Consumer Price Index

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In writing this note, I used the packages listed below.[1] This note was written using Quarto and compiled with RStudio, an integrated development environment (IDE) for working with R. The source code for this note is available here and the latest version of this PDF is here.

Load these three packages:

```
library(tidyverse)
library(readabs)
library(ggrepel)
```

Specify location for downloaded ABS data:

```
Sys.setenv(R_READABS_PATH = "~/Downloads/")
```

Download and clean up ABS CPI data:

```
cpi <-
  read_abs("6401.0", tables = 3)|>
  separate_wider_regex(series,
                       c(measure = "^.*?", "\\s+;\\s+",
                         index = ".*?", "\\s+;\\s+",
                         city = ".*?", "\\s+;"))
```

Prepare plot data:

[1] Execute `install.packages(c("tidyverse", "readabs", "ggrepel"))` within R to install all the packages you need to run the code in this note.

```
cpi_plot_df <-
  cpi |>
  filter(!is.na(value),
         data_type == "INDEX",
         date >= "2005-12-01") |>
  group_by(index) |>
  arrange(date) |>
  mutate(year = year(date),
         first_value = first(value),
         last_date = date == max(date),
         label = if_else(last_date, index, NA)) |>
  mutate(value = 100 * value / first_value)
```

The following code produces the plot seen in Figure 1.

```
cpi_plot_df |>
  filter(index != "All groups CPI") |>
  ggplot(aes(x = date, y = value, group = index, colour = index,
             label = str_wrap(label, width = 10))) +
  geom_line() +
  theme(legend.position = "none") +
  # xlim(as.Date(min(cpi_plot_df$date), m))
  # expand_limits(x = as.Date("2028-12-31")) +
  scale_x_date(date_breaks = "1 year", date_labels = "%Y",
               expand = expansion(mult = c(0, .1))) +
  scale_y_log10() +
  ylab(str_c("CPI index (",
             format(min(cpi_plot_df$date), "%B %Y"),
             " = 100)")) +
  xlab("Year") +
  geom_text_repel(hjust = "left",
                  direction = "y",
                  arrow = arrow(length = unit(0.015, "npc")),
                  nudge_x = 365 * 1.3,
                  na.rm = TRUE) +
  theme(axis.text.x = element_text(angle = 90))
```

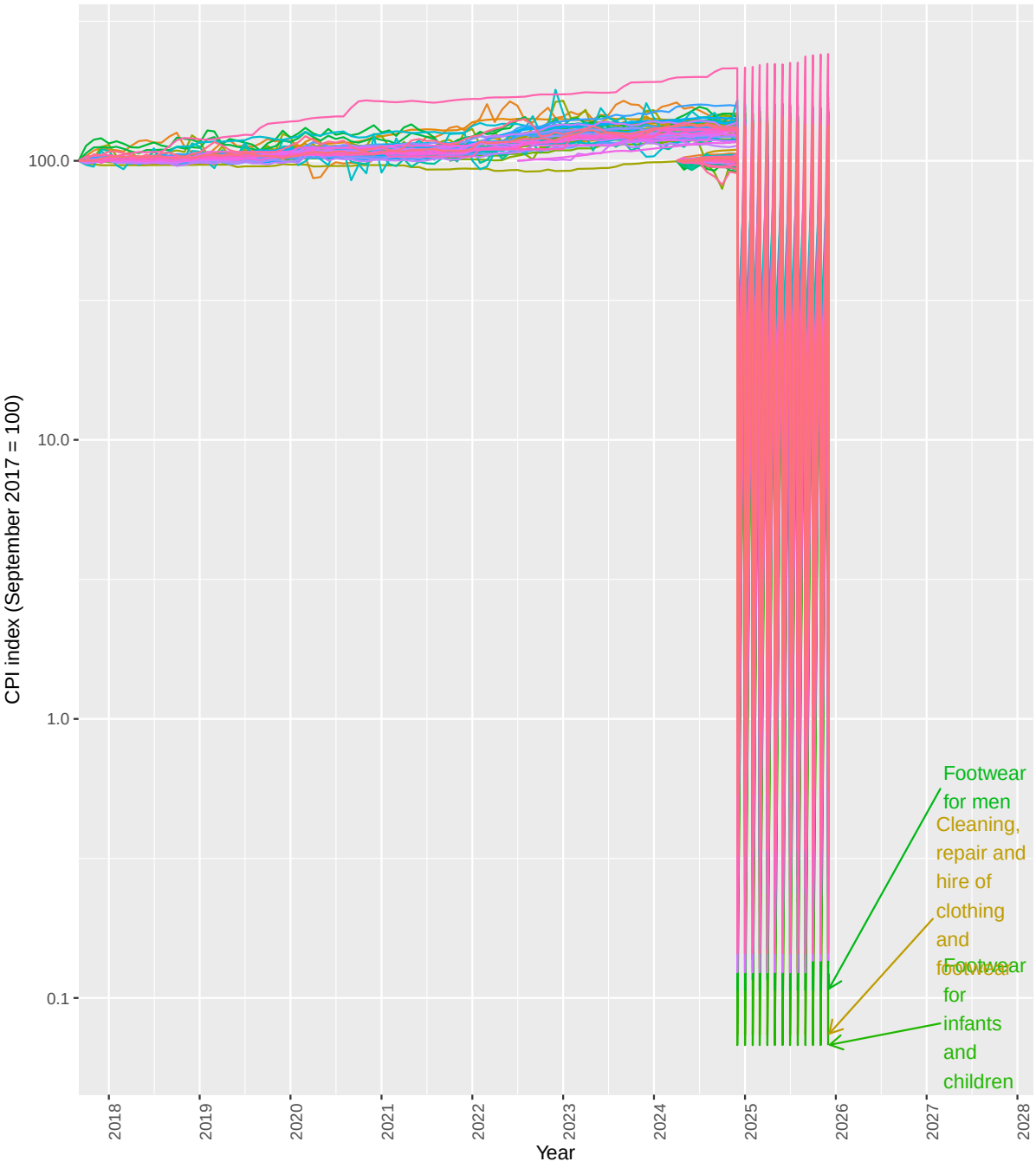

Figure 1: CPI index by group