

# Meta-regression Analysis for the Potential Sources of Heterogeneity

## 1. Meta-regression analysis of operation time

```
. meta regress year, random(reml)
```

Effect-size label: Mean diff.  
Effect size: `_meta_es`  
Std. err.: `_meta_se`

Random-effects meta-regression  
Method: REML

Number of obs = 9  
Residual heterogeneity:  
tau2 = 21.84  
I2 (%) = 71.15  
H2 = 3.47  
R-squared (%) = 0.00  
Wald chi2(1) = 0.58  
Prob > chi2 = 0.4479

| <code>_meta_es</code> | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |          |
|-----------------------|-------------|-----------|-------|-------|----------------------|----------|
| year                  | -.594109    | .7828301  | -0.76 | 0.448 | -2.128428            | .9402099 |
| _cons                 | 1187.978    | 1580.629  | 0.75  | 0.452 | -1909.999            | 4285.955 |

Test of residual homogeneity:  $Q_{res} = \chi^2(7) = 16.55$  Prob >  $Q_{res} = 0.0205$

```
. meta regress country, random(reml)
```

Effect-size label: Mean diff.  
Effect size: `_meta_es`  
Std. err.: `_meta_se`

Random-effects meta-regression  
Method: REML

Number of obs = 9  
Residual heterogeneity:  
tau2 = 22.69  
I2 (%) = 63.48  
H2 = 2.74  
R-squared (%) = 0.00  
Wald chi2(1) = 0.00  
Prob > chi2 = 0.9773

| <code>_meta_es</code> | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |           |
|-----------------------|-------------|-----------|-------|-------|----------------------|-----------|
| country               | .1198619    | 4.210769  | 0.03  | 0.977 | -8.133093            | 8.372817  |
| _cons                 | -11.69429   | 3.200655  | -3.65 | 0.000 | -17.96746            | -5.421121 |

Test of residual homogeneity:  $Q_{res} = \chi^2(7) = 16.62$  Prob >  $Q_{res} = 0.0200$

```
. meta regress study_design, random(reml)
```

Effect-size label: Mean diff.  
Effect size: `_meta_es`  
Std. err.: `_meta_se`

Random-effects meta-regression  
Method: REML

Number of obs = 9  
Residual heterogeneity:  
tau2 = 20.43  
I2 (%) = 71.45  
H2 = 3.50  
R-squared (%) = 0.00  
Wald chi2(1) = 0.01  
Prob > chi2 = 0.9331

| <code>_meta_es</code> | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |           |
|-----------------------|-------------|-----------|-------|-------|----------------------|-----------|
| study_design          | -.5980282   | 7.124997  | -0.08 | 0.933 | -14.56277            | 13.36671  |
| _cons                 | -11.50197   | 2.105372  | -5.46 | 0.000 | -15.62842            | -7.375518 |

Test of residual homogeneity:  $Q_{res} = \chi^2(7) = 16.40$  Prob >  $Q_{res} = 0.0217$

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## 2. Meta-regression analysis of intraoperative blood loss

```
. meta regress year, random(reml)

Effect-size label: Mean diff.
Effect size: _meta_es
Std. err.: _meta_se

Random-effects meta-regression      Number of obs =          9
Method: REML                        Residual heterogeneity:
                                   tau2 =    16.19
                                   I2 (%) =   71.12
                                   H2 =     3.46
                                   R-squared (%) =  2.60
                                   Wald chi2(1) =   1.71
                                   Prob > chi2 =  0.1906
```

| _meta_es | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |          |
|----------|-------------|-----------|-------|-------|----------------------|----------|
| year     | -.9225304   | .7049128  | -1.31 | 0.191 | -2.304134            | .4590733 |
| _cons    | 1854.788    | 1423.358  | 1.30  | 0.193 | -934.9423            | 4644.518 |

Test of residual homogeneity: Q\_res = chi2(7) = 29.90    Prob > Q\_res = 0.0001

```
. meta regress country, random(reml)

Effect-size label: Mean diff.
Effect size: _meta_es
Std. err.: _meta_se

Random-effects meta-regression      Number of obs =          9
Method: REML                        Residual heterogeneity:
                                   tau2 =    15.64
                                   I2 (%) =   68.93
                                   H2 =     3.22
                                   R-squared (%) =  5.92
                                   Wald chi2(1) =   1.42
                                   Prob > chi2 =  0.2329
```

| _meta_es | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |          |
|----------|-------------|-----------|-------|-------|----------------------|----------|
| country  | 4.708732    | 3.94738   | 1.19  | 0.233 | -3.02799             | 12.44545 |
| _cons    | -11.26368   | 3.308204  | -3.40 | 0.001 | -17.74764            | -4.77972 |

Test of residual homogeneity: Q\_res = chi2(7) = 26.63    Prob > Q\_res = 0.0004

```
. meta regress study_design, random(reml)

Effect-size label: Mean diff.
Effect size: _meta_es
Std. err.: _meta_se

Random-effects meta-regression      Number of obs =          9
Method: REML                        Residual heterogeneity:
                                   tau2 =    18.75
                                   I2 (%) =   75.56
                                   H2 =     4.09
                                   R-squared (%) =  0.00
                                   Wald chi2(1) =   0.55
                                   Prob > chi2 =  0.4597
```

| _meta_es     | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |           |
|--------------|-------------|-----------|-------|-------|----------------------|-----------|
| study_design | 6.041305    | 8.171933  | 0.74  | 0.460 | -9.975389            | 22.058    |
| _cons        | -8.441304   | 1.977723  | -4.27 | 0.000 | -12.31757            | -4.565039 |

Test of residual homogeneity: Q\_res = chi2(7) = 32.83    Prob > Q\_res = 0.0000

### 3. Meta-regression analysis of NDI scores

```
. meta regress country
```

Effect-size label: Mean diff.

Effect size: `_meta_es`

Std. err.: `_meta_se`

Random-effects meta-regression

Method: REML

Number of obs = 4

Residual heterogeneity:

tau2 = 6.041

I2 (%) = 94.77

H2 = 19.11

R-squared (%) = 0.00

Wald chi2(1) = 0.34

Prob > chi2 = 0.5581

| <code>_meta_es</code> | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |          |
|-----------------------|-------------|-----------|-------|-------|----------------------|----------|
| country               | -1.808338   | 3.087799  | -0.59 | 0.558 | -7.860313            | 4.243637 |
| _cons                 | 1.408337    | 1.600687  | 0.88  | 0.379 | -1.728951            | 4.545625 |

Test of residual homogeneity:  $Q_{res} = \text{chi2}(2) = 9.50$  Prob >  $Q_{res} = 0.0086$

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```
. meta regress year
```

Effect-size label: Mean diff.

Effect size: `_meta_es`

Std. err.: `_meta_se`

Random-effects meta-regression

Method: REML

Number of obs = 4

Residual heterogeneity:

tau2 = 3.301

I2 (%) = 78.25

H2 = 4.60

R-squared (%) = 0.00

Wald chi2(1) = 1.10

Prob > chi2 = 0.2939

| <code>_meta_es</code> | Coefficient | Std. err. | z     | P> z  | [95% conf. interval] |          |
|-----------------------|-------------|-----------|-------|-------|----------------------|----------|
| year                  | .7454145    | .7101826  | 1.05  | 0.294 | -.6465179            | 2.137347 |
| _cons                 | -1505.152   | 1434.671  | -1.05 | 0.294 | -4317.055            | 1306.751 |

Test of residual homogeneity:  $Q_{res} = \text{chi2}(2) = 5.57$  Prob >  $Q_{res} = 0.0617$

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