Hsinchu Aging Index

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```
#
library(readr)
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
```

```
library(ggplot2)
#
df <- read_csv("C:/Users/ray12/OneDrive/ /  114 /PBA    /final project/aging_medical_real_es
```

```
Rows: 368 Columns: 12

-- Column specification ------------------------------------------------------
Delimiter: ","
chr (5):  ,   ,    ,    ,
dbl (7):  , ,   ,  ,  ,  ,

i Use `spec()` to retrieve the full column specification for this data.
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```
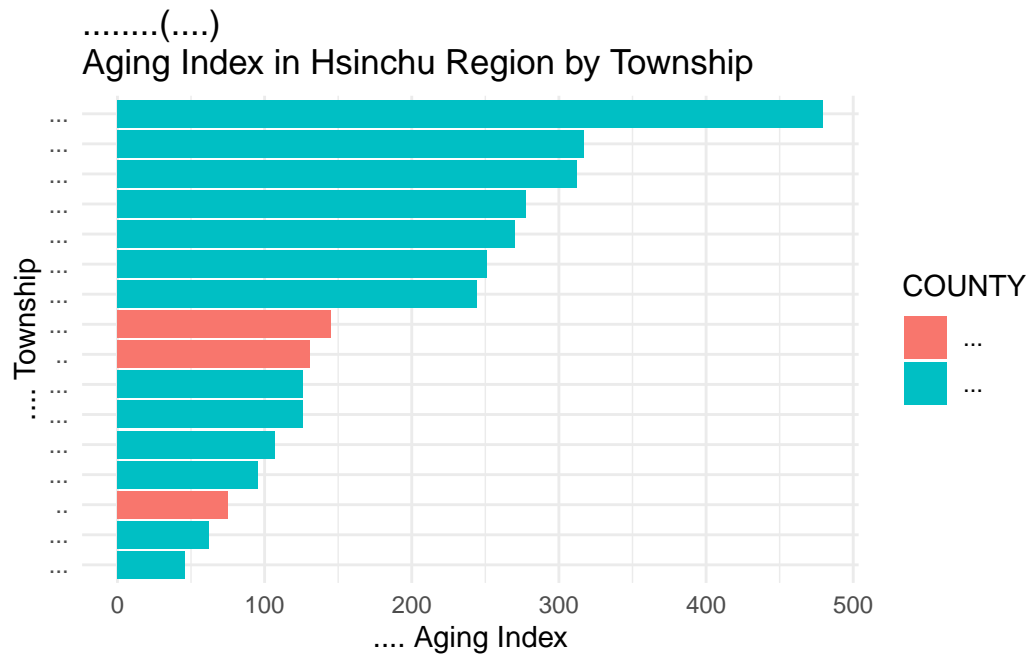
```r
#
colnames(df) <- c("COUNTY_ID", "COUNTY", "TOWN_ID", "TOWN", "M_F_RAT", "P_H_CNT", "P_DEN", "
                  "A0A14_A15A65_RAT", "A65UP_A15A64_RAT", "A65_A0A14_RAT", "INFO_TIME")

#
df_hsinchu <- df %>%
  filter(COUNTY %in% c("  ", "  "))

#        NA
df_hsinchu_clean <- df_hsinchu %>%
  filter(!is.na(P_DEN), !is.na(DEPENDENCY_RAT), !is.na(A65UP_A15A64_RAT), !is.na(A65_A0A14_R
  filter(P_DEN > 0)
```
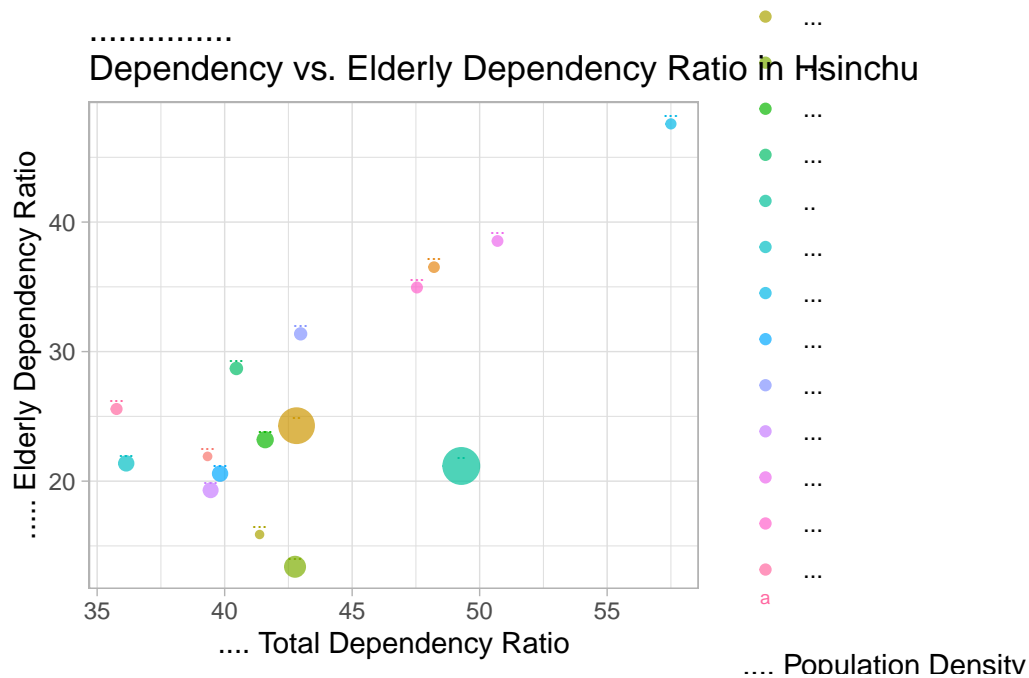
```r
ggplot(df_hsinchu %>% arrange(desc(A65_A0A14_RAT)),
       aes(x = reorder(TOWN, A65_A0A14_RAT), y = A65_A0A14_RAT, fill = COUNTY)) +
  geom_bar(stat = "identity") +
  coord_flip() +
  labs(
    title = "        \nAging Index in Hsinchu Region by Township",
    x = "   Township",
    y = "   Aging Index"
  ) +
  theme_minimal()
```
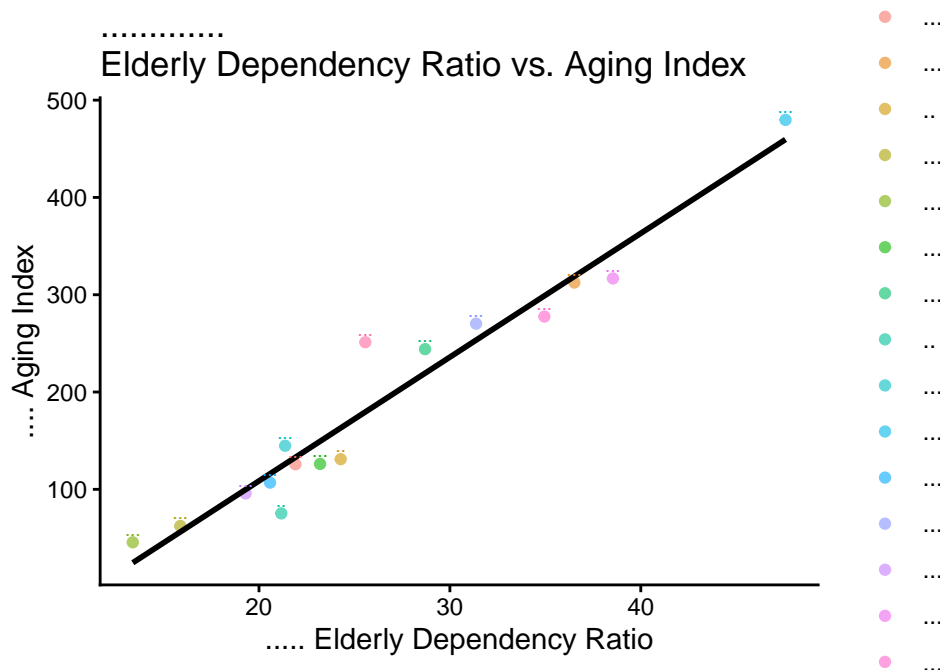
........(....)

Aging Index in Hsinchu Region by Township


```
ggplot(df_hsinchu, aes(x = DEPENDENCY_RAT, y = A65UP_A15A64_RAT, size = P_DEN, color = TOWN))
  geom_point(alpha = 0.7) +
  geom_text(aes(label = TOWN), size = 2.5, vjust = -0.5, check_overlap = TRUE) +
  labs(
    title = "          \nDependency vs. Elderly Dependency Ratio in Hsinchu",
    x = "   Total Dependency Ratio",
    y = "    Elderly Dependency Ratio",
    size = "   Population Density",
    color = "   Township"
  ) +
  theme_light()
```

....
Dependency vs. Elderly Dependency Ratio in Hsinchu

..... Elderly Dependency Ratio (y-axis)

.... Total Dependency Ratio (x-axis)

.... Population Density

```r
ggplot(df_hsinchu, aes(x = A65UP_A15A64_RAT, y = A65_A0A14_RAT, color = TOWN)) +
  geom_point(alpha = 0.6) +
  geom_smooth(method = "lm", se = FALSE, color = "black") +
  geom_text(aes(label = TOWN), size = 2.5, vjust = -0.5, check_overlap = TRUE) +
  labs(
    title = "      \nElderly Dependency Ratio vs. Aging Index",
    x = "   Elderly Dependency Ratio",
    y = "   Aging Index",
    color = "   Township"
  ) +
  theme_classic()
```

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

4

Elderly Dependency Ratio vs. Aging Index

```r
ggplot(df_hsinchu_clean, aes(x = P_DEN, y = DEPENDENCY_RAT, color = TOWN)) +
  geom_point(alpha = 0.7) +
  scale_x_log10() +
  geom_smooth(method = "lm", se = FALSE, color = "black") +
  geom_text(aes(label = TOWN), size = 2.5, vjust = -0.5, check_overlap = TRUE) +
  labs(
    title = "        \nLog(Population Density) vs. Dependency Ratio in Hsinchu",
    x = "  log10    \nPopulation Density (log10 scale)",
    y = "  Dependency Ratio",
    color = "   Township"
  ) +
  theme_minimal()
```

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

........(..).......
Log(Population Density) vs. Dependency Ratio in Hsinchu