87.9%	89.1%	89.7%	90.0%
		10	62.3%	49.6%	45.1%	42.5%	39.0%	84.5%	85.6%	86.7%	87.4%	87.9%
	τ^2 = 0.444	0	28.3%	26.1%	24.2%	22.4%	22.9%	90.9%	91.3%	91.4%	91.7%	92.7%
		5	33.8%	29.6%	26.0%	24.9%	23.5%	87.2%	87.5%	87.7%	88.3%	88.1%
		10	43.7%	33.2%	29.2%	28.3%	25.3%	85.4%	86.0%	86.1%	87.1%	86.8%

Table E28. Coverage probability of the estimated slope, with R studies imputed (from 2-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	**35**	**45**	**55**	**65**	**25**	**35**	**45**	**55**	**65**
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	**0**	95.5%	95.2%	94.6%	95.0%	95.1%	96.5%	96.4%	95.8%	95.8%	96.3%
			5	92.4%	92.8%	93.3%	94.5%	94.2%	93.0%	93.5%	94.1%	94.9%	95.1%
			10	89.1%	90.6%	91.8%	92.1%	92.8%	89.8%	91.2%	92.6%	92.4%	93.1%
	$\tau^2 =$ 0.049		**0**	64.7%	61.5%	58.6%	55.9%	53.8%	92.2%	92.9%	93.3%	93.7%	94.0%
			5	67.8%	62.1%	58.8%	57.4%	56.4%	86.8%	87.3%	89.7%	89.7%	90.1%
			10	75.2%	65.4%	61.3%	58.1%	57.2%	83.7%	83.6%	84.9%	86.3%	87.9%
	$\tau^2 =$ 0.148		**0**	45.9%	41.5%	39.3%	37.8%	36.9%	91.3%	91.7%	93.0%	93.0%	93.3%
			5	50.2%	45.2%	41.4%	39.4%	38.3%	85.6%	88.3%	88.6%	89.2%	90.1%
			10	60.6%	51.4%	43.7%	42.1%	39.4%	83.3%	85.4%	86.3%	86.5%	86.0%
	$\tau^2 =$ 0.444		**0**	28.7%	25.5%	24.5%	23.7%	21.2%	90.6%	91.5%	90.9%	92.2%	92.2%
			5	33.8%	28.6%	26.2%	24.4%	22.8%	87.2%	88.0%	87.7%	88.7%	88.6%
			10	42.2%	33.8%	30.6%	27.0%	23.8%	84.9%	85.2%	86.5%	86.3%	86.4%
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	**0**	94.2%	94.9%	95.1%	94.5%	94.9%	95.7%	96.0%	95.9%	95.9%	96.1%
			5	91.7%	93.2%	93.7%	94.2%	94.5%	92.6%	94.1%	94.2%	94.7%	95.0%
			10	87.7%	89.1%	90.2%	91.2%	93.0%	88.3%	89.8%	90.6%	91.6%	93.4%
	$\tau^2 =$ 0.049		**0**	64.2%	61.4%	56.9%	57.1%	54.3%	91.6%	93.4%	93.2%	94.1%	93.8%
			5	67.0%	62.1%	59.2%	59.2%	54.5%	85.5%	86.8%	87.7%	89.5%	90.5%
			10	70.6%	63.6%	59.8%	59.4%	55.8%	80.7%	82.0%	82.5%	85.7%	85.4%
	$\tau^2 =$ 0.148		**0**	44.9%	40.1%	39.2%	37.1%	37.0%	90.9%	92.3%	92.3%	92.8%	93.8%
			5	50.3%	44.1%	41.6%	39.1%	38.3%	85.4%	87.3%	88.2%	89.2%	89.5%
			10	56.8%	47.3%	44.0%	41.8%	38.9%	80.7%	83.1%	84.9%	85.6%	85.9%
	$\tau^2 =$ 0.444		**0**	27.8%	26.9%	24.6%	23.8%	22.3%	90.2%	91.2%	91.4%	92.0%	92.2%
			5	34.2%	28.3%	26.6%	24.6%	23.6%	86.4%	86.0%	87.0%	88.7%	88.8%
			10	41.3%	33.2%	28.2%	25.6%	25.4%	83.1%	84.8%	85.3%	84.8%	85.7%

Table E29. Coverage probability of the estimated slope, with L studies imputed (from 2-dimensional algorithmic variant)

L Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model: Number of Studies 25	35	45	55	65	Random Effects in the Final Model: Number of Studies 25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	94.5%	94.0%	94.3%	94.6%	94.5%	95.4%	95.4%	95.5%	95.9%	95.9%
		5	93.1%	93.5%	94.1%	94.4%	94.2%	93.6%	94.2%	94.6%	94.9%	94.9%
		10	94.0%	94.3%	94.1%	93.8%	93.7%	94.3%	94.6%	94.7%	94.2%	94.3%
	τ^2 = 0.049	0	64.0%	63.1%	57.7%	56.2%	53.4%	90.3%	91.8%	91.4%	91.8%	92.5%
		5	69.3%	63.4%	60.1%	57.4%	55.0%	86.9%	88.2%	89.0%	89.6%	90.2%
		10	79.8%	69.5%	64.6%	60.1%	57.6%	87.4%	85.5%	87.2%	87.3%	88.3%
	τ^2 = 0.148	0	44.8%	41.6%	40.2%	37.3%	36.7%	89.2%	89.9%	89.7%	90.7%	91.0%
		5	52.9%	46.3%	42.5%	40.1%	37.8%	86.8%	88.5%	89.3%	89.3%	89.9%
		10	63.5%	52.7%	46.6%	43.7%	41.1%	85.2%	86.8%	88.1%	88.0%	88.7%
	τ^2 = 0.444	0	28.0%	26.6%	23.3%	23.2%	21.0%	87.8%	87.7%	87.7%	88.6%	88.2%
		5	35.6%	30.0%	27.0%	24.4%	24.2%	87.0%	87.3%	88.0%	88.1%	88.0%
		10	45.7%	36.1%	31.3%	28.2%	26.5%	86.9%	87.1%	87.7%	88.8%	88.1%
β_1 = 0.074	$\tau^2 = 0$	0	94.0%	93.8%	94.8%	94.3%	94.3%	95.4%	95.4%	96.0%	95.6%	95.3%
		5	94.3%	94.1%	94.1%	93.9%	93.8%	94.9%	94.7%	94.5%	95.0%	94.5%
		10	93.9%	93.7%	93.5%	93.6%	94.0%	94.0%	94.2%	93.6%	94.3%	94.5%
	τ^2 = 0.049	0	63.3%	61.8%	58.2%	54.9%	54.5%	90.7%	91.5%	91.6%	91.7%	92.7%
		5	69.3%	62.5%	60.2%	56.7%	55.3%	87.0%	87.3%	88.5%	89.1%	89.8%
		10	79.2%	68.8%	65.3%	60.4%	56.2%	87.6%	85.0%	87.2%	87.7%	89.0%
	τ^2 = 0.148	0	43.9%	40.4%	39.3%	37.7%	36.2%	90.1%	89.3%	89.9%	91.0%	90.4%
		5	51.9%	45.7%	41.0%	38.9%	37.3%	87.1%	87.1%	88.9%	89.2%	89.5%
		10	62.7%	53.2%	48.1%	43.5%	40.7%	86.0%	86.3%	87.6%	88.1%	88.7%
	τ^2 = 0.444	0	28.7%	25.4%	23.0%	22.9%	22.2%	88.6%	87.9%	88.2%	88.2%	89.6%
		5	34.9%	29.0%	25.6%	23.1%	22.3%	87.0%	87.6%	87.3%	88.1%	88.0%
		10	45.2%	35.7%	29.6%	27.8%	25.5%	86.1%	87.3%	88.5%	87.8%	88.1%
β_1 = 0.148	$\tau^2 = 0$	0	94.0%	94.9%	94.2%	94.5%	94.8%	95.3%	95.9%	95.8%	95.9%	96.0%
		5	93.5%	93.8%	93.9%	94.5%	93.5%	94.0%	94.2%	94.7%	95.1%	94.5%
		10	92.8%	92.7%	92.6%	93.7%	93.6%	92.9%	93.2%	92.7%	94.1%	94.3%
	τ^2 = 0.049	0	62.4%	60.4%	58.1%	56.2%	54.9%	90.2%	90.8%	91.3%	92.3%	92.2%
		5	69.2%	62.7%	60.0%	56.3%	57.4%	86.3%	88.3%	88.7%	90.5%	90.4%
		10	78.8%	69.8%	63.5%	60.6%	57.6%	87.6%	86.0%	86.1%	88.4%	88.0%
	τ^2 = 0.148	0	44.5%	40.8%	40.0%	37.5%	36.9%	89.7%	90.4%	89.6%	90.3%	90.0%
		5	51.7%	44.8%	41.9%	39.7%	38.1%	86.0%	87.8%	88.2%	88.8%	89.3%
		10	63.5%	51.8%	46.5%	43.3%	39.7%	84.7%	86.6%	87.5%	88.0%	88.8%
	τ^2 = 0.444	0	28.4%	25.7%	24.0%	22.0%	22.7%	88.7%	88.7%	88.3%	88.1%	88.7%
		5	35.1%	30.5%	26.6%	25.3%	23.2%	87.2%	87.6%	88.3%	87.8%	87.4%
		10	44.6%	35.1%	30.4%	28.5%	27.1%	85.7%	86.9%	86.7%	88.0%	87.6%

Table E29. Coverage probability of the estimated slope, with L studies imputed (from 2-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies 25	35	45	55	65	Random Effects in the Final Model Number of Studies 25	35	45	55	65
$\beta_1 =$ 0.296	$\tau^2 = 0$	Number of Missing Studies	0	94.9%	94.8%	94.1%	94.4%	94.9%	96.1%	96.0%	95.3%	95.3%	95.9%
			5	92.6%	92.8%	93.3%	94.3%	93.8%	93.1%	93.2%	93.9%	94.9%	94.7%
			10	89.9%	90.8%	91.9%	92.2%	92.4%	90.2%	91.5%	92.6%	92.6%	92.8%
	$\tau^2 =$ 0.049		0	64.0%	61.2%	58.3%	56.0%	54.2%	91.0%	91.5%	91.1%	92.1%	92.2%
			5	69.1%	62.2%	58.5%	56.9%	55.8%	86.4%	86.9%	88.7%	88.5%	89.2%
			10	75.4%	65.4%	60.5%	57.8%	56.9%	84.2%	83.0%	83.9%	85.7%	87.2%
	$\tau^2 =$ 0.148		0	45.2%	41.0%	39.2%	37.5%	36.9%	89.6%	89.9%	91.2%	90.9%	90.5%
			5	50.7%	45.9%	42.1%	39.2%	37.9%	85.7%	88.1%	87.8%	88.1%	88.4%
			10	62.0%	51.9%	43.9%	42.6%	39.0%	83.6%	85.5%	86.4%	86.5%	86.0%
	$\tau^2 =$ 0.444		0	27.2%	25.3%	23.7%	22.8%	20.5%	88.8%	88.9%	88.4%	88.4%	87.8%
			5	34.4%	29.2%	26.8%	24.7%	22.5%	87.5%	87.6%	87.8%	88.3%	87.8%
			10	43.7%	34.9%	31.2%	27.8%	25.1%	85.1%	85.9%	87.0%	86.2%	87.3%
$\beta_1 =$ 0.444	$\tau^2 = 0$	Number of Missing Studies	0	93.7%	94.5%	94.6%	94.3%	94.5%	95.4%	95.5%	95.6%	95.9%	95.8%
			5	91.4%	92.8%	93.6%	93.5%	94.0%	92.3%	93.5%	94.3%	93.9%	94.7%
			10	87.6%	89.2%	90.2%	91.1%	92.2%	88.1%	89.6%	90.4%	91.4%	92.6%
	$\tau^2 =$ 0.049		0	63.2%	61.2%	56.4%	57.2%	54.6%	90.3%	91.8%	91.6%	92.3%	92.1%
			5	66.9%	61.8%	59.0%	58.9%	54.0%	85.1%	86.1%	87.1%	88.4%	89.4%
			10	70.6%	62.9%	59.1%	57.6%	54.8%	80.8%	81.4%	81.9%	84.3%	83.9%
	$\tau^2 =$ 0.148		0	43.2%	39.9%	38.7%	37.2%	37.0%	89.5%	89.8%	89.9%	90.5%	90.2%
			5	49.8%	43.5%	41.4%	38.4%	37.5%	85.0%	87.2%	87.1%	87.8%	87.8%
			10	56.4%	46.5%	44.0%	40.8%	38.3%	80.2%	82.9%	84.7%	85.1%	85.1%
	$\tau^2 =$ 0.444		0	27.5%	26.7%	24.4%	23.1%	22.3%	88.0%	89.3%	87.9%	88.6%	87.9%
			5	34.4%	27.9%	26.4%	24.7%	23.6%	86.4%	86.2%	87.1%	88.2%	87.6%
			10	41.9%	33.5%	28.0%	25.8%	25.9%	83.3%	84.8%	85.2%	85.9%	86.2%

Table E30. Relative bias in the estimated slope, with no correction for publication bias (from 2-dimensional algorithmic variant)

No Correction for Publication Bias			Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
		Number of Missing Studies	25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	0	0.8%	-1.4%	3.3%	-5.1%	-2.2%	0.2%	-1.9%	2.5%	-5.5%	-2.6%
		5	-18.4%	-13.0%	-12.4%	-4.5%	-1.1%	-19.1%	-13.4%	-12.3%	-5.1%	-1.6%
		10	-51.1%	-31.5%	-15.9%	-11.7%	-10.6%	-51.8%	-31.6%	-16.9%	-11.9%	-10.7%
	τ^2 = 0.049	0	-5.5%	-3.4%	0.5%	-6.2%	-2.1%	-6.7%	3.1%	2.1%	-8.2%	3.3%
		5	-35.7%	-18.3%	-19.5%	-19.9%	-0.7%	-40.3%	-14.2%	-18.2%	-22.7%	-10.4%
		10	-48.3%	-39.6%	-25.4%	-39.1%	-22.2%	-44.9%	-39.8%	-27.7%	-36.1%	-25.2%
	τ^2 = 0.148	0	-10.3%	31.5%	-4.2%	9.1%	1.3%	-6.6%	2.9%	-2.5%	6.8%	6.5%
		5	-47.4%	-17.6%	-16.5%	-11.3%	-12.0%	-41.3%	-24.8%	-24.9%	-20.4%	-20.0%
		10	-42.0%	-29.1%	-31.5%	-38.6%	-7.2%	-49.7%	-40.2%	-35.8%	-44.4%	-29.6%
	τ^2 = 0.444	0	1.0%	48.2%	14.7%	-5.3%	-1.8%	-13.5%	21.8%	0.5%	-1.0%	6.9%
		5	-3.9%	-35.9%	-33.7%	-44.0%	-27.1%	-24.0%	-44.0%	-36.1%	-36.9%	-16.0%
		10	-83.4%	-46.6%	-49.2%	-34.4%	-18.9%	-56.3%	-66.2%	-46.9%	-38.2%	-16.6%
β_1 = 0.074	$\tau^2 = 0$	0	-1.1%	3.9%	2.1%	-1.0%	-2.0%	-0.7%	4.3%	2.3%	-1.3%	-1.7%
		5	-14.6%	-9.7%	-5.5%	-3.8%	-6.1%	-15.1%	-10.4%	-5.8%	-4.2%	-6.1%
		10	-63.9%	-32.5%	-19.7%	-14.0%	-10.1%	-64.0%	-33.1%	-20.6%	-14.3%	-10.3%
	τ^2 = 0.049	0	-9.8%	-7.0%	1.7%	2.5%	-1.5%	-6.9%	-9.1%	2.1%	-1.5%	-0.8%
		5	-21.8%	-27.2%	-18.5%	-15.3%	-10.7%	-28.6%	-29.6%	-22.4%	-18.3%	-12.8%
		10	-54.6%	-41.0%	-34.1%	-30.8%	-20.6%	-55.4%	-42.6%	-36.8%	-29.9%	-26.4%
	τ^2 = 0.148	0	0.2%	6.0%	13.2%	1.1%	-3.3%	-0.9%	-3.5%	2.7%	-0.3%	-2.6%
		5	-27.7%	-26.5%	-24.3%	-20.2%	-1.7%	-34.1%	-19.3%	-33.7%	-23.0%	-11.2%
		10	-63.4%	-51.7%	-27.7%	-60.5%	-36.6%	-58.6%	-44.1%	-38.6%	-43.5%	-29.2%
	τ^2 = 0.444	0	11.2%	6.8%	-4.5%	-6.9%	8.3%	-4.8%	2.0%	-15.5%	-8.7%	-2.6%
		5	-26.4%	-30.7%	-13.2%	-36.0%	-33.1%	-30.3%	-35.0%	-29.2%	-29.9%	-19.8%
		10	-45.3%	-41.2%	-55.5%	-30.5%	-25.3%	-64.1%	-43.8%	-52.8%	-40.2%	-29.0%
β_1 = 0.148	$\tau^2 = 0$	0	-1.7%	-0.3%	-0.6%	0.5%	0.7%	-1.4%	-0.4%	-0.7%	0.4%	1.0%
		5	-18.1%	-9.2%	-8.1%	-4.4%	-4.5%	-18.7%	-9.4%	-8.3%	-4.6%	-4.4%
		10	-58.9%	-29.8%	-19.9%	-12.2%	-9.5%	-58.9%	-30.4%	-20.4%	-12.6%	-9.7%
	τ^2 = 0.049	0	4.4%	1.8%	1.7%	-4.9%	-1.3%	2.3%	-2.4%	-1.0%	-1.8%	-2.0%
		5	-27.6%	-26.3%	-11.6%	-10.3%	-10.2%	-31.3%	-27.2%	-16.3%	-14.2%	-13.4%
		10	-56.1%	-41.0%	-33.1%	-24.8%	-26.6%	-57.4%	-41.3%	-34.4%	-29.3%	-30.0%
	τ^2 = 0.148	0	3.2%	-3.4%	-2.9%	1.3%	1.1%	8.2%	-2.1%	-0.4%	-0.1%	0.2%
		5	-39.0%	-21.6%	-19.8%	-17.6%	-16.0%	-40.6%	-29.1%	-22.5%	-22.3%	-18.9%
		10	-55.9%	-48.1%	-38.9%	-36.1%	-31.6%	-58.1%	-44.0%	-39.1%	-36.6%	-32.0%
	τ^2 = 0.444	0	12.3%	6.9%	6.4%	-1.5%	-4.2%	3.4%	-0.6%	-1.1%	4.0%	-1.8%
		5	-48.0%	-35.7%	-26.6%	-21.2%	-21.9%	-44.1%	-30.8%	-33.0%	-28.8%	-19.7%
		10	-62.0%	-45.0%	-36.2%	-35.7%	-40.1%	-58.5%	-44.7%	-44.9%	-36.3%	-39.2%

Table E30. Relative bias in the estimated slope, with no correction for publication bias (from 2-dimensional algorithmic variant) (continued)

No Correction for Publication Bias				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
$\beta_1 =$ 0.296	$\tau^2 = 0$	Number of Missing Studies	0	0.3%	-0.8%	0.8%	0.4%	-0.5%	0.4%	-0.9%	0.9%	0.5%	-0.6%
			5	-19.8%	-10.8%	-7.3%	-5.4%	-4.5%	-20.3%	-11.3%	-7.7%	-5.7%	-4.8%
			10	-55.0%	-28.6%	-19.3%	-13.0%	-10.4%	-55.2%	-29.2%	-19.6%	-13.3%	-10.6%
	$\tau^2 =$ 0.049		0	-0.5%	1.8%	1.0%	0.3%	1.7%	0.1%	-0.4%	1.2%	0.0%	0.6%
			5	-27.6%	-22.1%	-16.4%	-10.2%	-9.5%	-30.7%	-23.7%	-19.4%	-15.7%	-14.0%
			10	-58.6%	-42.8%	-33.0%	-28.5%	-22.2%	-58.4%	-42.8%	-34.5%	-30.3%	-26.1%
	$\tau^2 =$ 0.148		0	3.0%	-2.5%	-0.5%	-1.1%	1.3%	0.9%	-0.7%	-0.9%	0.6%	0.2%
			5	-36.4%	-25.6%	-18.4%	-15.7%	-15.6%	-36.6%	-29.0%	-20.2%	-22.6%	-18.6%
			10	-50.8%	-43.3%	-37.6%	-29.5%	-28.4%	-52.8%	-44.3%	-39.0%	-33.3%	-31.5%
	$\tau^2 =$ 0.444		0	-2.9%	7.0%	0.1%	3.4%	3.7%	-0.3%	3.5%	-0.1%	-0.9%	1.4%
			5	-36.8%	-35.3%	-28.5%	-25.4%	-20.4%	-37.5%	-34.6%	-29.1%	-23.9%	-23.6%
			10	-53.6%	-47.0%	-40.9%	-37.9%	-30.7%	-54.6%	-48.9%	-41.0%	-38.5%	-31.9%
$\beta_1 =$ 0.444	$\tau^2 = 0$	Number of Missing Studies	0	0.6%	0.2%	-0.4%	0.2%	0.0%	0.7%	0.3%	-0.4%	0.2%	0.1%
			5	-17.2%	-10.4%	-6.7%	-5.3%	-4.2%	-17.9%	-10.9%	-6.9%	-5.5%	-4.4%
			10	-49.9%	-28.4%	-18.3%	-13.3%	-9.6%	-50.3%	-29.0%	-18.7%	-13.6%	-9.9%
	$\tau^2 =$ 0.049		0	0.3%	-0.5%	-0.8%	0.1%	0.9%	0.0%	-0.9%	-0.7%	-0.2%	1.3%
			5	-29.8%	-20.5%	-14.3%	-10.7%	-8.4%	-31.4%	-22.8%	-18.0%	-14.9%	-12.3%
			10	-54.3%	-40.6%	-30.5%	-24.6%	-21.0%	-54.5%	-41.8%	-33.5%	-28.2%	-24.9%
	$\tau^2 =$ 0.148		0	2.7%	2.2%	0.8%	0.1%	0.9%	1.8%	0.7%	-0.9%	-0.8%	-0.9%
			5	-32.1%	-28.2%	-21.5%	-18.9%	-13.6%	-34.3%	-29.3%	-24.2%	-21.7%	-17.6%
			10	-57.2%	-46.1%	-37.8%	-29.5%	-29.1%	-57.6%	-45.9%	-39.4%	-33.2%	-31.3%
	$\tau^2 =$ 0.444		0	0.6%	2.3%	0.0%	1.9%	1.6%	-1.5%	0.0%	-0.4%	-1.4%	1.1%
			5	-36.8%	-34.3%	-24.7%	-22.0%	-20.6%	-37.5%	-34.6%	-26.5%	-23.0%	-22.2%
			10	-57.1%	-46.4%	-44.6%	-38.4%	-34.6%	-58.1%	-47.7%	-42.6%	-37.7%	-34.4%

Table E31. Relative bias in the estimated slope, with R studies imputed (from 2-dimensional algorithmic variant)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	0	0.8%	-1.6%	2.8%	-4.9%	-2.4%	0.6%	-1.9%	2.0%	-5.3%	-2.8%
			5	-15.6%	-11.7%	-11.4%	-4.3%	-0.9%	-16.1%	-12.8%	-10.9%	-5.9%	-2.6%
			10	-30.2%	-19.9%	-11.3%	-7.3%	-9.0%	-29.3%	-19.8%	-13.3%	-7.8%	-8.5%
	τ^2 = 0.049		0	-4.0%	-4.1%	2.4%	-7.3%	-2.2%	-5.9%	3.3%	4.6%	-9.5%	3.0%
			5	-23.5%	-6.4%	-18.6%	-15.7%	-0.3%	-25.8%	-1.0%	-13.1%	-16.3%	-9.7%
			10	-32.2%	-30.1%	-16.2%	-33.8%	-13.5%	-25.2%	-24.5%	-13.0%	-27.9%	-11.0%
	τ^2 = 0.148		0	-8.7%	32.3%	-4.1%	8.9%	1.8%	-8.0%	6.0%	-1.4%	6.7%	5.9%
			5	-38.9%	-8.0%	-18.7%	-9.4%	-9.6%	-25.8%	-19.4%	-20.4%	-12.7%	-13.8%
			10	-29.9%	-13.6%	-14.7%	-34.4%	-4.4%	-37.3%	-18.7%	-22.4%	-36.2%	-22.5%
	τ^2 = 0.444		0	-2.6%	33.0%	10.5%	-6.3%	-0.6%	-17.2%	0.3%	-5.6%	-3.4%	8.0%
			5	-2.5%	-19.3%	-27.2%	-37.5%	-11.4%	-24.0%	-24.1%	-26.0%	-27.3%	6.0%
			10	-59.7%	-33.3%	-34.4%	-22.0%	-8.7%	-20.1%	-43.4%	-34.0%	-23.1%	4.0%
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	0	-2.0%	3.9%	2.0%	-1.0%	-1.9%	-2.1%	3.8%	2.0%	-1.2%	-1.8%
			5	-7.7%	-7.4%	-4.9%	-3.1%	-6.0%	-8.7%	-8.7%	-5.7%	-3.6%	-6.2%
			10	-39.1%	-21.0%	-17.1%	-10.3%	-7.5%	-38.1%	-20.1%	-18.7%	-10.3%	-8.1%
	τ^2 = 0.049		0	-9.1%	-6.1%	0.8%	2.0%	-1.6%	-6.3%	-9.0%	1.6%	-1.4%	-1.1%
			5	-16.1%	-22.8%	-15.1%	-11.1%	-6.7%	-20.2%	-23.9%	-14.9%	-10.3%	-8.7%
			10	-34.1%	-29.4%	-23.7%	-22.0%	-14.2%	-32.5%	-29.6%	-22.7%	-18.5%	-15.5%
	τ^2 = 0.148		0	1.2%	9.7%	12.3%	0.6%	-3.9%	1.6%	-1.2%	0.0%	-0.2%	-2.8%
			5	-27.3%	-15.6%	-14.6%	-15.2%	8.3%	-32.8%	-9.7%	-23.8%	-15.3%	0.6%
			10	-44.5%	-34.9%	-17.1%	-44.8%	-22.8%	-37.9%	-21.7%	-29.8%	-26.3%	-13.8%
	τ^2 = 0.444		0	2.4%	2.4%	-2.9%	-8.7%	7.0%	-7.7%	-1.5%	-19.4%	-14.4%	-5.2%
			5	-16.3%	-23.3%	-8.1%	-36.7%	-28.7%	-6.3%	-26.0%	-24.1%	-22.8%	-11.0%
			10	-35.0%	-30.6%	-43.1%	-19.2%	-22.9%	-54.8%	-21.1%	-26.9%	-24.9%	-23.7%
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	0	-1.8%	-0.4%	-0.5%	0.6%	0.7%	-1.4%	-0.5%	-0.7%	0.5%	0.9%
			5	-14.6%	-7.1%	-6.2%	-3.5%	-4.0%	-15.5%	-7.1%	-6.7%	-3.9%	-4.0%
			10	-36.1%	-18.8%	-14.3%	-9.4%	-7.0%	-35.1%	-18.7%	-14.7%	-10.3%	-7.8%
	τ^2 = 0.049		0	4.6%	1.6%	1.5%	-4.8%	-1.2%	2.6%	-3.1%	-1.6%	-1.9%	-2.5%
			5	-19.3%	-18.9%	-8.1%	-7.7%	-8.6%	-19.3%	-16.3%	-10.9%	-9.1%	-9.8%
			10	-40.9%	-26.3%	-23.6%	-16.2%	-20.2%	-40.2%	-22.1%	-20.1%	-16.7%	-20.7%
	τ^2 = 0.148		0	4.1%	-4.1%	-3.3%	0.6%	0.6%	8.8%	-3.6%	-0.1%	-1.3%	0.0%
			5	-30.2%	-16.1%	-14.4%	-13.6%	-11.4%	-28.1%	-18.9%	-16.0%	-14.3%	-12.8%
			10	-45.0%	-36.4%	-27.3%	-25.9%	-23.5%	-43.0%	-25.6%	-23.6%	-22.8%	-20.2%
	τ^2 = 0.444		0	12.3%	4.8%	6.9%	-0.3%	-2.9%	3.9%	-2.2%	-4.1%	5.7%	-2.4%
			5	-41.5%	-26.4%	-20.3%	-13.6%	-16.9%	-34.5%	-17.1%	-22.9%	-19.8%	-11.6%
			10	-48.9%	-33.1%	-25.3%	-24.4%	-32.6%	-37.9%	-27.7%	-26.3%	-20.9%	-25.5%

Table E31. Relative bias in the estimated slope, with R studies imputed (from 2-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	0.3%	-0.7%	0.7%	0.5%	-0.5%	0.3%	-0.8%	0.9%	0.5%	-0.6%
			5	-14.4%	-8.8%	-6.5%	-5.1%	-4.1%	-14.5%	-9.4%	-7.4%	-5.7%	-4.6%
			10	-33.3%	-18.1%	-14.0%	-10.2%	-8.8%	-32.3%	-18.0%	-14.5%	-11.1%	-9.6%
	τ^2 = 0.049		0	-0.6%	2.0%	0.9%	0.3%	1.7%	-0.8%	0.2%	1.1%	0.0%	0.6%
			5	-20.0%	-16.7%	-12.6%	-8.5%	-7.6%	-20.6%	-16.4%	-13.9%	-13.0%	-11.1%
			10	-41.9%	-30.5%	-22.6%	-20.6%	-16.3%	-38.1%	-26.3%	-20.3%	-19.2%	-17.3%
	τ^2 = 0.148		0	3.5%	-1.8%	-0.1%	-1.5%	1.6%	1.1%	0.3%	-0.4%	0.0%	0.4%
			5	-26.8%	-18.8%	-12.6%	-12.5%	-13.0%	-23.6%	-19.6%	-13.7%	-17.6%	-14.3%
			10	-36.6%	-29.0%	-26.3%	-19.2%	-19.8%	-33.9%	-25.0%	-22.5%	-18.7%	-19.8%
	τ^2 = 0.444		0	-1.6%	7.1%	0.6%	3.9%	3.7%	-1.0%	3.3%	0.0%	-1.6%	1.3%
			5	-24.9%	-28.4%	-20.6%	-18.2%	-16.3%	-22.6%	-24.1%	-18.2%	-13.2%	-16.8%
			10	-40.7%	-33.8%	-28.3%	-25.5%	-21.5%	-36.7%	-30.7%	-24.8%	-22.5%	-17.2%
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	0	0.6%	0.3%	-0.4%	0.3%	0.0%	0.7%	0.5%	-0.4%	0.3%	0.1%
			5	-12.6%	-8.6%	-5.8%	-4.7%	-3.9%	-13.1%	-9.2%	-6.2%	-5.2%	-4.4%
			10	-29.7%	-19.4%	-13.8%	-11.0%	-8.3%	-28.8%	-19.5%	-14.4%	-11.6%	-9.0%
	τ^2 = 0.049		0	0.3%	-0.5%	-0.8%	0.1%	0.7%	0.0%	-0.9%	-0.6%	-0.1%	1.2%
			5	-22.4%	-15.8%	-11.6%	-8.4%	-7.3%	-21.7%	-16.1%	-13.5%	-11.4%	-10.1%
			10	-38.1%	-28.3%	-22.1%	-17.6%	-15.9%	-35.3%	-26.0%	-21.8%	-18.2%	-17.2%
	τ^2 = 0.148		0	2.4%	2.0%	0.6%	0.0%	0.7%	1.4%	0.6%	-0.8%	-1.1%	-1.0%
			5	-23.9%	-22.1%	-16.1%	-14.7%	-10.1%	-23.0%	-20.7%	-16.5%	-15.0%	-11.7%
			10	-43.9%	-32.9%	-27.3%	-21.0%	-20.9%	-40.1%	-27.8%	-23.6%	-21.0%	-20.0%
	τ^2 = 0.444		0	-0.4%	2.9%	0.4%	1.8%	1.3%	-2.6%	0.0%	-0.6%	-2.0%	0.6%
			5	-28.4%	-26.9%	-19.0%	-16.4%	-15.1%	-25.3%	-24.6%	-17.2%	-14.8%	-14.5%
			10	-44.2%	-33.3%	-33.6%	-29.2%	-25.3%	-40.6%	-30.3%	-26.6%	-23.6%	-21.2%

Table E32. Relative bias of imputed studies, with L studies imputed (from 2-dimensional algorithmic variant)

L Missing Studies Imputed				Fixed Effects in the Final Model Number of Studies					Random Effects in the Final Model Number of Studies				
				25	35	45	55	65	25	35	45	55	65
β_1 = 0.049	τ^2 = 0	Number of Missing Studies	0	-0.5%	-3.2%	3.3%	-4.7%	-1.9%	-1.7%	-3.4%	2.6%	-5.4%	-2.1%
			5	-18.1%	-10.7%	-11.3%	-3.3%	-1.3%	-19.2%	-12.3%	-10.9%	-4.7%	-2.7%
			10	-33.2%	-22.4%	-11.8%	-8.7%	-9.2%	-32.5%	-21.8%	-13.7%	-9.3%	-9.0%
	τ^2 = 0.049		0	-8.4%	-1.5%	1.9%	-8.6%	-2.8%	-8.8%	3.2%	6.7%	-10.7%	1.5%
			5	-27.3%	-7.6%	-20.4%	-17.5%	-0.9%	-29.7%	-1.6%	-15.5%	-18.1%	-9.8%
			10	-37.7%	-30.7%	-17.7%	-28.9%	-17.9%	-29.1%	-24.9%	-14.4%	-26.0%	-16.9%
	τ^2 = 0.148		0	-11.3%	29.4%	3.5%	4.6%	6.0%	-8.5%	7.2%	5.7%	3.9%	13.6%
			5	-34.4%	-14.2%	-17.8%	-8.1%	-10.4%	-23.4%	-19.4%	-19.0%	-14.0%	-13.2%
			10	-35.5%	-15.9%	-17.4%	-34.8%	-6.9%	-40.0%	-22.0%	-24.2%	-35.3%	-23.8%
	τ^2 = 0.444		0	-20.5%	37.9%	16.4%	-4.9%	-4.0%	-32.9%	2.5%	3.6%	2.5%	8.2%
			5	0.3%	-26.7%	-32.7%	-36.5%	-10.1%	-27.2%	-32.7%	-29.2%	-32.9%	4.8%
			10	-66.1%	-44.3%	-41.4%	-30.4%	-12.9%	-27.2%	-54.7%	-40.0%	-32.7%	1.6%
β_1 = 0.074	τ^2 = 0	Number of Missing Studies	0	-0.7%	3.8%	1.7%	-0.9%	-2.1%	-0.8%	4.0%	1.7%	-1.0%	-1.5%
			5	-8.6%	-8.0%	-4.4%	-3.4%	-6.3%	-8.8%	-9.3%	-5.0%	-3.9%	-6.6%
			10	-40.6%	-22.2%	-17.8%	-11.4%	-8.3%	-39.6%	-21.3%	-19.8%	-11.5%	-9.0%
	τ^2 = 0.049		0	-9.2%	-7.9%	0.7%	0.4%	1.2%	-8.7%	-10.4%	1.8%	-4.1%	0.8%
			5	-17.9%	-22.6%	-14.6%	-13.0%	-7.0%	-23.2%	-22.7%	-14.6%	-13.6%	-10.0%
			10	-40.8%	-30.8%	-27.2%	-24.5%	-14.3%	-38.5%	-32.5%	-26.8%	-21.3%	-15.7%
	τ^2 = 0.148		0	-0.5%	8.8%	9.2%	-0.4%	-4.2%	1.8%	-1.3%	-0.4%	0.6%	-4.0%
			5	-22.8%	-17.0%	-14.6%	-14.3%	7.8%	-30.5%	-12.6%	-22.2%	-14.2%	-0.5%
			10	-48.8%	-41.5%	-19.0%	-48.6%	-25.9%	-41.1%	-28.8%	-30.4%	-28.8%	-16.4%
	τ^2 = 0.444		0	2.5%	2.1%	-5.2%	-10.7%	4.0%	-6.3%	-5.1%	-21.1%	-14.5%	-11.8%
			5	-17.2%	-28.7%	-13.2%	-37.4%	-31.4%	-7.3%	-27.7%	-31.4%	-25.0%	-12.8%
			10	-41.4%	-31.2%	-42.6%	-27.1%	-22.5%	-59.8%	-26.8%	-28.1%	-31.2%	-22.8%
β_1 = 0.148	τ^2 = 0	Number of Missing Studies	0	-1.8%	-0.5%	-0.8%	0.5%	0.6%	-1.3%	-0.3%	-1.1%	0.4%	1.0%
			5	-14.8%	-7.3%	-6.6%	-3.8%	-4.0%	-15.7%	-7.4%	-7.3%	-4.3%	-4.0%
			10	-38.5%	-20.8%	-14.8%	-10.0%	-7.6%	-37.2%	-20.7%	-15.3%	-10.9%	-8.4%
	τ^2 = 0.049		0	4.3%	1.8%	1.3%	-4.8%	-1.4%	2.1%	-3.8%	-2.2%	-1.9%	-2.3%
			5	-21.3%	-20.2%	-8.8%	-8.9%	-8.9%	-21.8%	-18.1%	-11.9%	-10.2%	-10.4%
			10	-41.4%	-28.9%	-25.0%	-17.2%	-20.4%	-40.4%	-25.4%	-22.1%	-17.4%	-20.9%
	τ^2 = 0.148		0	2.8%	-5.2%	-3.8%	1.5%	0.6%	5.7%	-4.3%	-0.5%	-0.5%	-0.5%
			5	-32.0%	-16.5%	-14.3%	-15.9%	-11.9%	-29.1%	-21.0%	-16.0%	-16.7%	-13.0%
			10	-47.2%	-38.4%	-30.4%	-26.9%	-24.9%	-45.8%	-29.4%	-26.7%	-24.5%	-22.5%
	τ^2 = 0.444		0	13.2%	4.1%	5.7%	0.0%	-5.5%	4.2%	-2.8%	-2.5%	5.6%	-4.3%
			5	-43.5%	-30.5%	-23.5%	-14.2%	-17.6%	-35.6%	-18.8%	-24.2%	-20.3%	-13.6%
			10	-53.0%	-34.0%	-28.4%	-27.5%	-35.3%	-43.1%	-26.0%	-30.6%	-23.6%	-29.0%

Table E32. Relative bias of imputed studies, with L studies imputed (from 2-dimensional algorithmic variant) (continued)

L Missing Studies Imputed		Number of Missing Studies	Fixed Effects in the Final Model Number of Studies 25	35	45	55	65	Random Effects in the Final Model Number of Studies 25	35	45	55	65
β_1 = 0.296	$\tau^2 = 0$	0	0.3%	-0.8%	0.9%	0.5%	-0.6%	0.4%	-0.9%	1.1%	0.5%	-0.8%
		5	-15.1%	-9.3%	-6.5%	-5.0%	-4.1%	-15.1%	-9.9%	-7.4%	-5.6%	-4.7%
		10	-35.3%	-19.7%	-14.8%	-10.3%	-8.8%	-33.9%	-19.5%	-15.3%	-11.1%	-9.6%
	τ^2 = 0.049	0	-0.3%	1.9%	0.9%	0.4%	1.8%	0.0%	-0.5%	1.2%	0.1%	0.8%
		5	-21.4%	-17.6%	-12.9%	-9.0%	-7.7%	-21.9%	-17.2%	-13.9%	-13.3%	-11.3%
		10	-44.2%	-32.2%	-24.5%	-21.9%	-17.4%	-40.6%	-28.2%	-22.1%	-20.4%	-18.3%
	τ^2 = 0.148	0	3.8%	-2.3%	0.5%	-0.9%	1.4%	1.9%	0.2%	-0.4%	0.3%	0.1%
		5	-28.8%	-19.4%	-13.2%	-13.2%	-12.9%	-25.8%	-20.8%	-13.7%	-17.8%	-14.1%
		10	-39.0%	-32.8%	-28.4%	-21.5%	-21.7%	-37.0%	-29.0%	-24.8%	-21.3%	-21.8%
	τ^2 = 0.444	0	0.0%	6.9%	2.0%	5.7%	2.9%	2.3%	1.4%	0.3%	0.6%	0.9%
		5	-27.2%	-29.7%	-20.6%	-20.8%	-16.4%	-25.0%	-25.5%	-19.1%	-16.2%	-17.6%
		10	-43.7%	-36.7%	-31.2%	-28.1%	-23.4%	-39.1%	-34.4%	-26.9%	-25.2%	-20.2%
β_1 = 0.444	$\tau^2 = 0$	0	0.8%	0.3%	-0.4%	0.3%	0.1%	0.9%	0.5%	-0.4%	0.3%	0.1%
		5	-12.8%	-8.5%	-5.7%	-4.6%	-4.0%	-13.2%	-9.0%	-6.1%	-5.1%	-4.5%
		10	-31.0%	-19.7%	-13.8%	-10.8%	-8.0%	-29.9%	-19.7%	-14.3%	-11.4%	-8.7%
	τ^2 = 0.049	0	0.0%	-0.3%	-0.8%	0.3%	0.8%	-0.5%	-0.9%	-0.8%	0.0%	1.0%
		5	-22.9%	-16.1%	-11.5%	-8.7%	-7.4%	-21.8%	-16.5%	-13.4%	-11.5%	-9.9%
		10	-40.0%	-29.7%	-22.9%	-18.5%	-16.5%	-36.9%	-27.3%	-22.6%	-18.9%	-17.6%
	τ^2 = 0.148	0	2.8%	1.6%	1.0%	-0.2%	1.4%	1.8%	0.8%	-1.0%	-1.5%	-0.7%
		5	-24.7%	-22.7%	-16.6%	-14.7%	-10.1%	-23.7%	-21.3%	-16.8%	-15.0%	-11.9%
		10	-45.9%	-35.6%	-28.7%	-23.0%	-22.6%	-42.3%	-30.6%	-25.9%	-22.9%	-21.6%
	τ^2 = 0.444	0	-1.0%	3.9%	-0.3%	1.5%	0.3%	-3.2%	1.3%	-0.8%	-2.4%	0.6%
		5	-28.8%	-27.4%	-19.3%	-16.9%	-15.1%	-25.4%	-24.5%	-18.0%	-15.7%	-14.5%
		10	-47.4%	-36.4%	-36.0%	-30.9%	-26.0%	-43.8%	-33.1%	-29.7%	-26.0%	-22.8%

Table E33. Mean number of imputed studies, with R studies imputed (from 2-dimensional algorithmic variant)

R Missing Studies Imputed				Number of Studies				
				25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	0	0.507	0.518	0.527	0.491	0.476
			5	4.066	4.573	4.846	4.810	4.904
			10	5.158	7.959	8.865	9.354	9.481
	τ^2 = 0.049		0	0.730	0.696	0.700	0.654	0.661
			5	3.444	4.451	4.805	5.186	5.349
			10	3.377	5.647	7.010	8.310	8.844
	τ^2 = 0.148		0	0.941	1.000	0.967	0.941	0.885
			5	2.884	4.155	4.722	5.116	5.310
			10	2.628	4.692	5.922	7.086	8.054
	τ^2 = 0.444		0	1.233	1.415	1.284	1.308	1.233
			5	2.571	3.544	4.334	5.028	5.170
			10	2.140	3.865	5.086	6.110	7.187
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	0	0.494	0.507	0.497	0.508	0.485
			5	4.200	4.597	4.808	4.879	4.820
			10	5.192	7.932	8.857	9.184	9.371
	τ^2 = 0.049		0	0.709	0.678	0.693	0.653	0.631
			5	3.466	4.475	4.895	5.257	5.180
			10	3.401	5.472	7.215	8.291	8.880
	τ^2 = 0.148		0	1.012	0.940	0.973	0.913	0.873
			5	2.959	4.110	4.545	4.935	5.247
			10	2.617	4.473	6.085	7.254	7.841
	τ^2 = 0.444		0	1.154	1.305	1.291	1.319	1.236
			5	2.592	3.654	4.381	4.775	5.206
			10	2.076	3.819	5.132	6.164	7.062
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	0	0.522	0.499	0.487	0.476	0.496
			5	4.059	4.513	4.567	4.618	4.661
			10	5.008	7.503	8.497	8.887	8.911
	τ^2 = 0.049		0	0.731	0.695	0.672	0.661	0.621
			5	3.446	4.334	4.763	5.059	5.263
			10	3.357	5.488	7.095	8.061	8.667
	τ^2 = 0.148		0	0.935	0.970	0.967	0.925	0.929
			5	2.874	3.978	4.456	5.040	5.185
			10	2.652	4.445	6.031	7.010	8.062
	τ^2 = 0.444		0	1.202	1.307	1.310	1.193	1.231
			5	2.467	3.572	4.228	4.965	5.209
			10	2.166	3.786	5.134	6.089	7.148
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	0.533	0.490	0.528	0.514	0.481
			5	3.692	4.071	4.094	4.046	4.172
			10	4.628	6.768	7.464	7.679	7.707
	τ^2 = 0.049		0	0.736	0.722	0.649	0.690	0.639
			5	3.228	4.102	4.474	4.685	4.760
			10	3.267	5.440	6.661	7.611	8.087
	τ^2 = 0.148		0	0.999	0.966	0.952	0.899	0.811
			5	2.813	3.840	4.478	4.734	5.066
			10	2.659	4.420	5.779	6.866	7.741
	τ^2 = 0.444		0	1.109	1.347	1.217	1.220	1.299
			5	2.537	3.585	4.166	4.833	5.099
			10	2.138	3.765	5.101	6.283	7.069

Table E33. Mean number of imputed studies, with R studies imputed (from 2-dimensional algorithmic variant) (continued)

R Missing Studies Imputed				Number of Studies				
				25	35	45	55	65
β_1 = 0.444	τ^2 = 0	Number of Missing Studies	**0**	0.524	0.533	0.506	0.524	0.506
			5	3.232	3.596	3.631	3.636	3.676
			10	4.166	5.745	6.060	6.157	6.361
	τ^2 = 0.049		**0**	0.733	0.685	0.669	0.673	0.645
			5	3.137	3.823	4.307	4.168	4.454
			10	3.105	5.066	6.150	6.777	7.250
	τ^2 = 0.148		**0**	0.984	0.979	1.004	0.924	0.912
			5	2.767	3.736	4.318	4.619	4.771
			10	2.620	4.383	5.659	6.622	7.100
	τ^2 = 0.444		**0**	1.156	1.297	1.391	1.339	1.209
			5	2.454	3.515	4.207	4.480	5.092
			10	2.181	3.820	5.134	6.196	6.982

Table E34. Mean number of imputed studies, with L studies imputed (from 2-dimensional algorithmic variant)

L Missing Studies Imputed				Number of Studies				
				25	35	45	55	65
β_1 = 0.049	$\tau^2 = 0$	Number of Missing Studies	0	1.216	1.382	1.614	1.760	1.907
			5	3.618	4.233	4.700	4.867	5.137
			10	4.137	6.227	7.300	8.087	8.422
	τ^2 = 0.049		0	1.715	2.064	2.522	2.938	3.333
			5	3.003	4.028	4.742	5.529	6.038
			10	2.781	4.364	5.581	6.793	7.700
	τ^2 = 0.148		0	2.065	2.647	3.418	3.723	4.473
			5	2.558	3.766	4.574	5.558	6.281
			10	2.186	3.559	4.580	5.656	6.729
	τ^2 = 0.444		0	2.354	3.281	3.982	4.722	5.315
			5	2.297	3.221	4.226	5.188	6.042
			10	1.783	2.921	3.829	4.731	5.760
β_1 = 0.074	$\tau^2 = 0$	Number of Missing Studies	0	1.171	1.377	1.616	1.699	1.831
			5	3.693	4.288	4.744	4.894	4.995
			10	4.203	6.268	7.392	8.053	8.426
	τ^2 = 0.049		0	1.642	2.055	2.443	2.914	3.218
			5	3.072	4.157	4.838	5.581	6.062
			10	2.740	4.263	5.714	6.827	7.800
	τ^2 = 0.148		0	2.049	2.655	3.323	3.712	4.493
			5	2.653	3.735	4.539	5.301	6.242
			10	2.199	3.443	4.715	5.774	6.600
	τ^2 = 0.444		0	2.286	3.247	3.871	4.698	5.411
			5	2.310	3.362	4.204	5.046	5.945
			10	1.725	2.784	3.878	4.917	5.639
β_1 = 0.148	$\tau^2 = 0$	Number of Missing Studies	0	1.192	1.427	1.562	1.758	1.851
			5	3.623	4.331	4.634	4.784	5.099
			10	4.107	6.148	7.276	7.999	8.386
	τ^2 = 0.049		0	1.702	2.095	2.549	2.902	3.291
			5	3.100	3.996	4.877	5.539	6.182
			10	2.742	4.364	5.732	6.772	7.680
	τ^2 = 0.148		0	1.996	2.690	3.257	3.708	4.335
			5	2.622	3.614	4.455	5.424	6.130
			10	2.182	3.429	4.740	5.594	6.907
	τ^2 = 0.444		0	2.395	3.160	3.940	4.731	5.447
			5	2.228	3.315	4.103	5.303	6.027
			10	1.759	2.857	3.943	4.958	5.892
β_1 = 0.296	$\tau^2 = 0$	Number of Missing Studies	0	1.207	1.353	1.604	1.836	1.941
			5	3.518	4.188	4.448	4.786	4.948
			10	3.883	5.907	7.115	7.760	8.250
	τ^2 = 0.049		0	1.713	2.115	2.560	2.940	3.310
			5	2.970	3.986	4.741	5.452	5.968
			10	2.723	4.382	5.586	6.659	7.487
	τ^2 = 0.148		0	2.070	2.723	3.197	3.839	4.289
			5	2.547	3.619	4.535	5.369	6.203
			10	2.206	3.429	4.531	5.621	6.761
	τ^2 = 0.444		0	2.340	3.214	3.889	4.685	5.571
			5	2.280	3.307	4.204	5.083	5.959
			10	1.767	2.876	3.823	4.972	5.864

Table E34. Mean number of imputed studies, with L studies imputed (from 2-dimensional algorithmic variant) (continued)

L Missing Studies Imputed				Number of Studies				
				25	35	45	55	65
β_1 = 0.444	$\tau^2 = 0$	Number of Missing Studies	**0**	1.227	1.449	1.593	1.757	1.863
			5	3.425	4.109	4.464	4.742	4.916
			10	3.661	5.514	6.534	7.303	7.950
	τ^2 = 0.049		**0**	1.687	2.167	2.563	2.829	3.231
			5	2.952	3.849	4.847	5.223	6.039
			10	2.665	4.238	5.398	6.477	7.352
	τ^2 = 0.148		**0**	2.070	2.660	3.291	3.806	4.419
			5	2.598	3.597	4.575	5.426	6.251
			10	2.215	3.446	4.570	5.664	6.377
	τ^2 = 0.444		**0**	2.279	3.090	4.170	5.047	5.466
			5	2.233	3.302	4.225	4.889	6.069
			10	1.813	2.957	3.957	4.919	5.947