

Data weighting in SS

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Introduction

Todo: read Punt and Francis papers.

Methods

```
thedir <- "c:/Users/kelli/Documents/ss3sim_nin"
niter <- 10
fixx <- c(1, 2)
fixn <- seq(25, 200, by = 25)
name.om <- "hakeom"
name.em <- "hakeem"
library(ggplot2)
devtools::load_all("c:/stockAssessment/SS/ss3sim")

## Loading ss3sim

vals <- paste0("c(", outer(fixx, fixn, paste, sep = ","), ")")
grid <- expand.grid(fixx, fixn)
scen <- data.frame(
  "cf.years.1" = "26:100",
  "cf.fvals.1" = 0.747,
  "si.years.2" = "seq(76, 100, by = 1)",
  "si.sds_obs.2" = 0.2,
  "sl.Nsamp.1" = 50,
  "sl.Nsamp.2" = 50,
  "sl.years.1" = "seq(26, 100, by = 1)",
  "sl.years.2" = "seq(76, 100, by = 1)",
  "sl.cpar" = "NULL",
  "sa.Nsamp.1" = 100,
  "sa.Nsamp.2" = 100,
  "sa.years.1" = "seq(26, 100, by = 1)",
```

```

"sa.years.2" = "seq(76, 100, by = 1)",
"sa.cpar" = "NULL",
"wc.method" = "DM",
"wc.fleets" = "1:2",
"wc.niters_weighting" = 3,
"co.par_name" = 'c("Age_DblN_peak_Survey(2)")',
"ce.par_name" = 'c("AgeSel_P_1_Survey")',
"ce.par_phase" = "c(NA)",
"om" = file.path(thedir, name.om),
"em" = file.path(thedir, name.em)
)
scen.all <- data.frame(scen,
  "co.par_int" = grid[, 1],
  "sl.ESS" = grid[, 2])
scen.all <- do.call("rbind", replicate(3, scen.all, simplify = FALSE))
scen.all[, "wc.method"] <- rep(c("DM", "Francis", "MI"), each = NROW(grid))
# Set scenario names if you want
scen.all[, "scenarios"] <- paste0("nin-", seq(1, NROW(scen.all)))

run_ss3sim(iterations = 1:niter, simdf = scen.all[scen.all$wc.method %in% c("MI", "Francis"),
get_results_all()

```

Results

- Input sample sizes smaller than the true value will always lead to underestimation of the true sample size
- As input sample sizes become more positively biased relative to the true sample size, the estimated effective sample size becomes more negatively biased
- Error in estimates of effective sample size lead to error in estimates of growth parameters
- Estimation of age-composition weightings are independent of successful estimation of length-composition weightings

Tables

Tables suck.

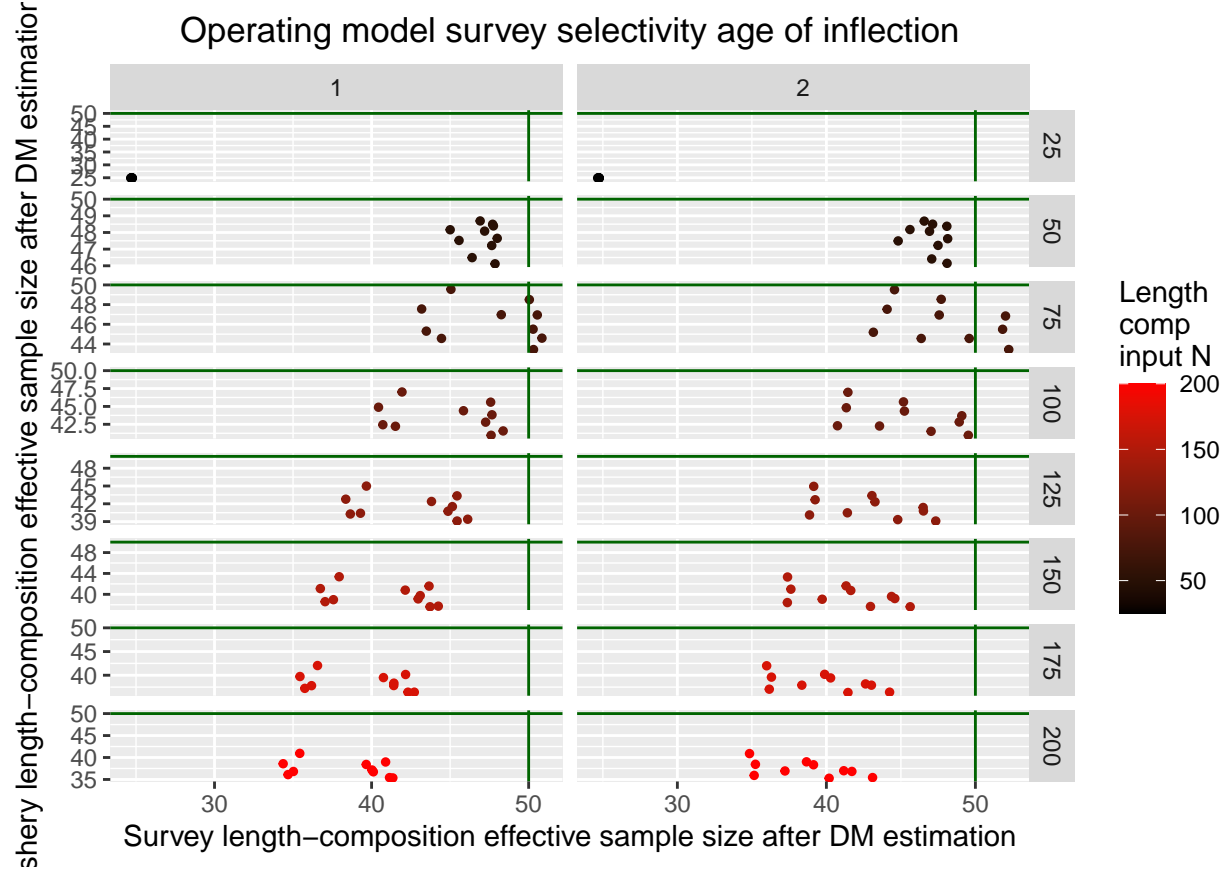
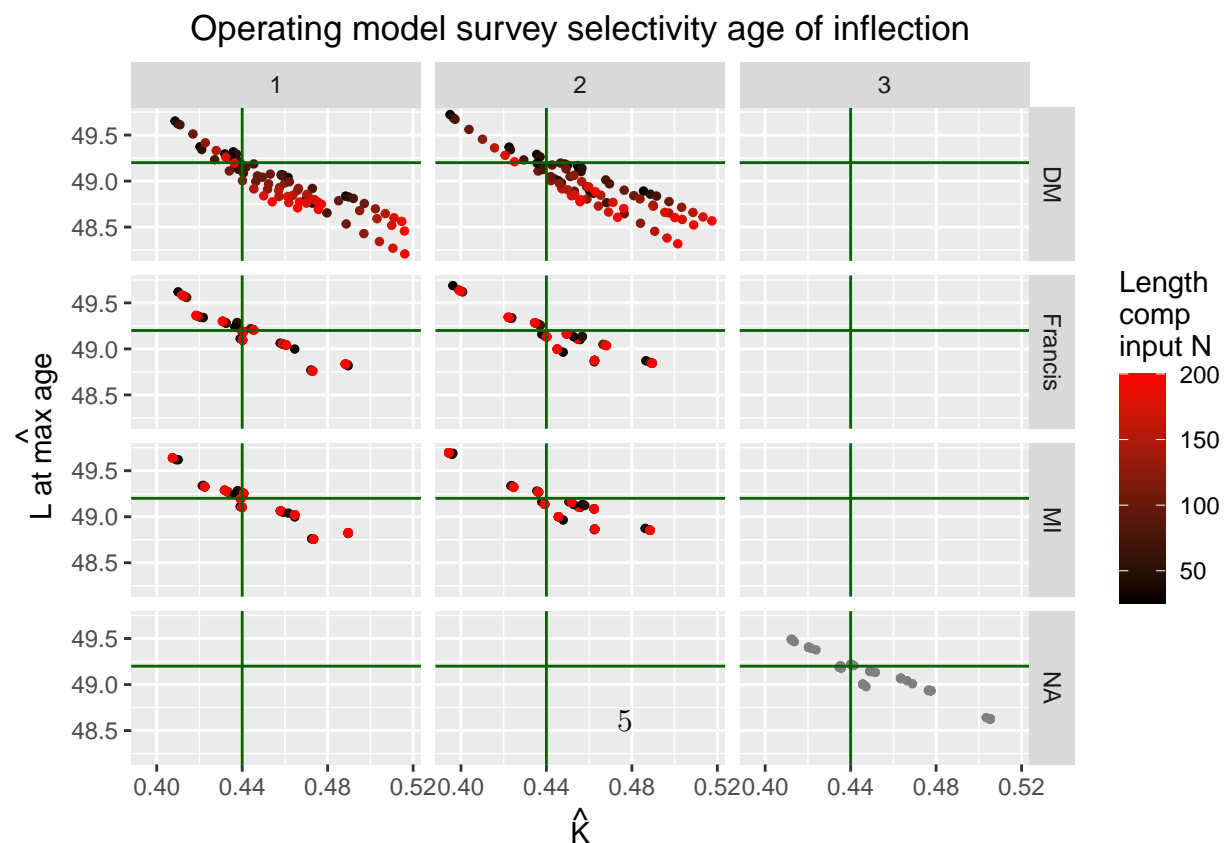
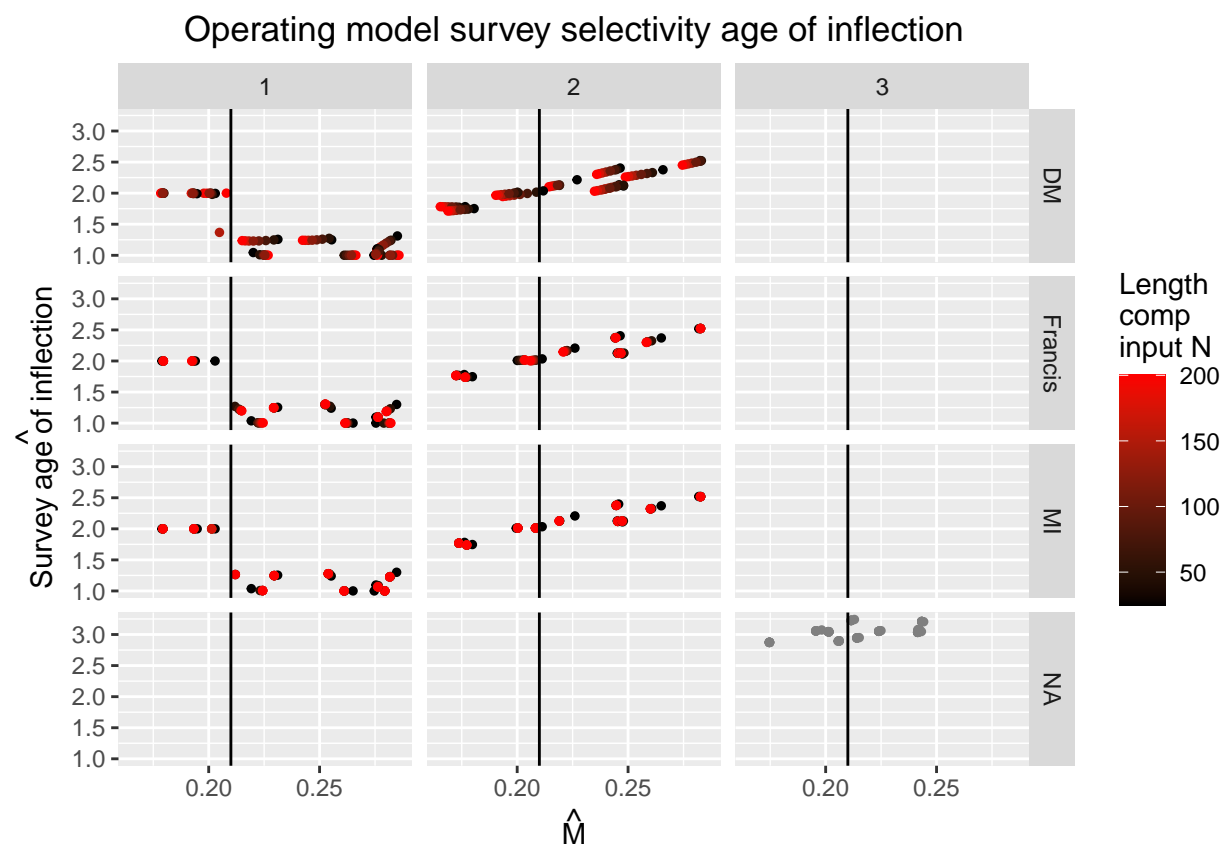


Figure 1: Effective sample sizes for length-composition data after estimating Dirichlet-Multinomial (DM) relative weighting parameters. Colors indicate the input sample size and solid green lines are the true sample size used in the operating model (OM). Columns reflect a change in survey selectivity in the OM. Note the change in the scale for each y axis.

Figures

Figures with captions

Figures without captions



Operating model survey selectivity age of inflection

