Prof. Luiz Paulo Lopes Fávero

PRINTS FEITOS DURANTE A AULA DE 24/09/2024:

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#########################################################################
#     ESTIMAÇÃO DO MODELO COM INTERCEPTOS E INCLINAÇÕES ALEATÓRIOS HLM2  #
#########################################################################

            Mixed Linear Model Regression Results
============================================================
Model:              MixedLM  Dependent Variable:  desempenho
No. Observations:   358      Method:              REML
No. Groups:         10       Scale:               7.0497
Min. group size:    20       Log-Likelihood:      -906.8028
Max. group size:    48       Converged:           Yes
Mean group size:    35.8
------------------------------------------------------------
                    Coef.  Std.Err.   z    P>|z| [0.025 0.975]
------------------------------------------------------------
Intercept           7.121    2.426  2.935 0.003  2.366 11.875
horas               1.895    0.308  6.158 0.000  1.292  2.498
escola Var         55.078   10.278
escola x horas Cov  2.568    0.986
horas Var           0.938    0.170
============================================================
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$$desempenho_{ij} = 7{,}12 + 1{,}89.\ horas_{ij} + v_{0j} + v_{1j}.horas_{ij} + \varepsilon_{ij}$$

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#########################################################################
#  ESTIMAÇÃO DO MODELO FINAL COM INTERCEPTOS E INCLINAÇÕES ALEATÓRIOS HLM2  #
#########################################################################

            Mixed Linear Model Regression Results
============================================================
Model:              MixedLM  Dependent Variable:  desempenho
No. Observations:   358      Method:              REML
No. Groups:         10       Scale:               7.0443
Min. group size:    20       Log-Likelihood:      -894.5684
Max. group size:    48       Converged:           Yes
Mean group size:    35.8
------------------------------------------------------------
                    Coef.  Std.Err.   z    P>|z| [0.025 0.975]
------------------------------------------------------------
Intercept          -0.850    2.999 -0.283 0.777 -6.727  5.028
horas               0.713    0.321  2.225 0.026  0.085  1.342
texp                1.585    0.487  3.256 0.001  0.631  2.540
horas:texp          0.232    0.053  4.405 0.000  0.129  0.335
escola Var         24.345    5.167
escola x horas Cov -2.354    0.514
horas Var           0.305    0.059
============================================================
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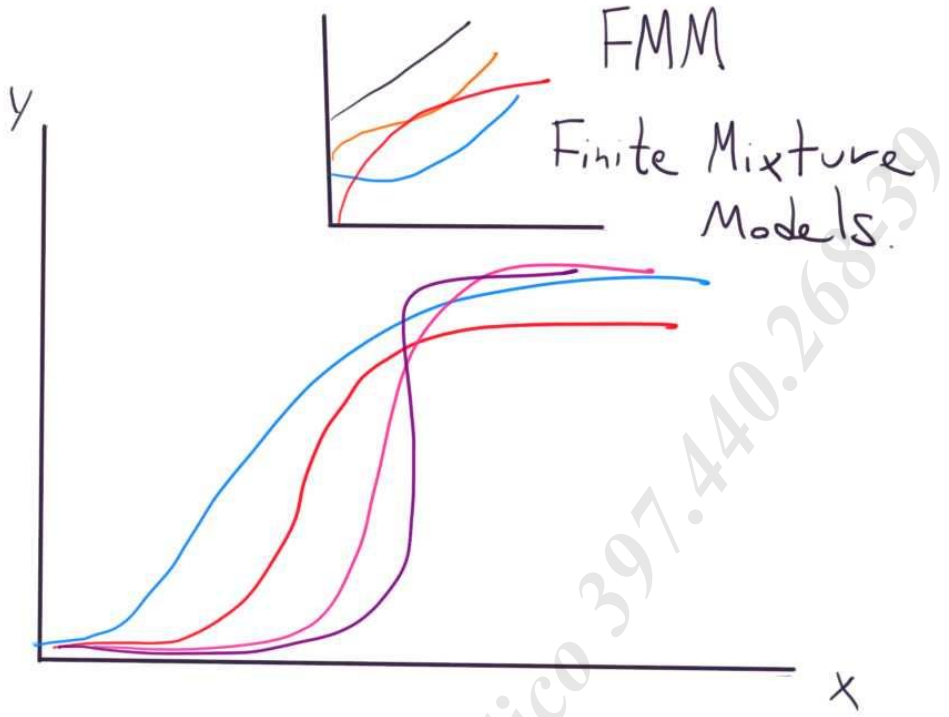
$$desempenho_{ij} = \underbrace{-0{,}85 + 0{,}713.\ horas_{ij} + 1{,}585.texp_j + 0{,}232.texp_j.horas_{ij}}_{\text{fitted fixed}} + v_{0j} + v_{1j}.horas_{ij} + \varepsilon_{ij}$$

$(\hat{y})$ — fitted values $(\hat{y})$ → fitted completo

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##############################################################################
#                    ESTIMAÇÃO DO MODELO NULO HLM3                           #
##############################################################################
           Mixed Linear Model Regression Results
============================================================
Model:             MixedLM Dependent Variable: desempenho
No. Observations:  2440    Method:             REML
No. Groups:        15      Scale:              41.6494
Min. group size:   80      Log-Likelihood:     -9092.1387
Max. group size:   248     Converged:          Yes
Mean group size:   162.7
------------------------------------------------------------
                Coef.  Std.Err.    z    P>|z| [0.025 0.975]
------------------------------------------------------------
Intercept       68.714    3.553 19.337 0.000 61.749 75.679
escola Var     180.222   11.137
estudante Var  325.798    3.477
============================================================
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$$desempenho_{tjk} = 68{,}714 + v_{0jk} + \tau_{00k} + \varepsilon_{tjk}$$

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##############################################################################
#              ESTIMAÇÃO DO MODELO HLM3 COM TENDÊNCIA LINEAR E               #
#                   INTERCEPTOS E INCLINAÇÕES ALEATÓRIOS                     #
##############################################################################
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	Estimate	2.5_ci	97.5_ci	SE	DF	T-stat	P-val	Sig
δ_{000} (Intercept)	57.856	50.079	65.633	3.968	14.003	14.581	0.0	***
δ_{100} mes	4.337	3.925	4.748	0.210	13.825	20.666	0.0	***

$$desempenho_{tjk} = 57{,}856 + 4{,}337.mes_{jk} + v_{0jk} + v_{1jk}.mes_{jk} + \tau_{00k} + \tau_{10k}.mes_{jk} + \varepsilon_{tjk}$$


```
##############################################################################
#              ESTIMAÇÃO DO MODELO HLM3 COM TENDÊNCIA LINEAR,                #
#                   INTERCEPTOS E INCLINAÇÕES ALEATÓRIOS                     #
#          E AS VARIÁVEIS 'ativ' DE NÍVEL 2 E 'texp' DE NÍVEL 3              #
##############################################################################
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	Estimate	2.5_ci	97.5_ci	SE	DF	T-stat	P-val	Sig
δ_{000} (Intercept)	40.032	32.454	47.611	3.867	14.186	10.353	0.000	***
δ_{100} mes	5.168	4.692	5.643	0.243	16.498	21.294	0.000	***
δ_{010} ativ_sim	14.702	11.183	18.221	1.796	606.756	8.188	0.000	***
δ_{001} texp	1.179	0.501	1.857	0.346	13.125	3.407	0.005	**
δ_{110} mes:ativ_sim	-0.652	-1.014	-0.290	0.185	514.047	-3.529	0.000	***
δ_{101} mes:texp	-0.057	-0.098	-0.015	0.021	13.704	-2.698	0.018	*

fitted fixed

$$desempenho_{tjk} = 40{,}03 + 5{,}16.mes_{jk} + 14{,}70.ativ_{jk} + 1{,}17.texp_{k} - 0{,}65.ativ_{jk}.mes_{jk} - 0{,}057.texp_{k}.mes_{jk} + v_{0jk} + v_{1jk}.mes_{jk} + \tau_{00k} + \tau_{10k}.mes_{jk} + \varepsilon_{tjk}$$

fitted completo