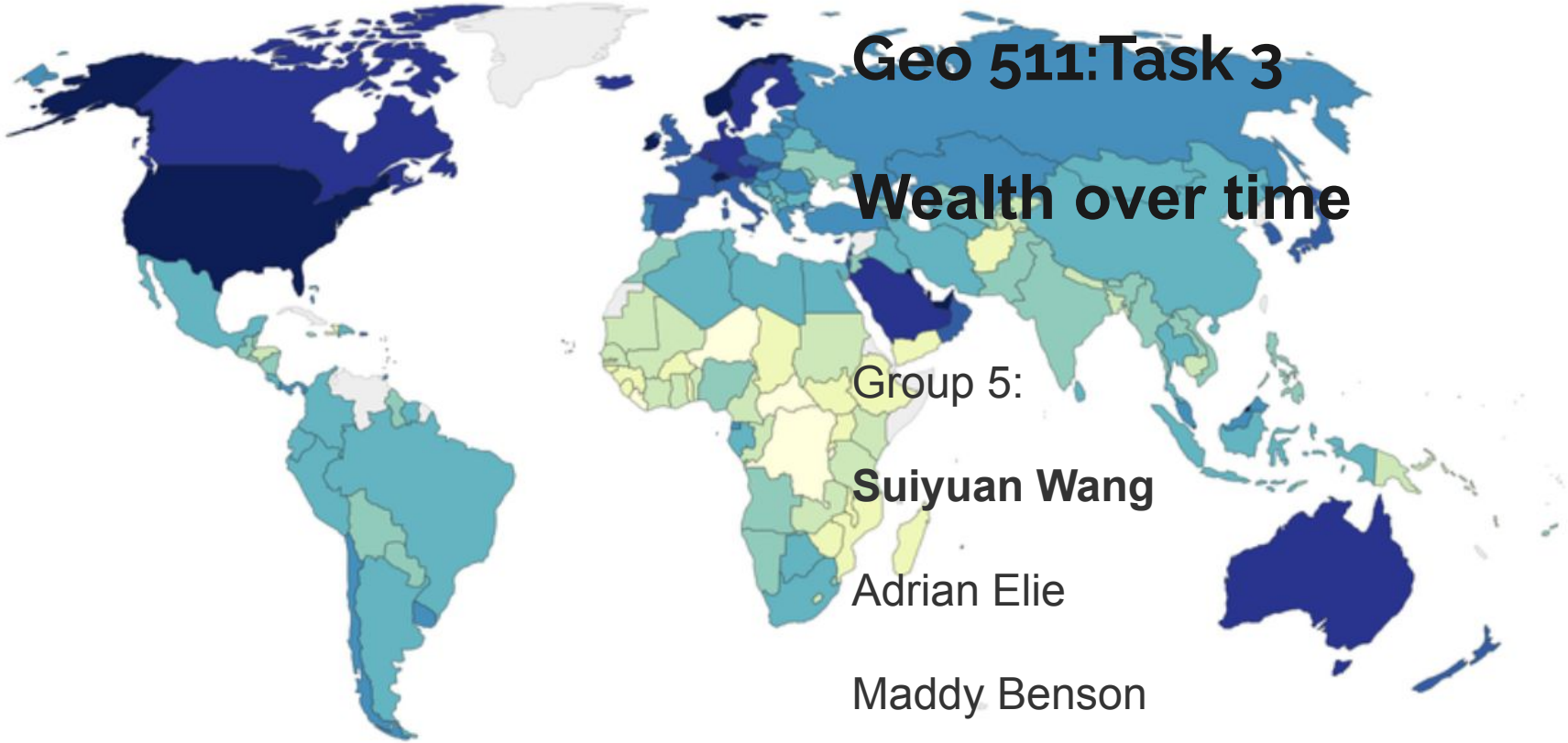

Geo 511:Task 3

Wealth over time

Group 5:

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Objectives

1. Explore the relationship between world wealth distribution and life expectancy through time.
2. Explore the detailed world wealth and population distribution through time.

Codes for Objective 1

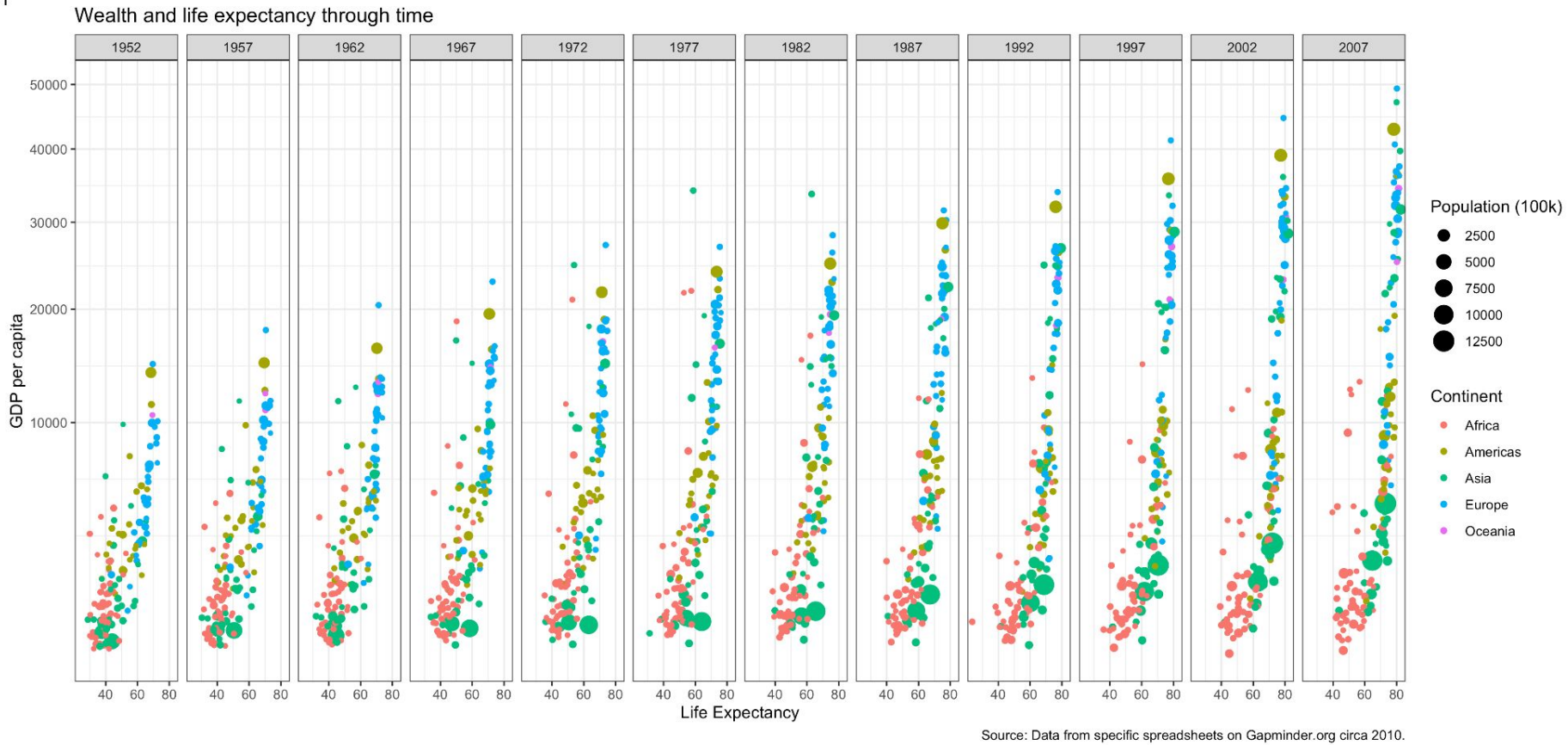
Explore the relationship between world wealth distribution and life expectancy through time.

Use filter() to remove “Kuwait” from the gapminder dataset

```
gapminder_without_Kuwait <- gapminder %>%
  filter(country != "Kuwait")
gapminder_without_Kuwait
```

```
# Plot #1 (the first row of plots)
p1 <- ggplot(gapminder_without_Kuwait, aes(x = lifeExp, y = gdpPercap)) +
  geom_point(aes(color = continent, size = pop/100000)) +
  scale_y_continuous(trans = "sqrt") +
  facet_wrap(~year,nrow=1) +
  theme_bw() +
  labs(title = "Wealth and life expectancy through time",
       tag = "Figure 1",
       caption = "Source: Data from specific spreadsheets on Gapminder.org circa 2010.",
       x = "Life Expectancy",
       y = "GDP per capita",
       size = "Population (100k)",
       color = "Continent")
p1
ggsave("p1.png", width = 15, units = "in")
```

Figure 1


Wealth and life expectancy through time
1952
1957
1962
1967
1972
1977
1982
1987
1992
1997
2002
2007
GDP per capita
50000
40000
30000
20000
10000
40
60
80
Life Expectancy
Population (100k)
2500
5000
7500
10000
12500
Continent
Africa
Americas
Asia
Europe
Oceania
Source: Data from specific spreadsheets on Gapminder.org circa 2010.

Codes for Objective 2

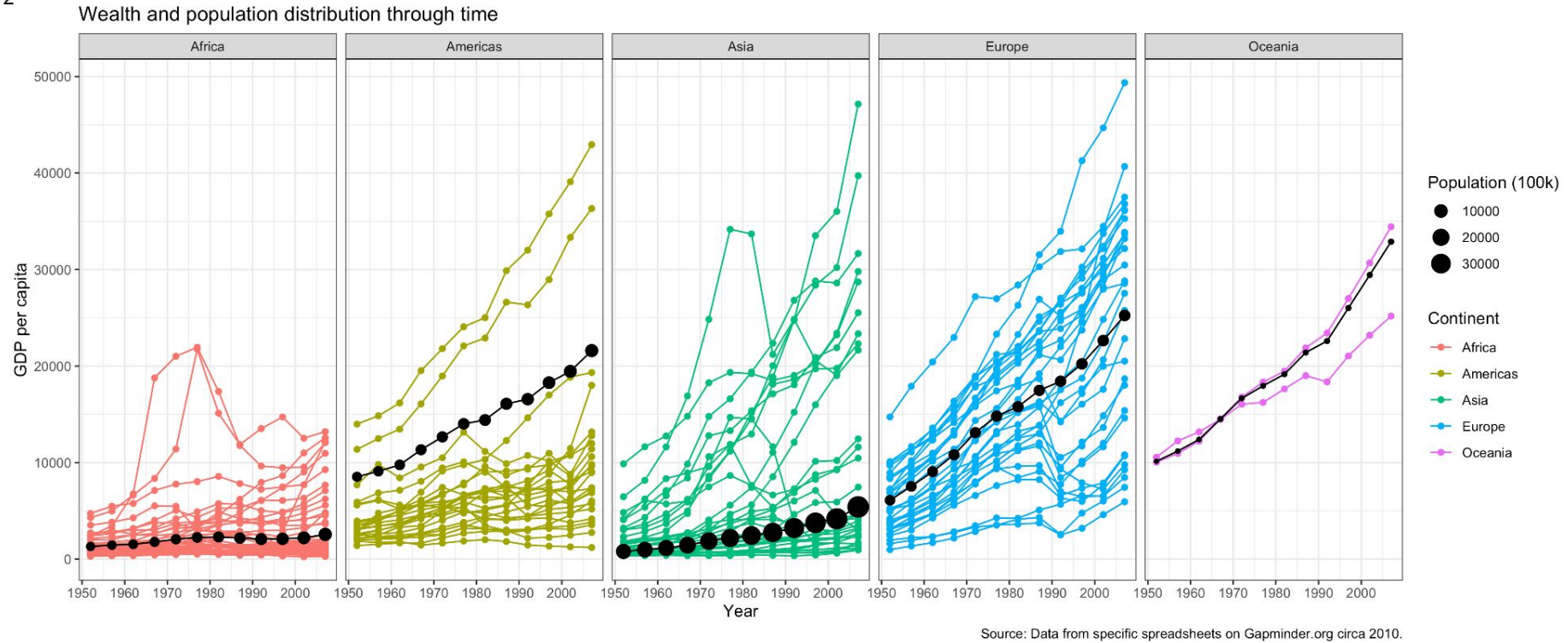
Explore the detailed world wealth and population distribution through time.

Prepare the data for the second plot

```
gapminder_continent <- gapminder_without_Kuwait %>%
  group_by(continent, year) %>%
  summarize(gdpPercapweighted = weighted.mean(x = gdpPercap, w = pop), pop = sum(as.numeric(pop)))
```

```
# plot2 (the second row of plots)
p2 <- ggplot(gapminder_without_Kuwait, aes(x = year, y = gdpPercap)) +
  geom_line(aes(color = continent, group = country)) +
  geom_point(aes(color = continent, group = country)) +
  #geom_point(data = gapminder_continent, aes(x = year, y = gdpPercapweighted)) +
  geom_line(data = gapminder_continent, aes(x = year, y = gdpPercapweighted)) +
  geom_point(data = gapminder_continent, aes(x = year, y = gdpPercapweighted, size = pop/100000)) +
  facet_wrap(~continent, nrow=1) +
  theme_bw() +
  labs(title = "Wealth and population distribution through time",
       tag = "Figure 2",
       caption = "Source: Data from specific spreadsheets on Gapminder.org circa 2010.",
       x = "Year",
       y = "GDP per capita",
       size = "Population (100k)",
       color = "Continent")
p2
ggsave("p2.png", width = 15, units = "in")
```

Figure 2


Wealth and population distribution through time
Africa
Americas
Asia
Europe
Oceania
GDP per capita
50000
40000
30000
20000
10000
0
1950
1960
1970
1980
1990
2000
Year
Population (100k)
10000
20000
30000
Continent
Africa
Americas
Asia
Europe
Oceania
Source: Data from specific spreadsheets on Gapminder.org circa 2010.