# 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:

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[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))
```
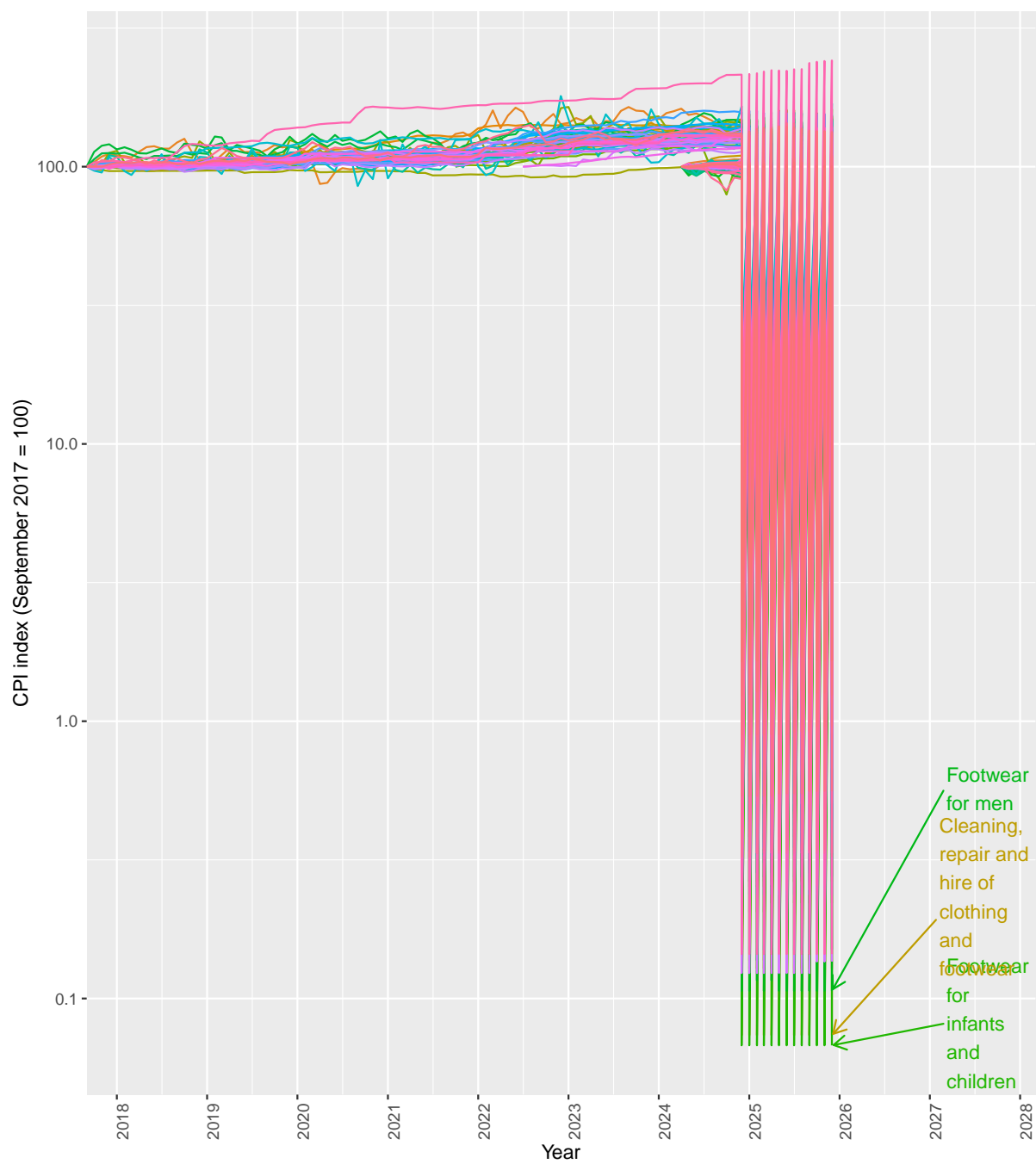
Figure 1: CPI index by group