

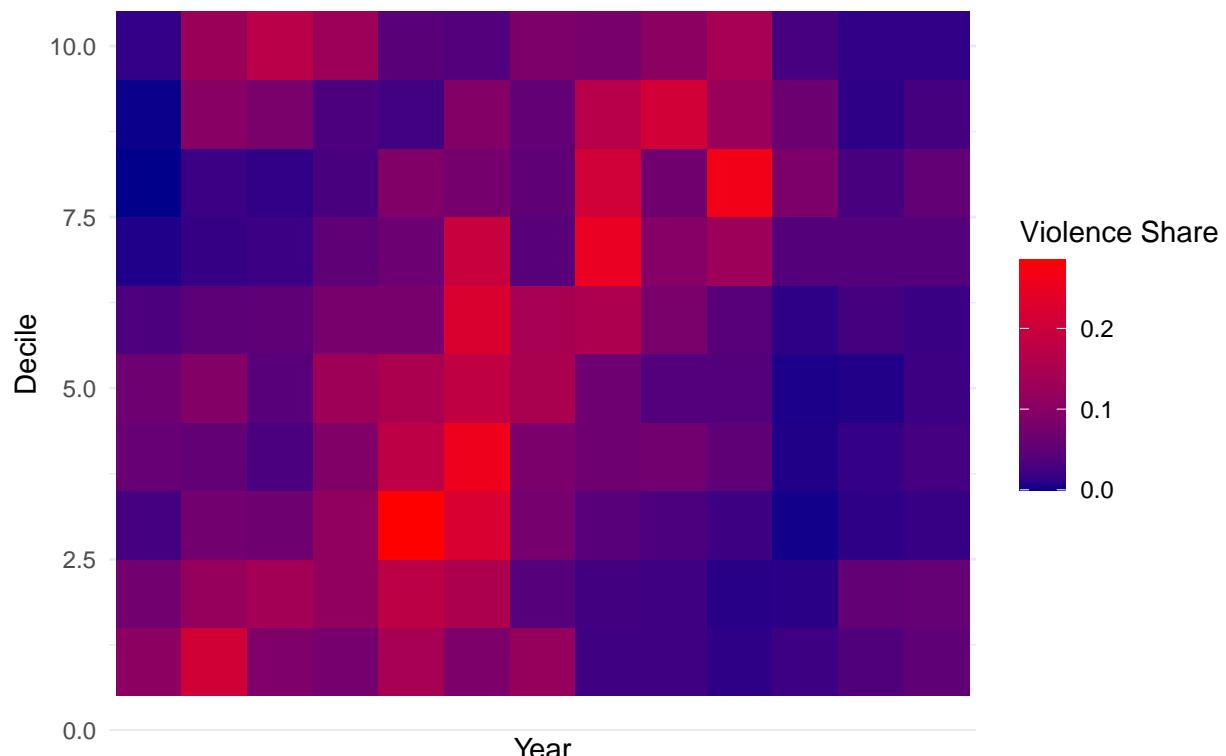
# Camilo Document

Parker Snipes

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```
## 0: Hops metric. First, generate heatmap.  
distances <- forcedMigration::generate_distances(0,1,1,'C023855','C023855')  
sharedf <- forcedMigration::get_df(distances)  
  
ggplot2::ggplot(data=sharedf,mapping=ggplot2::aes(x=year,y=ring,fill=share))+  
  ggplot2::geom_tile()+ggplot2::theme_minimal()+ggplot2::scale_fill_gradient(name="Violence Share",low  
  ggplot2::scale_x_discrete(breaks = seq(1,10,3),label = paste(seq(1,10,3)))+ggplot2::labs(x = 'Year'
```

Metric 0: Hops

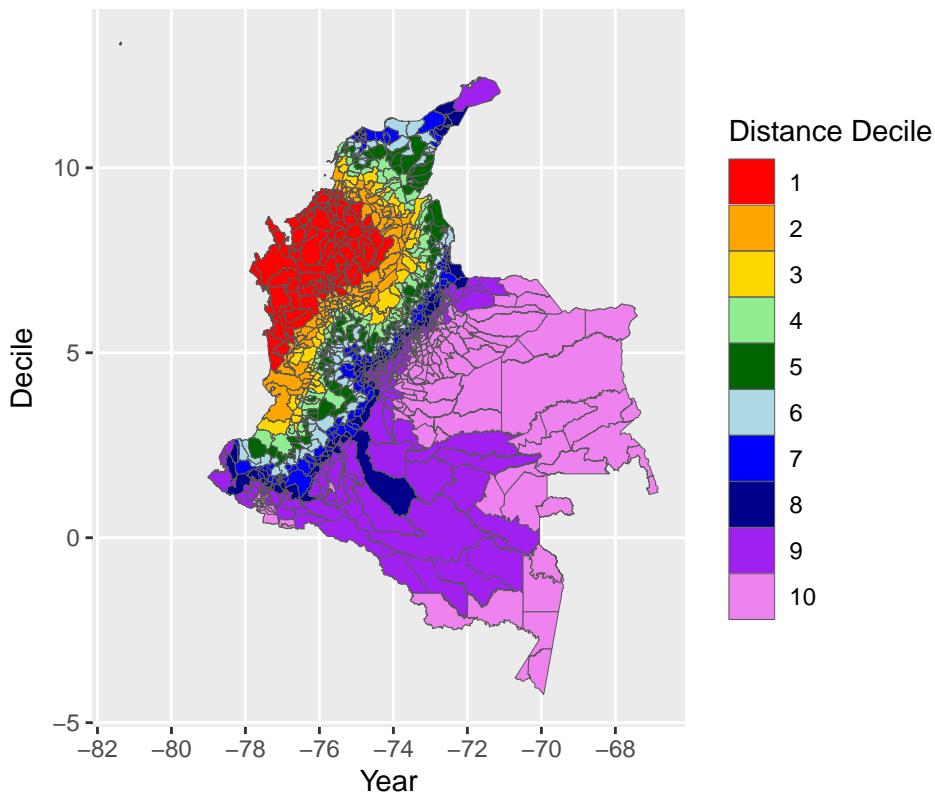


```
## Generate distances and merge with correctly matched muni pol.
```

```
load(file = 'C:/Users/g1pxs05/Downloads/muni_pol_corrected.rda')  
muni_merged <- merge(distances,muni_pol,by = 'ADM2_PCODE')
```

```
# Plot by ring.
ggplot2::ggplot() +
  ggplot2::geom_sf(data = sf::st_as_sf(muni_merged), ggplot2::aes(fill=factor(ring_num)),color = 'grey')
  ggplot2::scale_colour_manual('Distance Decile',values = c("red","orange","gold","lightgreen","darkgreen"))
```

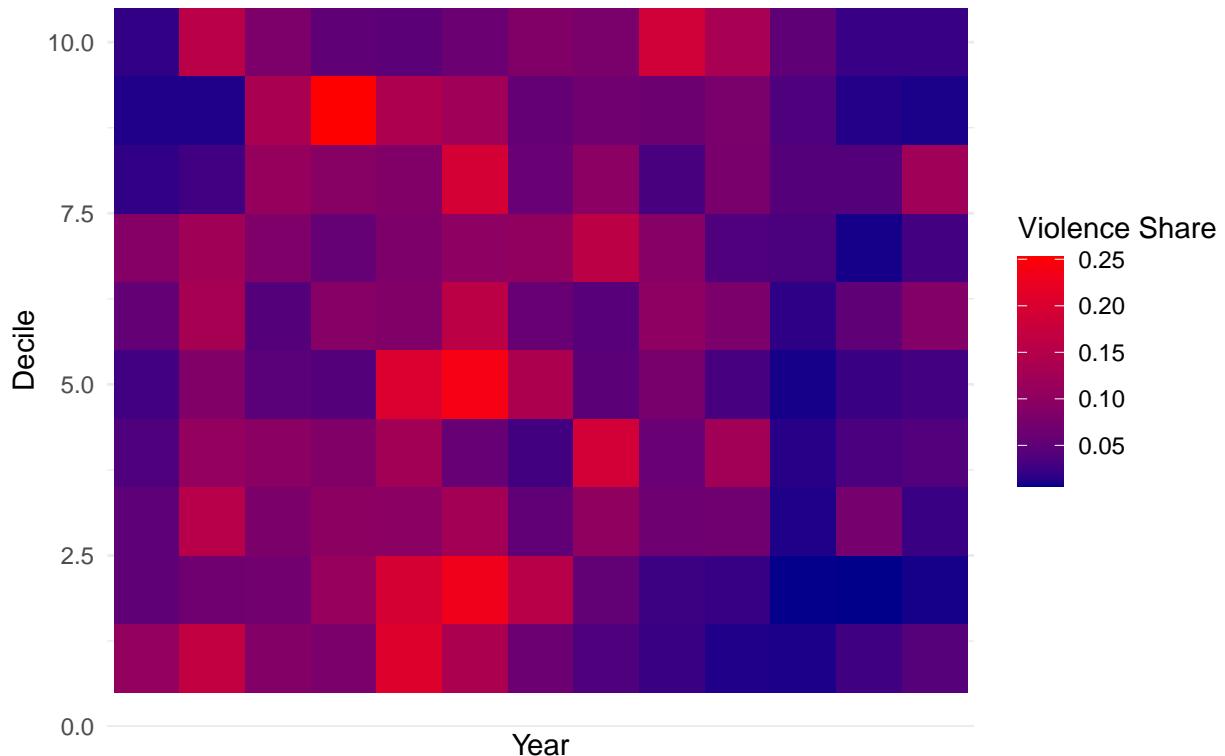
Metric 0: Hops



```
## 1: Crow-flies metric. First, generate heatmap.
distances <- forcedMigration::generate_distances(1,1,1,'C023855','C023855')
sharedf <- forcedMigration::get_df(distances)

ggplot2::ggplot(data=sharedf,mapping=ggplot2::aes(x=year,y=ring,fill=share))+  
  ggplot2::geom_tile()+ggplot2::theme_minimal()+ggplot2::scale_fill_gradient(name="Violence Share",low="white",high="black")  
  ggplot2::scale_x_discrete(breaks = seq(1,10,3),label = paste(seq(1,10,3)))  
  ggplot2::scale_y_discrete(breaks = seq(-5,10,5),label = paste(seq(-5,10,5)))  
  ggplot2::labs(x = 'Year',y = 'Ring')
```

## Metric 1: Crow flies

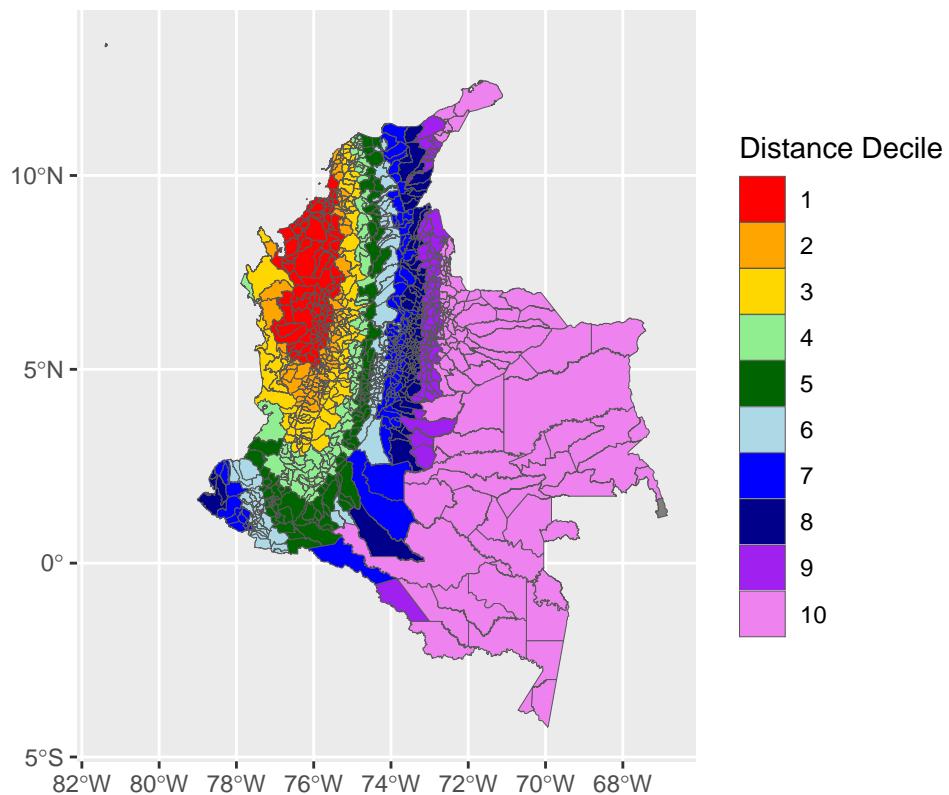


```
## Generate distances and merge with correctly matched muni pol.

load(file = 'C:/Users/g1pxs05/Downloads/muni_pol_corrected.rda')
muni_merged <- merge(distances,muni_pol,by = 'ADM2_PCODE')

# Plot by ring.
ggplot2::ggplot() +
  ggplot2::geom_sf(data = sf::st_as_sf(muni_merged), ggplot2::aes(fill=factor(ring)),color = 'grey34'
  ggplot2::scale_colour_manual('Distance Decile',values = c("red","orange","gold","lightgreen","darkgreen"))
```

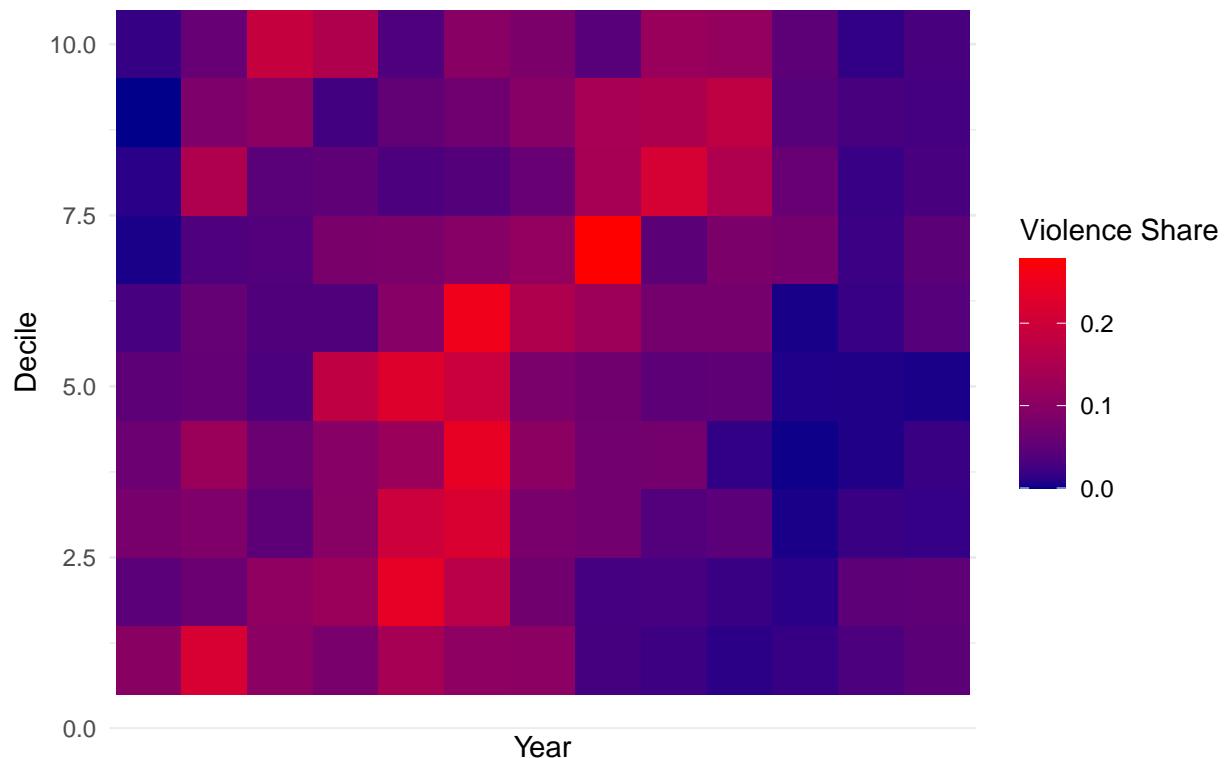
## Metric 1: Crow Flies



```
## Naive: As the crow flies.
distances <- forcedMigration::generate_distances(2,1,1,'C023855','C023855')
sharedf <- forcedMigration::get_df(distances)

ggplot2::ggplot(data=sharedf,mapping=ggplot2::aes(x=year,y=ring,fill=share))+  
  ggplot2::geom_tile()+ggplot2::theme_minimal()+ggplot2::scale_fill_gradient(name="Violence Share",low
```

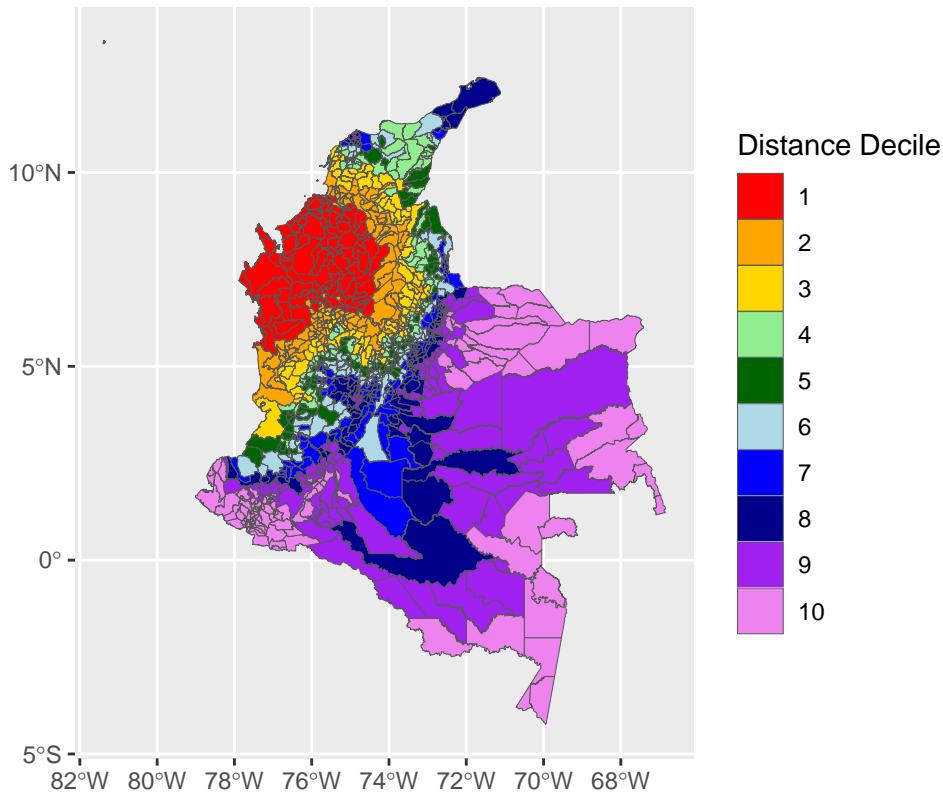
## Metric 2: PCA, no road



```
## Generate distances and merge with correctly matched muni pol.
load(file = 'C:/Users/g1pxs05/Downloads/muni_pol_corrected.rda')
muni_merged <- merge(distances,muni_pol,by = 'ADM2_PCODE')

# Plot by ring.
ggplot2::ggplot() +
  ggplot2::geom_sf(data = sf::st_as_sf(muni_merged), ggplot2::aes(fill=factor(ring_num)),color = 'grey'
  ggplot2::scale_colour_manual('Distance Decile',values = c("red","orange","gold","lightgreen","darkgreen"))
```

## Metric 2: PCA, no road



```
## Use violence_data this time.

violence_data <- forcedMigration::violence_data
violence_data <- violence_data[violence_data$year <= 2008,]
has_violence_list <- violence_data[violence_data$year == 2008 & violence_data$cum_victims_UR > 0,]$municipality
violence_data = violence_data[violence_data$municipality %in% has_violence_list,]
first_violence_year = rep(0, length(unique(violence_data$municipality)))
for(i in 1:length(unique(violence_data$municipality))){
  muni <- unique(violence_data$municipality)[i]
  subset <- violence_data[violence_data$municipality == muni & violence_data$victims_UR > 0,]
  first_violence_year[i] = min(subset$year)
}

violence_data$first_violence_year <- first_violence_year
muni_map <- merge(forcedMigration::muni_pol, violence_data, all = TRUE)
muni_map <- sf::st_as_sf(muni_map)
ggplot2::ggplot() + ggplot2::geom_sf(data = muni_map, ggplot2::aes(fill = first_violence_year), color = 'grey')
```

