

Program: HLM 7 Hierarchical Linear and Nonlinear Modeling
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Module: HLM2.EXE (7.01.21202.1001)
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Specifications for this Overdispersed Poisson HLM2 run

Problem Title: no title

The data source for this run = replicate_jls

The command file for this run = C:\Users\migrant\AppData\Local\Temp\whlmtmp.hlm

Output file name = E:\Istanbul\hlm2.html

The maximum number of level-1 units = 123

The maximum number of level-2 units = 67

The maximum number of micro iterations = 14

Method of estimation: restricted PQL

Maximum number of macro iterations = 100

Distribution at Level-1: Poisson

The outcome variable is MIGR_REL

Summary of the model specified

Level-1 Model

$$E(MIGR_REL_{ii} | \pi_i) = \lambda_{ii}$$

$$\log[\lambda_{ii}] = \eta_{ii}$$

$$\eta_{ii} = \pi_{0i} + \pi_{1i} * (EXECUTIV_{ii}) + \pi_{2i} * (WP_HLM_{ii}) + \pi_{3i} * (MONATE_{ii}) + \pi_{4i} * (ANFRAGEN_{ii}) + \pi_{5i} * (POSITION_{ii})$$

Level-2 Model

$$\pi_{0i} = \beta_{00} + \beta_{01} * (GEN_HLM_{-i}) + \beta_{02} * (GENDER_i) + \beta_{03} * (POL_LEVE_i) + \beta_{04} * (VISMIN_M_i) + \beta_{05} * (ZEIT_MEA_i) + \beta_{06} * (LEFT_RIG_i) + \beta_{07} * (STADT_LA_i) + \beta_{08} * (VOLKSPAR_i) + r_{0i}$$

$$\pi_{1i} = \beta_{10}$$

$$\pi_{2i} = \beta_{20}$$

$$\pi_{3i} = \beta_{30}$$

$$\pi_{4i} = \beta_{40}$$

$$\pi_{5i} = \beta_{50}$$

MONATE ANFRAGEN have been centered around the grand mean.

ZEIT_MEA has been centered around the grand mean.

Level-1 variance = σ^2/λ_{ti}

Mixed Model

$$\begin{aligned} \eta_{ti} = & \beta_{00} + \beta_{01} * GEN_HLM_{-i} + \beta_{02} * GENDER_i + \beta_{03} * POL_LEVE_i \\ & + \beta_{04} * VISMIN_M_i + \beta_{05} * ZEIT_MEA_i + \beta_{06} * LEFT_RIG_i + \beta_{07} * STADT_LA_i \\ & + \beta_{08} * VOLKSPAR_i \\ & + \beta_{10} * EXECUTIV_{ti} \\ & + \beta_{20} * WP_HLM_{ti} \\ & + \beta_{30} * MONATE_{ti} \\ & + \beta_{40} * ANFRAGEN_{ti} \\ & + \beta_{50} * POSITION_{ti} \\ & + r_{0i} \end{aligned}$$

The value of the log-likelihood function at iteration 6 = -5.297682E+002

Results for Non-linear Model with the Log Link Function Unit-Specific Model, PQL Estimation - (macro iteration 11)

$$\sigma^2 = 2.47203$$

τ
INTRCPT1, π_0 0.75354

| Random level-1 coefficient | Reliability estimate |
|----------------------------|----------------------|
| INTRCPT1, π_0 | 0.538 |

The value of the log-likelihood function at iteration 2 = -2.777355E+002

Final estimation of fixed effects: (Unit-specific model)

| Fixed Effect | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|------------------------|-------------|----------------|---------|--------------|---------|
| For INTRCPT1, π_0 | | | | | |
| INTRCPT2, β_{00} | 1.297237 | 0.468989 | 2.766 | 58 | 0.008 |

| | | | | | |
|-----------------------------|-----------|----------|--------|----|--------|
| GEN_HLM_, β_{01} | -0.184587 | 0.324633 | -0.569 | 58 | 0.572 |
| GENDER, β_{02} | -0.135596 | 0.302034 | -0.449 | 58 | 0.655 |
| POL_LEVE, β_{03} | 0.303475 | 0.425687 | 0.713 | 58 | 0.479 |
| VISMIN_M, β_{04} | 0.688737 | 0.361524 | 1.905 | 58 | 0.062 |
| ZEIT_MEA, β_{05} | 0.039651 | 0.031163 | 1.272 | 58 | 0.208 |
| LEFT_RIG, β_{06} | -0.389362 | 0.510696 | -0.762 | 58 | 0.449 |
| STADT_LA, β_{07} | 1.030629 | 0.416879 | 2.472 | 58 | 0.016 |
| VOLKSPAR, β_{08} | -1.105078 | 0.352687 | -3.133 | 58 | 0.003 |
| For EXECUTIV slope, π_1 | | | | | |
| INTRCPT2, β_{10} | -1.006610 | 0.252015 | -3.994 | 51 | <0.001 |
| For WP_HLM slope, π_2 | | | | | |
| INTRCPT2, β_{20} | 0.113155 | 0.090800 | 1.246 | 51 | 0.218 |
| For MONATE slope, π_3 | | | | | |
| INTRCPT2, β_{30} | 0.011894 | 0.005902 | 2.015 | 51 | 0.049 |
| For ANFRAGEN slope, π_4 | | | | | |
| INTRCPT2, β_{40} | 0.012326 | 0.002501 | 4.928 | 51 | <0.001 |
| For POSITION slope, π_5 | | | | | |
| INTRCPT2, β_{50} | -0.438453 | 0.221235 | -1.982 | 51 | 0.053 |

| Fixed Effect | Coefficient | Event Rate Ratio | Confidence Interval |
|-----------------------------|-------------|------------------|---------------------|
| For INTRCPT1, π_0 | | | |
| INTRCPT2, β_{00} | 1.297237 | 3.659173 | (1.431,9.357) |
| GEN_HLM_, β_{01} | -0.184587 | 0.831447 | (0.434,1.593) |
| GENDER, β_{02} | -0.135596 | 0.873195 | (0.477,1.599) |
| POL_LEVE, β_{03} | 0.303475 | 1.354557 | (0.578,3.176) |
| VISMIN_M, β_{04} | 0.688737 | 1.991200 | (0.966,4.106) |
| ZEIT_MEA, β_{05} | 0.039651 | 1.040447 | (0.978,1.107) |
| LEFT_RIG, β_{06} | -0.389362 | 0.677489 | (0.244,1.883) |
| STADT_LA, β_{07} | 1.030629 | 2.802829 | (1.217,6.457) |
| VOLKSPAR, β_{08} | -1.105078 | 0.331185 | (0.163,0.671) |
| For EXECUTIV slope, π_1 | | | |
| INTRCPT2, β_{10} | -1.006610 | 0.365456 | (0.220,0.606) |
| For WP_HLM slope, π_2 | | | |
| INTRCPT2, β_{20} | 0.113155 | 1.119805 | (0.933,1.344) |
| For MONATE slope, π_3 | | | |
| INTRCPT2, β_{30} | 0.011894 | 1.011965 | (1.000,1.024) |
| For ANFRAGEN slope, π_4 | | | |
| INTRCPT2, β_{40} | 0.012326 | 1.012402 | (1.007,1.017) |
| For POSITION slope, π_5 | | | |

INTRCPT2, β_{50} -0.438453 0.645034 (0.414,1.006)

Final estimation of fixed effects
(Unit-specific model with robust standard errors)

| Fixed Effect | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|-----------------------------|-------------|----------------|---------|--------------|---------|
| For INTRCPT1, π_0 | | | | | |
| INTRCPT2, β_{00} | 1.297237 | 0.403787 | 3.213 | 58 | 0.002 |
| GEN_HLM_, β_{01} | -0.184587 | 0.287358 | -0.642 | 58 | 0.523 |
| GENDER, β_{02} | -0.135596 | 0.274496 | -0.494 | 58 | 0.623 |
| POL_LEVE, β_{03} | 0.303475 | 0.392748 | 0.773 | 58 | 0.443 |
| VISMIN_M, β_{04} | 0.688737 | 0.314250 | 2.192 | 58 | 0.032 |
| ZEIT_MEA, β_{05} | 0.039651 | 0.028279 | 1.402 | 58 | 0.166 |
| LEFT_RIG, β_{06} | -0.389362 | 0.454987 | -0.856 | 58 | 0.396 |
| STADT_LA, β_{07} | 1.030629 | 0.442505 | 2.329 | 58 | 0.023 |
| VOLKSPAR, β_{08} | -1.105078 | 0.289083 | -3.823 | 58 | <0.001 |
| For EXECUTIV slope, π_1 | | | | | |
| INTRCPT2, β_{10} | -1.006610 | 0.379109 | -2.655 | 51 | 0.011 |
| For WP_HLM slope, π_2 | | | | | |
| INTRCPT2, β_{20} | 0.113155 | 0.113392 | 0.998 | 51 | 0.323 |
| For MONATE slope, π_3 | | | | | |
| INTRCPT2, β_{30} | 0.011894 | 0.005786 | 2.056 | 51 | 0.045 |
| For ANFRAGEN slope, π_4 | | | | | |
| INTRCPT2, β_{40} | 0.012326 | 0.004334 | 2.844 | 51 | 0.006 |
| For POSITION slope, π_5 | | | | | |
| INTRCPT2, β_{50} | -0.438453 | 0.239265 | -1.832 | 51 | 0.073 |

| Fixed Effect | Coefficient | Event Rate Ratio | Confidence Interval |
|------------------------|-------------|------------------|---------------------|
| For INTRCPT1, π_0 | | | |
| INTRCPT2, β_{00} | 1.297237 | 3.659173 | (1.630,8.212) |
| GEN_HLM_, β_{01} | -0.184587 | 0.831447 | (0.468,1.478) |
| GENDER, β_{02} | -0.135596 | 0.873195 | (0.504,1.513) |
| POL_LEVE, β_{03} | 0.303475 | 1.354557 | (0.617,2.974) |
| VISMIN_M, β_{04} | 0.688737 | 1.991200 | (1.061,3.735) |
| ZEIT_MEA, β_{05} | 0.039651 | 1.040447 | (0.983,1.101) |
| LEFT_RIG, β_{06} | -0.389362 | 0.677489 | (0.272,1.685) |
| STADT_LA, β_{07} | 1.030629 | 2.802829 | (1.156,6.797) |
| VOLKSPAR, β_{08} | -1.105078 | 0.331185 | (0.186,0.591) |

For EXECUTIV slope, π_1

INTRCPT2, β_{10} -1.006610 0.365456 (0.171,0.782)

For WP_HLM slope, π_2

INTRCPT2, β_{20} 0.113155 1.119805 (0.892,1.406)

For MONATE slope, π_3

INTRCPT2, β_{30} 0.011894 1.011965 (1.000,1.024)

For ANFRAGEN slope, π_4

INTRCPT2, β_{40} 0.012326 1.012402 (1.004,1.021)

For POSITION slope, π_5

INTRCPT2, β_{50} -0.438453 0.645034 (0.399,1.043)

Final estimation of variance components

| Random Effect | Standard Deviation | Variance Component | <i>d.f.</i> | χ^2 | <i>p</i> -value |
|-----------------|--------------------|--------------------|-------------|-----------|-----------------|
| INTRCPT1, r_0 | 0.86806 | 0.75354 | 58 | 469.29201 | <0.001 |
| level-1, e | 1.57227 | 2.47203 | | | |

Results for Population-Average Model

The value of the log-likelihood function at iteration 2 = -2.767388E+002

Final estimation of fixed effects: (Population-average model)

| Fixed Effect | Coefficient | Standard error | <i>t</i> -ratio | Approx. <i>d.f.</i> | <i>p</i> -value |
|-----------------------------|-------------|----------------|-----------------|---------------------|-----------------|
| For INTRCPT1, π_0 | | | | | |
| INTRCPT2, β_{00} | 1.475585 | 0.426579 | 3.459 | 58 | 0.001 |
| GEN_HLM_, β_{01} | -0.152282 | 0.298847 | -0.510 | 58 | 0.612 |
| GENDER, β_{02} | -0.170666 | 0.277078 | -0.616 | 58 | 0.540 |
| POL_LEVE, β_{03} | 0.267420 | 0.388833 | 0.688 | 58 | 0.494 |
| VISMIN_M, β_{04} | 0.747599 | 0.334042 | 2.238 | 58 | 0.029 |
| ZEIT_MEA, β_{05} | 0.030445 | 0.028479 | 1.069 | 58 | 0.289 |
| LEFT_RIG, β_{06} | -0.413138 | 0.451290 | -0.915 | 58 | 0.364 |
| STADT_LA, β_{07} | 1.097965 | 0.383998 | 2.859 | 58 | 0.006 |
| VOLKSPAR, β_{08} | -1.150305 | 0.326801 | -3.520 | 58 | <0.001 |
| For EXECUTIV slope, π_1 | | | | | |
| INTRCPT2, β_{10} | -1.022605 | 0.209263 | -4.887 | 51 | <0.001 |
| For WP_HLM slope, π_2 | | | | | |
| INTRCPT2, β_{20} | 0.127743 | 0.088653 | 1.441 | 51 | 0.156 |
| For MONATE slope, π_3 | | | | | |

| | | | | | |
|-----------------------------|-----------|----------|--------|----|--------|
| INTRCPT2, β_{30} | 0.012347 | 0.005988 | 2.062 | 51 | 0.044 |
| For ANFRAGEN slope, π_4 | | | | | |
| INTRCPT2, β_{40} | 0.012062 | 0.002074 | 5.817 | 51 | <0.001 |
| For POSITION slope, π_5 | | | | | |
| INTRCPT2, β_{50} | -0.443392 | 0.167415 | -2.648 | 51 | 0.011 |

| Fixed Effect | Coefficient | Event Rate Ratio | Confidence Interval |
|-----------------------------|-------------|------------------|---------------------|
| For INTRCPT1, π_0 | | | |
| INTRCPT2, β_{00} | 1.475585 | 4.373593 | (1.862,10.274) |
| GEN_HLM_, β_{01} | -0.152282 | 0.858746 | (0.472,1.562) |
| GENDER, β_{02} | -0.170666 | 0.843103 | (0.484,1.468) |
| POL_LEVE, β_{03} | 0.267420 | 1.306589 | (0.600,2.846) |
| VISMIN_M, β_{04} | 0.747599 | 2.111923 | (1.082,4.122) |
| ZEIT_MEA, β_{05} | 0.030445 | 1.030913 | (0.974,1.091) |
| LEFT_RIG, β_{06} | -0.413138 | 0.661571 | (0.268,1.633) |
| STADT_LA, β_{07} | 1.097965 | 2.998058 | (1.390,6.467) |
| VOLKSPAR, β_{08} | -1.150305 | 0.316540 | (0.165,0.609) |
| For EXECUTIV slope, π_1 | | | |
| INTRCPT2, β_{10} | -1.022605 | 0.359657 | (0.236,0.547) |
| For WP_HLM slope, π_2 | | | |
| INTRCPT2, β_{20} | 0.127743 | 1.136261 | (0.951,1.358) |
| For MONATE slope, π_3 | | | |
| INTRCPT2, β_{30} | 0.012347 | 1.012423 | (1.000,1.025) |
| For ANFRAGEN slope, π_4 | | | |
| INTRCPT2, β_{40} | 0.012062 | 1.012135 | (1.008,1.016) |
| For POSITION slope, π_5 | | | |
| INTRCPT2, β_{50} | -0.443392 | 0.641856 | (0.459,0.898) |

Final estimation of fixed effects
(Population-average model with robust standard errors)

| Fixed Effect | Coefficient | Standard error | t-ratio | Approx. d.f. | p-value |
|------------------------|-------------|----------------|---------|--------------|---------|
| For INTRCPT1, π_0 | | | | | |
| INTRCPT2, β_{00} | 1.475585 | 0.308727 | 4.780 | 58 | <0.001 |
| GEN_HLM_, β_{01} | -0.152282 | 0.235152 | -0.648 | 58 | 0.520 |
| GENDER, β_{02} | -0.170666 | 0.210260 | -0.812 | 58 | 0.420 |
| POL_LEVE, β_{03} | 0.267420 | 0.301952 | 0.886 | 58 | 0.379 |
| VISMIN_M, β_{04} | 0.747599 | 0.260398 | 2.871 | 58 | 0.006 |

| | | | | | |
|-----------------------------|-----------|----------|--------|----|--------|
| ZEIT_MEA, β_{05} | 0.030445 | 0.020618 | 1.477 | 58 | 0.145 |
| LEFT_RIG, β_{06} | -0.413138 | 0.336685 | -1.227 | 58 | 0.225 |
| STADT_LA, β_{07} | 1.097965 | 0.349554 | 3.141 | 58 | 0.003 |
| VOLKSPAR, β_{08} | -1.150305 | 0.238799 | -4.817 | 58 | <0.001 |
| For EXECUTIV slope, π_1 | | | | | |
| INTRCPT2, β_{10} | -1.022605 | 0.253972 | -4.026 | 51 | <0.001 |
| For WP_HLM slope, π_2 | | | | | |
| INTRCPT2, β_{20} | 0.127743 | 0.110268 | 1.158 | 51 | 0.252 |
| For MONATE slope, π_3 | | | | | |
| INTRCPT2, β_{30} | 0.012347 | 0.005903 | 2.092 | 51 | 0.041 |
| For ANFRAGEN slope, π_4 | | | | | |
| INTRCPT2, β_{40} | 0.012062 | 0.002578 | 4.679 | 51 | <0.001 |
| For POSITION slope, π_5 | | | | | |
| INTRCPT2, β_{50} | -0.443392 | 0.146172 | -3.033 | 51 | 0.004 |

| Fixed Effect | Coefficient | Event Rate Ratio | Confidence Interval |
|-----------------------------|-------------|------------------|---------------------|
| For INTRCPT1, π_0 | | | |
| INTRCPT2, β_{00} | 1.475585 | 4.373593 | (2.357,8.115) |
| GEN_HLM_, β_{01} | -0.152282 | 0.858746 | (0.536,1.375) |
| GENDER, β_{02} | -0.170666 | 0.843103 | (0.553,1.284) |
| POL_LEVE, β_{03} | 0.267420 | 1.306589 | (0.714,2.392) |
| VISMIN_M, β_{04} | 0.747599 | 2.111923 | (1.254,3.557) |
| ZEIT_MEA, β_{05} | 0.030445 | 1.030913 | (0.989,1.074) |
| LEFT_RIG, β_{06} | -0.413138 | 0.661571 | (0.337,1.298) |
| STADT_LA, β_{07} | 1.097965 | 2.998058 | (1.489,6.036) |
| VOLKSPAR, β_{08} | -1.150305 | 0.316540 | (0.196,0.511) |
| For EXECUTIV slope, π_1 | | | |
| INTRCPT2, β_{10} | -1.022605 | 0.359657 | (0.216,0.599) |
| For WP_HLM slope, π_2 | | | |
| INTRCPT2, β_{20} | 0.127743 | 1.136261 | (0.911,1.418) |
| For MONATE slope, π_3 | | | |
| INTRCPT2, β_{30} | 0.012347 | 1.012423 | (1.000,1.024) |
| For ANFRAGEN slope, π_4 | | | |
| INTRCPT2, β_{40} | 0.012062 | 1.012135 | (1.007,1.017) |
| For POSITION slope, π_5 | | | |
| INTRCPT2, β_{50} | -0.443392 | 0.641856 | (0.479,0.861) |