

EDA

2026-02-02

```
library(ggplot2)
library(dplyr)

## 
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
## 
##     filter, lag

## The following objects are masked from 'package:base':
## 
##     intersect, setdiff, setequal, union

df <- read.csv("../df.csv")

impact_start = as.POSIXct("2020-03-01")
impact_end   = as.POSIXct("2023-03-01")

df$period = factor(df$period, levels=c("pre", "impacted", "post"))

p1 <- ggplot(df, aes(x=as.POSIXct(month_turn_2), y=rate, color=period)) +
  geom_line(lineWidth=1) +
  geom_point(size=1.5) +
  geom_smooth(aes(group=period), method="lm", se=FALSE, lineWidth=0.6, color="black") +
  scale_y_continuous(limits = c(60,75)) +
  geom_vline(xintercept = impact_start, linetype = "dashed", color="gray50") +
  geom_vline(xintercept = impact_end, linetype = "dashed", color="gray50" ) +
  labs(
    title = "Measles Vaccination Rate over Time - Slope",
    x = "Month",
    y = "Vaccination Rate",
    color = "Period"
  ) +
  theme_classic(base_size = 13) +
  theme(
    plot.title = element_text(hjust = 0.5),
    legend.position = "right",
    legend.title = element_text(size=11),
    axis.title = element_text(size=12),
    axis.text = element_text(size=11)
  )

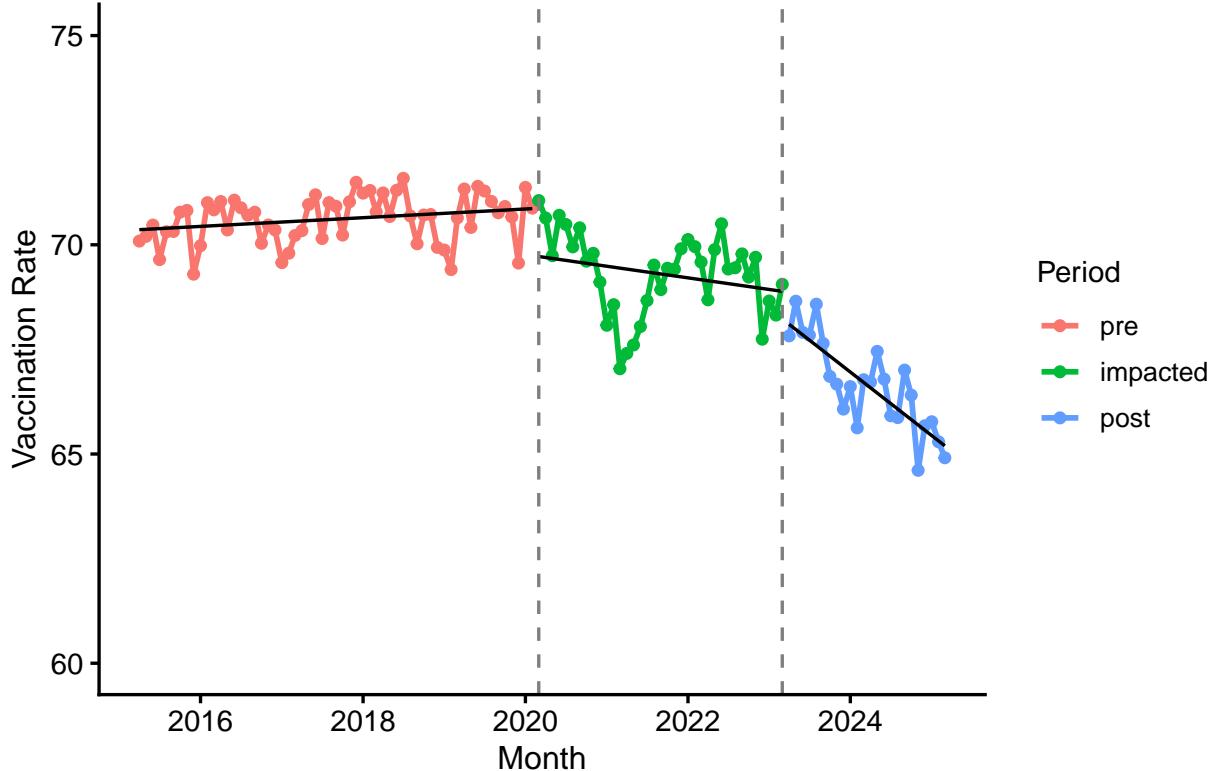
ggsave(p1, filename="../figures/1_whole_plot_with_slop.pdf", width=9, height=4.5, units="in")
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

```
p1
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

Measles Vaccination Rate over Time – Slope



```
period_means <- df %>%
  group_by(period) %>%
  summarise(
    mean_vax = mean(rate),
    xmin = min(as.POSIXct(month_turn_2)),
    xmax = max(as.POSIXct(month_turn_2)),
    .groups = "drop"
  )

p2 <- ggplot(df, aes(x=as.POSIXct(month_turn_2), y=rate, color=period)) +
  geom_line(linewidth=1) +
  geom_point(size=1.5) +
  geom_segment(data = period_means,
               aes(x=xmin, xend=xmax, y=mean_vax, yend=mean_vax), inherit.aes = FALSE,
               color = "black",
               linewidth=0.6) +
  scale_y_continuous(limits = c(60,75)) +
  geom_vline(xintercept = impact_start, linetype = "dashed", color="gray50")+
  geom_vline(xintercept = impact_end, linetype = "dashed", color="gray50" ) +
```

```

  labs(
    title = "Measles Vaccination Rate over Time - Average",
    x = "Month",
    y = "Vaccination Rate",
    color = "Period"
  ) +
  theme_classic(base_size = 13) +
  theme(
    plot.title = element_text(hjust = 0.5),
    legend.position = "right",
    legend.title = element_text(size=11),
    axis.title = element_text(size=12),
    axis.text = element_text(size=11)
  )

ggsave(p2, filename="../figures/2_whole_plot_with_mean.pdf", width=9, height=4.5, units="in")

p2

```

