

lm Linear Model Output

```
fit <- lm(income ~ iq, d)
summary(fit)
# Call:
# lm(formula = income ~ iq, data = d)
#
# Residuals:
#   Min       1Q   Median       3Q      Max
# -26034  -9751  -2758   11633   25000
#
# Coefficients:
#              Estimate Std. Error t value Pr(>|t|)
# (Intercept)   -5000     15362  -0.325   0.7466
# iq             350       152    2.303   0.0268 *
# ---
# Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
#
# Residual standard error: 14230 on 38 degrees of freedom
# Multiple R-squared:  0.1225, Adjusted R-squared:  0.095
# F-statistic: 5.305 on 1 and 38 DF, p-value: 0.02683
```

Model setup with formula.
summary() provides output.

Residuals: Should be centred at 0 and
roughly normally distributed.

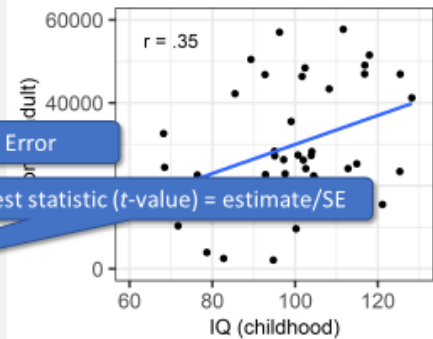
Estimate and Standard Error

Test statistic (t-value) = estimate/SE

p-value: Probability of obtaining
observed or more extreme test
statistic if null hypothesis were true.
 $\Pr(t \geq t_{obs} | H_0)$

F-test for model as a whole (i.e.,
better than mean). p-value in one
predictor case same as for slope.

Sample (Simulated Data)



See also: <https://stats.stackexchange.com/q/5135/442>

lme4 Mixed Model Output

```
> library("lme4")
> m_r <- lmer(if_A_then_B_c ~ B_given_A_c + (1+B_given_A_c|p_id), dat2)
> summary(m_r)
```

Linear mixed model fit by REML ['lmerMod']
Formula: if_A_then_B_c ~ B_given_A_c + (1 + B_given_A_c | p_id)
Data: dat2

REML criterion at convergence: 256.9

Scaled residuals:

| Min | 1Q | Median | 3Q | Max |
|--------|--------|--------|-------|-------|
| -2.870 | -0.280 | 0.179 | 0.568 | 3.323 |

Random effects:

| Groups | Name | Variance | Std.Dev. | Corr |
|----------|-------------|----------|----------|------|
| p_id | (Intercept) | 0.00329 | 0.0574 | |
| | B_given_A_c | 0.00916 | 0.0957 | 1.00 |
| Residual | | 0.07704 | 0.2776 | |

Number of obs: 752, groups: p_id, 94

Fixed effects:

| | Estimate | Std. Error | t value |
|-------------|----------|------------|---------|
| (Intercept) | -0.0614 | 0.0119 | -5.17 |
| B_given_A_c | 0.7252 | 0.0299 | 24.29 |

Correlation of Fixed Effects:

| | (Intr) |
|-------------|--------|
| B_given_A_c | 0.035 |

convergence code: 0
singular fit

Relative model fit indices (RE-MLE)

Residuals

Variances and SD of random-effects parameters

Correlation among random-effects parameters

Fixed-effects estimates and inferential statistics

Tells us something about parameter trade-offs and separability of effect. Affected by coding of factors.

Convergence warning: if code \neq 0 or singular fit

See also: <http://bbolker.github.io/mixedmodels-misc/glmmFAQ.html>