Relative age effect in elite soccer

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```r
model_data_1 <- data_1 %>%
  mutate(
    year = year(DOB),
    WB = isoweek(DOB)
  )
fit_poisson <- function(countries, model_data = model_data_1) {
  # Filter Countries
  model_data <- model_data %>%
    filter(country %in% countries) %>%
    mutate(
      tB = (WB-0.5)/52
    ) %>%
    group_by(WB) %>%
    summarise(N = n(), tB = mean(tB)) %>%
    ungroup()
  # Data Summary
  # data_summary <- model_data %>%
  #   summarise(N = n(), tB_mean = mean(tB))
  # Model Fit
  fit <- glm(N ~ tB, data = model_data, family = "poisson")
  return(fit)
}
```

```r
poisson_fit_data_all <- model_data_1 %>%
  group_by(WB) %>%
  summarise(N = n()) %>%
  ungroup() %>%
  mutate(
    tB = (WB-0.5)/52
  )
poisson_fit_all <- glm(N ~ tB, data = poisson_fit_data_all, family = "poisson")
p1 <- augment(poisson_fit_all) %>%
  ggplot() +
  geom_point(aes(x = tB, y = N)) +
  geom_line(aes(x = tB, y = exp(.fitted)), size = 1.5) +
  labs(x = "time of birth in year (tB)",
       y = "birth count per week",
       title = "RAE bias in professional football:\nFREQUENCY analysis") +
  theme_minimal() +
  theme(plot.title = element_text(hjust = 0.5))
p2 <- model_data_1 %>%
  group_by(WB) %>%
```

```
  summarise(N = n(), euros = mean(log(euros))) %>%
  ungroup() %>%
  mutate(
    tB = (WB-0.5)/52
  ) %>%
  ggplot(aes(x = tB, y = euros)) +
  geom_point() +
  geom_smooth(method = lm, se = FALSE, color = "black") +
  labs(x = "time of birth in year (tB)",
       y = "mean log value per week",
       title = "RAE bias in professional football:\nVALUE analysis") +
  theme_minimal() +
  theme(plot.title = element_text(hjust = 0.5))
p1 | p2
```


RAE bias in professional football: FREQUENCY analysis

RAE bias in professional football: VALUE analysis