

Testing Makeham at zero

Load Dataset

```
library(readr)
library(readxl)
library(knitr)
source("../scripts/00_method.R")

# Read Data
cc = read_csv("../initial_replication/manual_coef.csv") %>%
  select(Country = m_cc, `Country Name`, M=lmakeham_M, F=lmakeham_F) %>%
  gather(Gender, lambda_makeham, -c(Country, `Country Name`))
World_Mortality_2011 <- read_excel("../initial_replication/World_Mortality_2011.xlsx", skip = 1)

# Mutate dataset to fit modelling (going from flat to narrow table)
World_Mortality_2011 %>%
  gather(Country_Sex, qx, -c(Year, Age)) %>%
  separate(Country_Sex, c("Country", "Gender"), '_') ->
  narrow_dt

narrow_dt %>%
  inner_join(cc, by=c("Country", "Gender")) %>%
  filter(between(Age, 35, 95)) ->
  narrow_dt
```

Original Values

```
narrow_dt %>% filter(Country != "ISL") %>%
  compute_stage1 %>% compute_stage2 %>% compute_table2 %>%
  kable
```

Statistic	F	M
L	-0.96	-1.1
x*	100.47	96.67
L Std.Err	0.53	0.19
-x* Std.Err	5.04	2.06
L t-value	-1.81	-5.63
-x* t-value	-19.92	-46.84
Adj. R^2	91.9%	98.4%
Range: g	(8.89%, 11.5%)	(6.66%, 11.0%)
G	0.11	0.09
Countries	36	36

Makeham at 0

```
narrow_dt %>% mutate(lambda_makeham = 0) %>% filter(Country != "ISL") %>%  
  compute_stage1 %>% compute_stage2 %>% compute_table2 %>%  
  kable
```

Statistic	F	M
L	-1.56	-1.07
x*	95.18	97.25
L Std.Err	0.63	0.22
-x* Std.Err	6.13	2.37
L t-value	-2.5	-4.85
-x* t-value	-15.52	-41.03
Adj. R^2	87.3%	98.0%
Range: g	(8.74%, 11.0%)	(6.62%, 10.6%)
G	0.1	0.09
Countries	36	36