Economics Project PPT

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Running Code

When you click the **Render** button a document will be generated that includes both content and the output of embedded code. You can embed code like this:

```r
library(ggplot2)

library(dplyr)

library(gganimate)

# Unemployment data for Pakistan
unemployment_pak <- c(2.26, 2.42, 2.45, 1.61, 2.08, 3.75, 6.09, 7.23, 6.2,
4.86, 5.04, 5.28, 5.43, 5.12, 5, 5.32, 5.07, 4.47, 3.14, 3.069, 6.503,
11.595, 16.201, 16.426, 19.78, 15.572, 14.968, 13.215, 11.693, 12.49, 10.291,
10.423, 10.469, 10.358, 8.384, 7.719, 6.854, 6.369, 8.25, 8.394, 7.781,
7.689, 8.193, 8.663, 9.376, 8.818, 8.64, 7.361, 6.695, 7.759, 7.606, 6.719)

years_pak <- 1971:(1971 + length(unemployment_pak) - 1)

# Unemployment data for Finland
unemployment_fin <- c(2.09, 2.15, 2, 1.67, 1.7, 1.9, 1.9, 4.18, 4.12, 4.01,
3.82, 3.82, 4.3, 4.16, 3.97, 3.97, 3.05, 2.16, 2.03, 1.97, 5.85, 5.18, 4.28,
4.26, 5.03, 4.79, 5.81, 5.7, 5.35, 7.16, 6.88, 7.83, 7.49, 7.4, 7.05, 0.582,
0.398, 0.423, 0.535, 0.653, 0.796, 3.667, 2.954, 1.827, 3.566, 2.286, 4.083,
4.83, 6.338, 6.719)

years_fin <- 1971:(1971 + length(unemployment_fin) - 1)

# Filter the common years
common_years_unemployment <- intersect(years_pak, years_fin)

data_unemployment <- data.frame(years = common_years_unemployment,
                    unemployment_pak =
unemployment_pak[match(common_years_unemployment, years_pak)],
                    unemployment_fin =
unemployment_fin[match(common_years_unemployment, years_fin)])

ggplot(data_unemployment, aes(x = years)) +
  geom_line(aes(y = unemployment_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = unemployment_pak, color = "Pakistan"), size = 3) +
```

```
  geom_line(aes(y = unemployment_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = unemployment_fin, color = "Finland"), size = 3) +
  labs(title = "Unemployment Rate Comparison: Pakistan vs. Finland", x =
"Years", y = "Unemployment Rate (%)") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#F7E6FF")) +  # Light Gray background
  transition_reveal(years)
```


Unemployment Rate Comparison: Pakistan vs. Finland
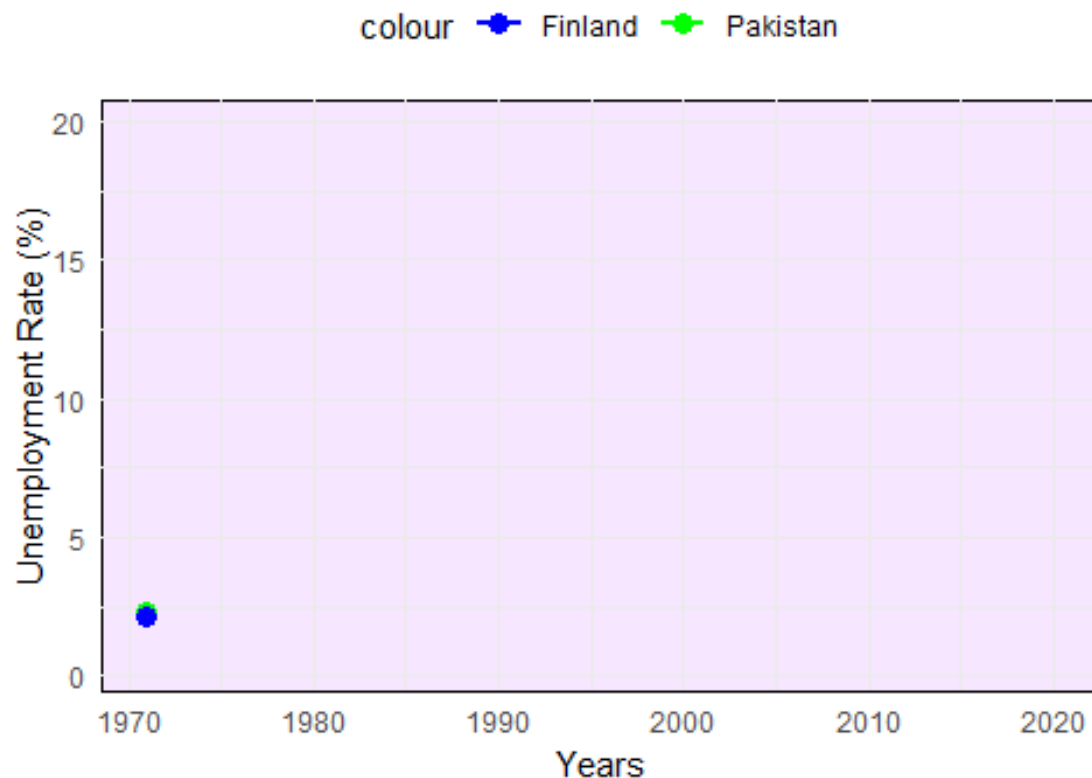
You can add options to executable code like this

```
library(ggplot2)
library(dplyr)
library(gganimate)
# Trade deficit data for Pakistan
trade_deficit_pak <- c(129440041.3, 220737202.1, 412028469.8, 392340075.4,
340278171.9, 466155371.8, 448862251.6, 407696188.1, 213026412.6, 495824324.7,
721498358.9, 968517412.7, 1972535047, 1035477000, 807449912.1, 709063740.8,
501874817.3, 394593909.4, 520537572, 295910500.6, 526524067, 850192500.7,
1196800785, 2929398397, 1732811460, 548285615.3, 1194844446, 1028001946,
1511368705, 1513347514, 3640025804, 8078289631, 10940965436, 9799027457,
10032828334, 11543115498, 14044024197, 7194233937, 11318242634, 14345903940,
```

```r
  14527990312, 10241503776, 5155988089, 11807078698, 17829731393, 19650422286,
  15764804402, 9174683599, 13421197226, 14591657230, 19028414245, 6159296212)

years_pak <- 1971:(1971 + length(trade_deficit_pak) - 1)

# Trade deficit data for Finland
trade_deficit_fin <- c(623132343.7, 667646121.4, 574282671, 595855017.6,
  433174187.1, 462113602.8, 531099281, 1222893499, 1539989015, 1870184504,
  1483688177, 1517500811, 1237729200, 2754270554, 3749916520, 1787135667,
  6417520762, 6369202833, 5111155526, 9644062660, 7608722368, 5213449147,
  5410778797, 10661974712, 10038336451, 6916261115, 8416628559, 9694481013,
  8219728947, 7976924083, 7983348163, 9284954098, 10514943632, 12221530497,
  10521093301, 6494233358, 7063149053, 6979372867, 9710584792, 7326737725,
  7857077418, 8453224912, 9369246806, 8773770780, 8341475637, 8654839380,
  8458376392, 8284157187, 9020281293, 10492037777, 13875628703, 13180100339)

years_fin <- 1971:(1971 + length(trade_deficit_fin) - 1)

# Filter the common years
common_years_trade_deficit <- intersect(years_pak, years_fin)

data_trade_deficit <- data.frame(
  years = common_years_trade_deficit,
  trade_deficit_pak = trade_deficit_pak[match(common_years_trade_deficit,
years_pak)],
  trade_deficit_fin = trade_deficit_fin[match(common_years_trade_deficit,
years_fin)]
)

ggplot(data_trade_deficit, aes(x = years)) +
  geom_line(aes(y = trade_deficit_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = trade_deficit_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = trade_deficit_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = trade_deficit_fin, color = "Finland"), size = 3) +
  labs(title = "Trade Deficit Comparison: Pakistan vs. Finland", x = "Years",
y = "Trade Deficit") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#F7E6FF")) +
  transition_reveal(years)
```
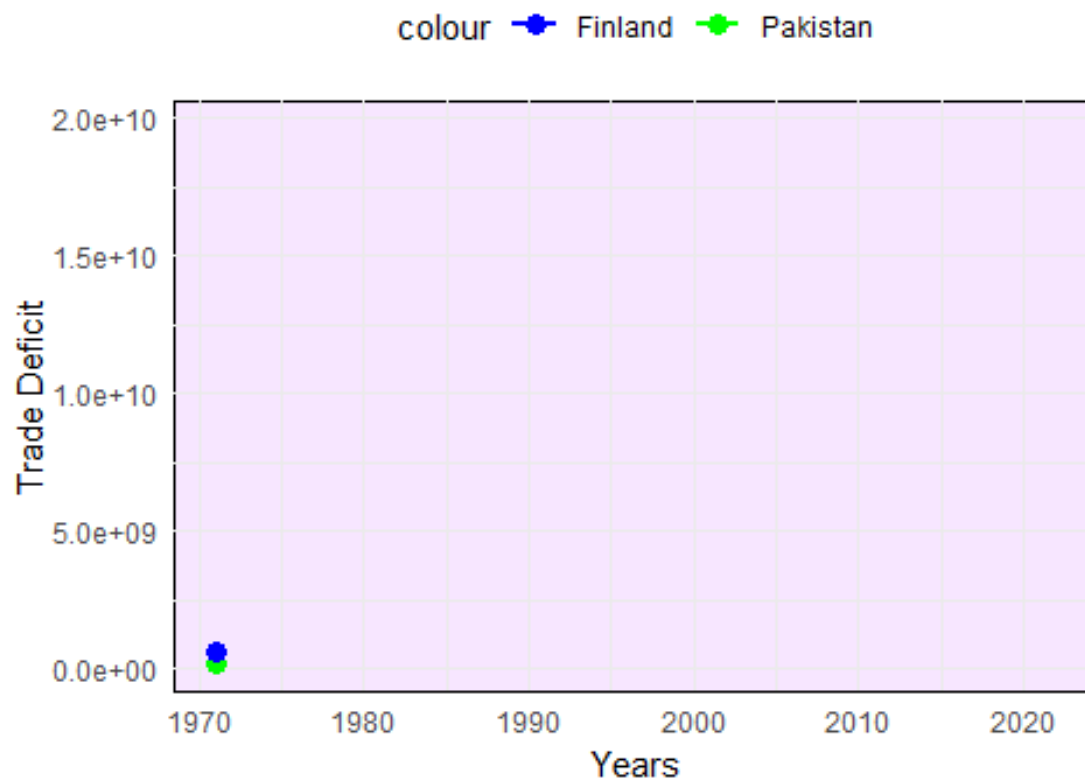
Trade Deficit Comparison: Pakistan vs. Finland

colour —•— Finland —•— Pakistan


```r
library(ggplot2)
library(dplyr)
library(gganimate)
# Inflation data for Pakistan
inflation_pak <- c(3.05, 3.21, 3.95, 5.01, 6.05, 6.49, 7.14, 7.58, 8.21,
9.19, 10.28, 10.89, 11.58, 12.29, 12.98, 13.43, 14.06, 15.30, 16.50, 18.00,
20.12, 22.03, 24.23, 27.23, 30.59, 33.76, 37.60, 39.94, 41.60, 43.41, 44.78,
46.25, 47.60, 51.14, 55.78, 60.20, 64.77, 77.91, 88.54, 100.00, 111.92,
122.75, 132.19, 141.70, 145.28, 150.75, 156.91, 164.88, 182.32, 200.08,
219.08, 262.62)

years_pak <- 1971:(1971 + length(inflation_pak) - 1)

# Inflation data for Finland
inflation_fin <- c(14.02, 14.96, 16.57, 19.37, 22.82, 26.10, 29.18, 31.45,
33.80, 37.72, 41.98, 46.01, 49.86, 53.38, 56.15, 57.80, 60.18, 63.24, 67.41,
71.55, 74.64, 76.82, 78.50, 79.35, 79.98, 80.48, 81.44, 82.58, 83.54, 86.08,
88.30, 89.69, 90.48, 90.65, 91.21, 92.64, 94.97, 98.83, 98.83, 100.00,
103.42, 106.32, 107.89, 109.02, 108.79, 109.18, 110.00, 111.19, 112.33,
112.66, 115.13, 123.33)

years_fin <- 1971:(1971 + length(inflation_fin) - 1)
```

```
# Filter the common years
common_years_inflation <- intersect(years_pak, years_fin)

data_inflation <- data.frame(years = common_years_inflation,
                             inflation_pak =
inflation_pak[match(common_years_inflation, years_pak)],
                             inflation_fin =
inflation_fin[match(common_years_inflation, years_fin)])

ggplot(data_inflation, aes(x = years)) +
  geom_line(aes(y = inflation_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = inflation_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = inflation_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = inflation_fin, color = "Finland"), size = 3) +
  labs(title = "Inflation Rate Comparison: Pakistan vs. Finland", x =
"Years", y = "Inflation Rate (%)") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#E6F7FF")) +
  transition_reveal(years)
```

Inflation Rate Comparison: Pakistan vs. Finland
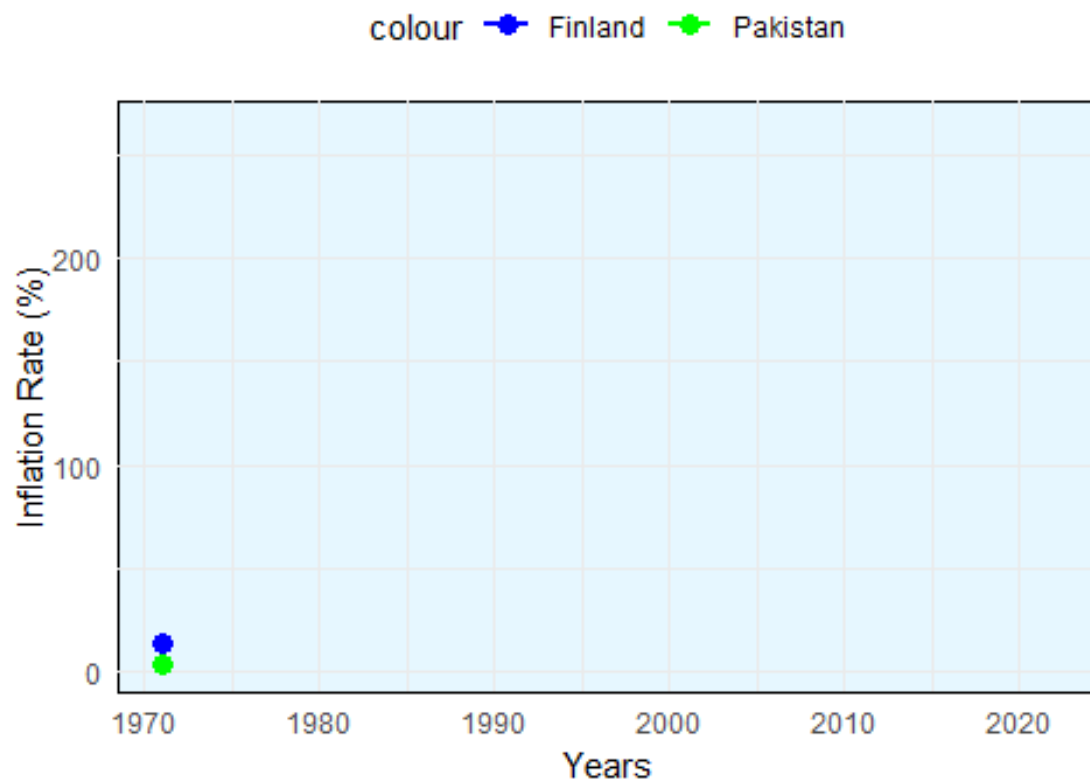
```r
library(ggplot2)
library(dplyr)
library(gganimate)
# Import data for Pakistan
import_pak <- c(1117807644, 814017565, 907783978.1, 1535555556, 2324848485,
2409494949, 2701111111, 3292929293, 4295858586, 5512929293, 6275656566,
6492985782, 6458110236, 6843425349, 7040171504, 6415065096, 6366035537,
7473483338, 8174710143, 8100453419, 8434875711, 9984113697, 11552190707,
9883122490, 11777213240, 13567628711, 12967600154, 10900343052, 10684436463,
11769393573, 12581363793, 11619632998, 14030220249, 17697602918, 25595408170,
33184878526, 35286554453, 45441535498, 39220849369, 38066805527, 43534938844,
48633321047, 48401947685, 49596211161, 50134755424, 50070597552, 58514392790,
67821962097, 62624560742, 52327295783, 62659184537, 84315687274)

years_pak <- 1971:(1971 + length(import_pak) - 1)

# Import data for Finland
import_fin <- c(3116111111, 3558591913, 4849296717, 7338853001, 8310974624,
8192029543, 8555407998, 8979061372, 12688139215, 17233025183, 15896941306,
15153570988, 14637062340, 14340126632, 15264773599, 17894675111, 22422561883,
26449182658, 29576001108, 33514227958, 28389942655, 27792673215, 23895076507,
29329538987, 37987472767, 38849339891, 38637040431, 39579439252, 38733513445,
41414786698, 39524131051, 42352247165, 52757320690, 63874383958, 74385401475,
84467899655, 1.00068E+11, 1.17956E+11, 86296583224, 92411731683, 1.09358E+11,
1.04252E+11, 1.06038E+11, 1.03434E+11, 84375126793, 86889680552, 95877171128,
1.09521E+11, 1.06667E+11, 97093522437, 1.1694E+11, 1.34914E+11)

years_fin <- 1971:(1971 + length(import_fin) - 1)

# Filter the common years
common_years_import <- intersect(years_pak, years_fin)

data_import <- data.frame(years = common_years_import,
                          import_pak = import_pak[match(common_years_import,
years_pak)],
                          import_fin = import_fin[match(common_years_import,
years_fin)])

ggplot(data_import, aes(x = years)) +
  geom_line(aes(y = import_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = import_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = import_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = import_fin, color = "Finland"), size = 3) +
  labs(title = "Import Comparison: Pakistan vs. Finland", x = "Years", y =
"Import Amount") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
```
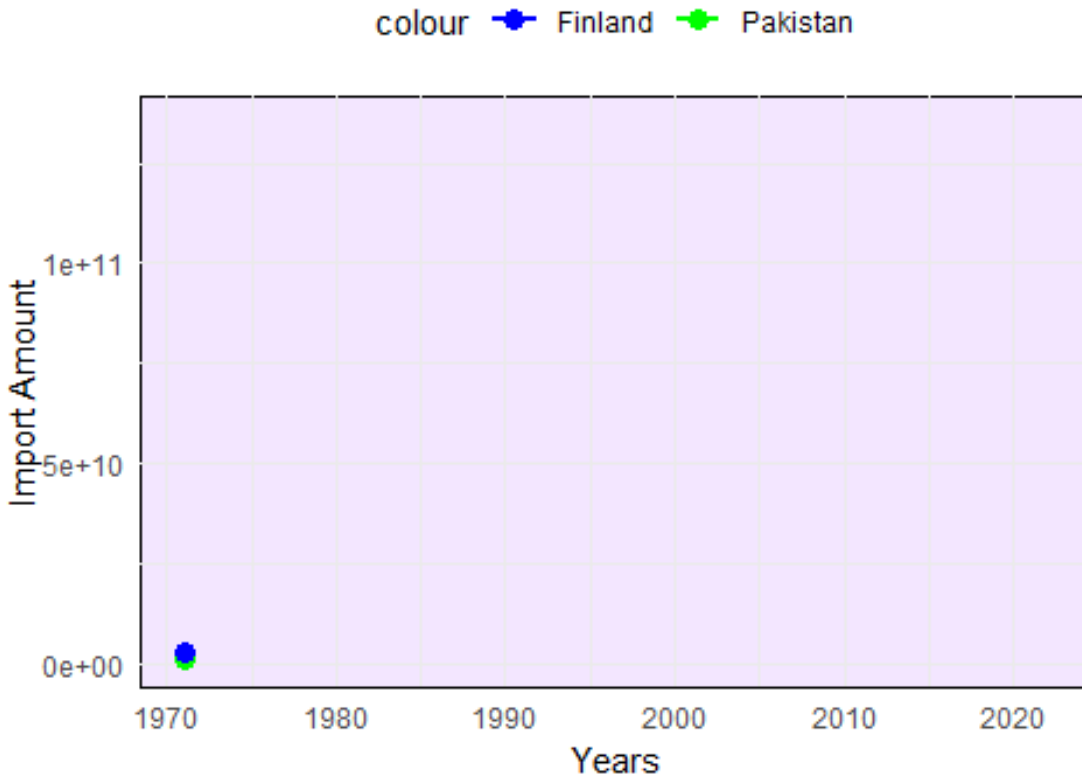
```
"#F3E6FF")) +
  transition_reveal(years)
```

Import Comparison: Pakistan vs. Finland

colour ━━ Finland ━━ Pakistan


```
library(ggplot2)
library(dplyr)
library(gganimate)
# GDP per capita data for Pakistan
gdp_pak <- c(-2.152156811, -1.816669331, 4.106332712, 0.623272128,
1.186000345, 2.006001303, 0.762338883, 4.670487814, 0.249198303, 5.818348808,
3.25132238, 2.221561385, 2.965681287, 1.797705947, 4.138315668, 1.834970708,
2.74307172, 3.920326229, 1.479718397, 1.070266491, 1.721644178, 4.914473074,
-0.812757165, 0.768829473, 1.909286568, 1.700962519, -1.912790954, -
0.372285231, 0.739013701, 1.102322127, 0.495411848, 0.052876798, 3.118745379,
5.447802213, 4.985829705, 3.849318916, 2.2318834, -0.080584206, 1.191497907,
-0.759129914, 0.535424529, 1.191726852, 2.775116261, 2.659526508,
2.875424595, 5.298324299, 3.05478922, 4.532445206, 0.862674222, -2.97029465,
4.578160431, 2.742112345)

years_pak <- 1971:(1971 + length(gdp_pak) - 1)

# GDP per capita data for Finland
gdp_fin <- c(2.227824609, 7.096153516, 6.377978811, 2.697457779, 1.354025294,
0.042351174, -0.040505648, 2.624625735, 6.848494759, 5.061714695,
```

```
0.884671018, 2.532004036, 2.503843385, 2.687519899, 3.117925686, 2.422429813,
3.28147645, 4.9117397, 4.708443331, 0.224909953, -6.398949439, -3.836533052,
-1.141488063, 3.515885274, 3.819876288, 3.327669342, 6.018052758, 5.17759148,
4.137574737, 5.553997853, 2.37665487, 1.460928622, 1.76083857, 3.690587797,
2.428689227, 3.628941348, 4.852313276, 0.315886377, -8.513028487,
2.714966735, 2.073396315, -1.865591174, -1.357215611, -0.776108383,
0.21302942, 2.516379895, 2.950531373, 1.00565417, 1.113269092, -2.495122968,
2.957288554, 1.325876786)

years_fin <- 1971:(1971 + length(gdp_fin) - 1)

# Filter the common years
common_years_gdp <- intersect(years_pak, years_fin)

data_gdp <- data.frame(years = common_years_gdp,
                       gdp_pak = gdp_pak[match(common_years_gdp, years_pak)],
                       gdp_fin = gdp_fin[match(common_years_gdp, years_fin)])

ggplot(data_gdp, aes(x = years)) +
  geom_line(aes(y = gdp_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = gdp_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = gdp_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = gdp_fin, color = "Finland"), size = 3) +
  labs(title = "GDP Per Capita Comparison: Pakistan vs. Finland", x =
"Years", y = "GDP Per Capita") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#F7E6FF")) +  # Light Lavender
  transition_reveal(years)
```
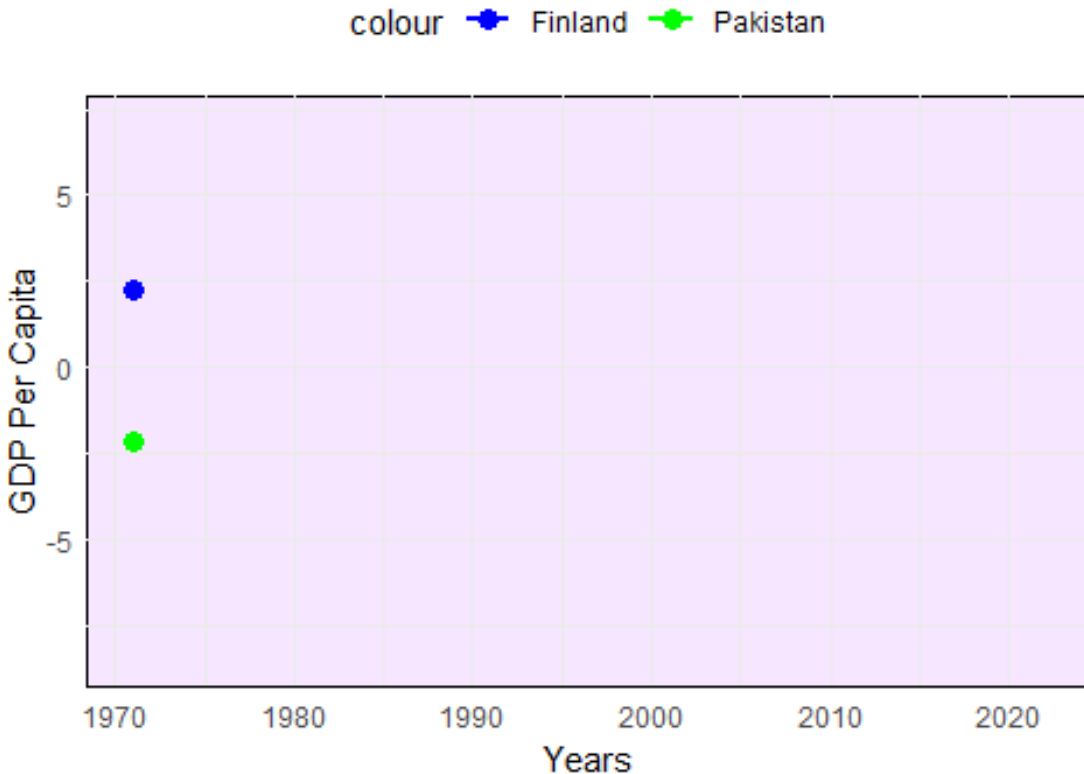
GDP Per Capita Comparison: Pakistan vs. Finland

colour ━●━ Finland ━●━ Pakistan


```
library(ggplot2)
library(dplyr)
library(gganimate)
# GDP data for Pakistan
gdp_pak <- c(0.468372549, 0.813406405, 7.064263857, 3.540191713, 4.211415631,
5.15618959, 3.947698287, 8.048533619, 3.758435569, 10.21570404, 7.920763572,
6.5374868, 6.778378339, 5.065205605, 7.592114699, 5.501653664, 6.452343025,
7.62527878, 4.959768894, 4.458586815, 5.061567759, 7.705897817, 1.757747698,
3.737415558, 4.962609146, 4.846581287, 1.014396011, 2.550234298, 3.66013274,
4.260088011, 3.651350171, 2.594816684, 5.401310873, 7.83125557, 7.276574436,
6.051637676, 4.44481434, 2.120441043, 3.472550596, 1.501717522, 2.680116854,
3.027583911, 4.36686505, 4.116428172, 4.217942096, 6.573838285, 4.432625907,
6.151702611, 2.497636929, -1.274087443, 6.513885759, 4.705802952)

years_pak <- 1971:(1971 + length(gdp_pak) - 1)

# GDP data for Finland
gdp_fin <- c(2.356921358, 7.735485502, 6.983827845, 3.23653304, 1.804898277,
0.344382485, 0.239510829, 2.919707412, 7.121926371, 5.38904788, 1.315878854,
3.108088693, 3.116581514, 3.237691996, 3.548896587, 2.755633459, 3.574826138,
5.217150323, 5.087143674, 0.670275844, -5.886328069, -3.294660066, -
0.66199803, 3.963052424, 4.21686747, 3.66717983, 6.333795654, 5.457180501,
4.379575723, 5.773362458, 2.610019124, 1.707148962, 2.003784203, 3.99209129,
```

```
2.779850556, 4.027409658, 5.299336507, 0.783995061, -8.074447432,
3.185958654, 2.547664838, -1.397545728, -0.901696316, -0.364908157,
0.543659212, 2.811457767, 3.19240963, 1.139718013, 1.224748922, -2.354965157,
3.17092862, 1.601801973)

years_fin <- 1971:(1971 + length(gdp_fin) - 1)

# Filter the common years
common_years_gdp <- intersect(years_pak, years_fin)

data_gdp <- data.frame(years = common_years_gdp,
                       gdp_pak = gdp_pak[match(common_years_gdp, years_pak)],
                       gdp_fin = gdp_fin[match(common_years_gdp, years_fin)])

ggplot(data_gdp, aes(x = years)) +
  geom_line(aes(y = gdp_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = gdp_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = gdp_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = gdp_fin, color = "Finland"), size = 3) +
  labs(title = "GDP Comparison: Pakistan vs. Finland", x = "Years", y =
"GDP") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#FFF6E1")) +
  transition_reveal(years)
```
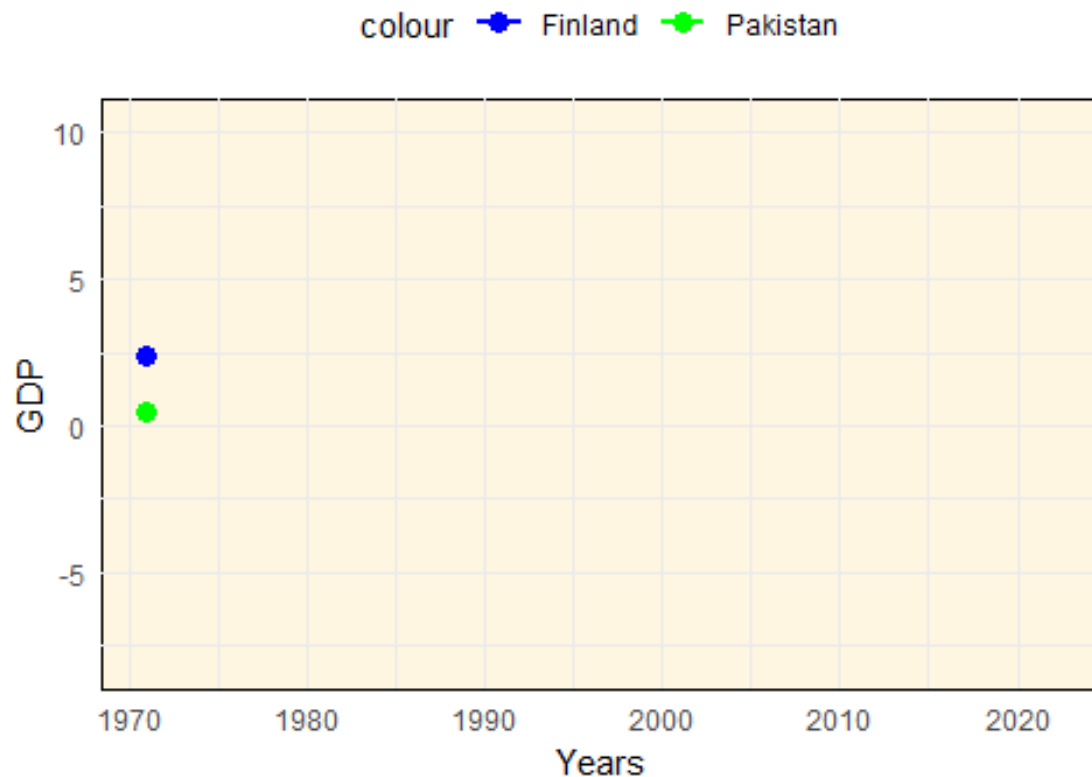
GDP Comparison: Pakistan vs. Finland


```r
library(ggplot2)
library(dplyr)
library(gganimate)
# FDI data for Pakistan
fdi_pak <- c(NA,NA,NA,NA,NA, -8220530.168, -15223204.01, -32273192.51, -
58254127.36, -63632992.78, -108084748.5, -63833091.62, -29457026.66, -
60194580.19, -139255277.3, -106379985.3, -110150687.4, -173750062.2, -
167516908.3, -243314680.5, -262151741.8, -348059754.4, -350710419.2, -
420058004.5, -722221107.4, -915190761.1, -740567596.3, -456000000, -
511000000, -297000000, -352000000, -795000000, -515000000, -1062000000, -
2156000000, -4164000000, -5492000000, -5389000000, -2267000000, -1975000000,
-1264000000, -782000000, -1121000000, -1765000000, -1648000000, -2524000000,
-2444000000, -1758000000, -2319000000, -2102000000, -1905000000, -258000000)

years_pak <- 1971:(1971 + length(fdi_pak) - 1)

# FDI data for Finland
fdi_fin <- c(NA,NA, NA,NA, -42292963.9, -27463695.76, 24131108.63,
28728605.03, 97495345.73, 108818294.6, 29255695.06, 77244991.28, 54096748.52,
355984920.6, 235397815.3, 412669145.2, 876358534.7, 2092310899, 2477861223,
1970007773, 112918831.7, -1153411829, 537946749.4, 2858035863, 450056527.3,
2464656102, 3131691250, 6668965419, 2088623911, 14780179940, 4721635281, -
756942688, -5756624401, -4017927073, -393671434.5, -2837996225, -5459866277,
```

```
10751439982, 4920533661, 2766046760, 2457167886, 3444014950, -2236027725, -
17108721388, -18241204965, 15487777452, -3464257880, 13725083435, -
8568455133, 7447437564, -4364887160, 7378497425)

years_fin <- 1971:(1971 + length(fdi_fin) - 1)

# Filter the common years
common_years_fdi <- intersect(years_pak, years_fin)

data_fdi <- data.frame(
  years = common_years_fdi,
  fdi_pak = fdi_pak[match(common_years_fdi, years_pak)],
  fdi_fin = fdi_fin[match(common_years_fdi, years_fin)]
)

ggplot(data_fdi, aes(x = years)) +
  geom_line(aes(y = fdi_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = fdi_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = fdi_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = fdi_fin, color = "Finland"), size = 3) +
  labs(title = "Foreign Direct Investment (FDI) Comparison: Pakistan vs.
Finland", x = "Years", y = "FDI") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#E6F7FF")) +
  transition_reveal(years)
```
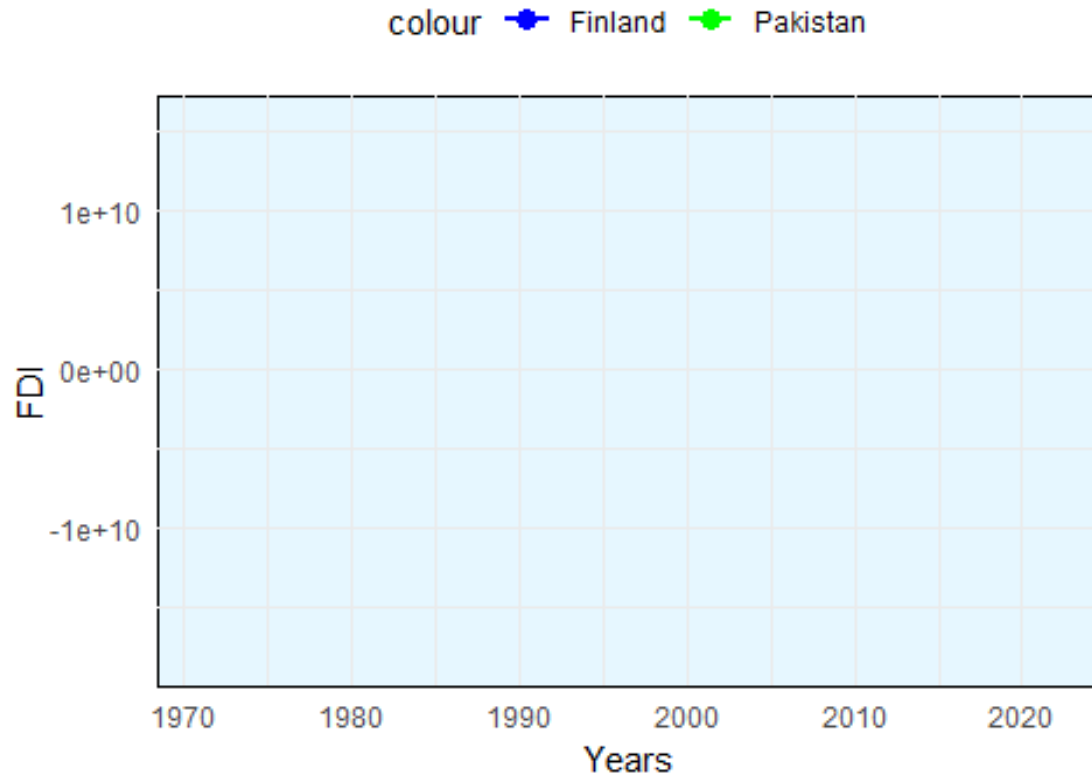
Foreign Direct Investment (FDI) Comparison: Pakist;

colour ✛ Finland ✛ Pakistan


```r
library(ggplot2)
library(dplyr)
library(gganimate)
# Fiscal deficit data for Pakistan
fiscal_deficit_pak <- c(1106677866, 1115550198, 730540054.9, 862525252.5,
1207070707, 1448787879, 1688282828, 1930909091, 2054444444, 2377272727,
2856161616, 3177440758, 3276062992, 3765286435, 3768205805, 4070799752,
4513952811, 5967188835, 6742683749, 6056280092, 6507846744, 6277807436,
6745658216, 6286198447, 7120811699, 8006898946, 7425553372, 7005367591,
6524154507, 9864933559, 8408639643, 9428613186, 10935154516, 12807486538,
13302492015, 18726239045, 19155245719, 21397392340, 21597843520, 21478245091,
23581137427, 25259040063, 26537730183, 27213344332, 29363323633, 33272868243,
36477283976, 39151397442, 34496976223, 35416575957, 38091362850, 39333194497)

years_pak <- 1971:(1971 + length(fiscal_deficit_pak) - 1)

# Fiscal deficit data for Finland
fiscal_deficit_fin <- c(1875737425, 2226118440, 2883270577, 3736588940,
4985248101, 5699006001, 6156116276, 6548544404, 7824744314, 9499521836,
9621107743, 9745898606, 9577284372, 10020775623, 11010168841, 14655172414,
18606790207, 21384506041, 23107939587, 29517959882, 30555800618, 27312184762,
20787967107, 23134889015, 29380446623, 29279057727, 27047302714, 27577881620,
27404309804, 24872885945, 25810251725, 28961977638, 36212968795, 41834922712,
```

```
43869111184, 46285139432, 53241701345, 61614358852, 61010572698, 59079237533,
64384890224, 62240302420, 66582541660, 67361632269, 57189841947, 56993334377,
58255398908, 63140913821, 62264052761, 65935554781, 72953787806, 68066957872)

years_fin <- 1971:(1971 + length(fiscal_deficit_fin) - 1)

# Filter the common years
common_years_fiscal_deficit <- intersect(years_pak, years_fin)

data_fiscal_deficit <- data.frame(
  years = common_years_fiscal_deficit,
  fiscal_deficit_pak = fiscal_deficit_pak[match(common_years_fiscal_deficit,
years_pak)],
  fiscal_deficit_fin = fiscal_deficit_fin[match(common_years_fiscal_deficit,
years_fin)]
)

ggplot(data_fiscal_deficit, aes(x = years)) +
  geom_line(aes(y = fiscal_deficit_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = fiscal_deficit_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = fiscal_deficit_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = fiscal_deficit_fin, color = "Finland"), size = 3) +
  labs(title = "Fiscal Deficit Comparison: Pakistan vs. Finland", x =
"Years", y = "Fiscal Deficit") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#E1F7EC")) +
  transition_reveal(years)
```
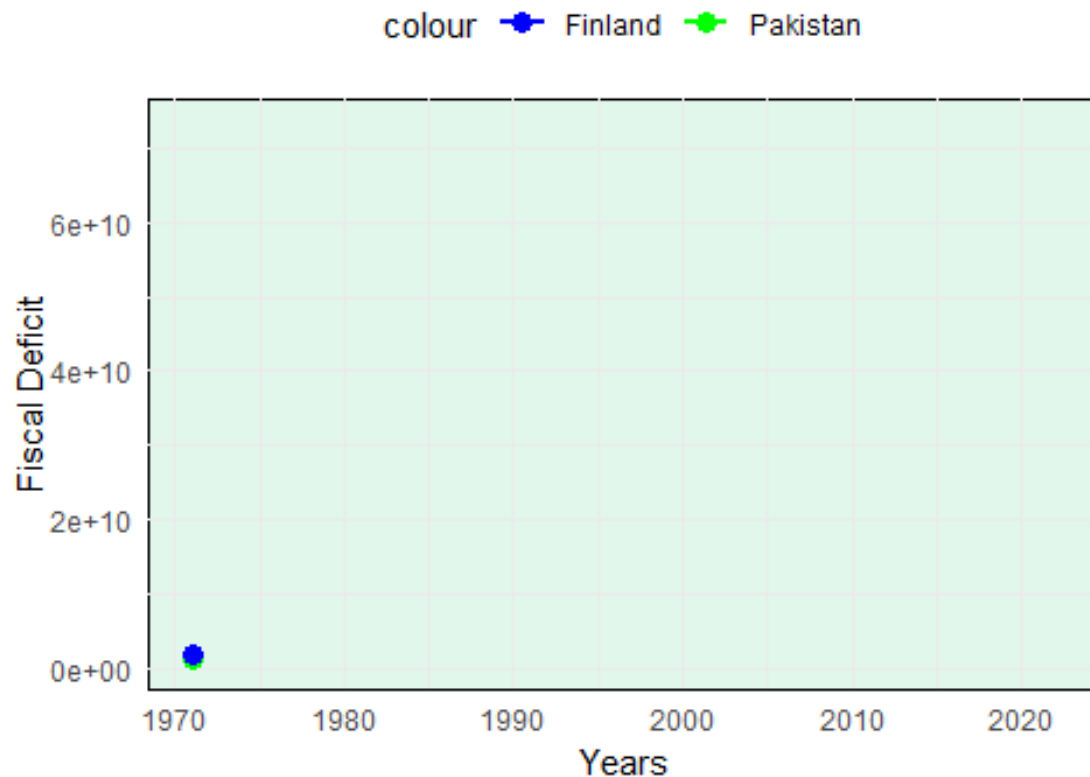
Fiscal Deficit Comparison: Pakistan vs. Finland


```
library(ggplot2)
library(dplyr)
library(gganimate)
# Export data for Pakistan
exports_pak <- c(823603527.9, 675563974.5, 942116712.4, 1208080808,
1312525253, 1402121212, 1413232323, 1679696970, 2174646465, 2978282828,
3606767677, 3131090047, 3495669291, 3549643811, 3290831135, 3922380657,
4605651034, 5331871262, 5652851126, 5917028935, 7725461182, 8442738387,
8394305117, 8449778027, 10132269179, 10703072794, 10040500611, 10252214044,
9668690721, 9580014496, 10322861560, 11029067879, 13669643162, 15103005037,
17790729410, 20313148425, 21406516454, 24013350068, 23212999517, 24858631876,
31088962295, 29697606560, 31497982535, 30382089108, 29920081363, 27400966312,
27888164550, 30562205969, 30136170157, 27935252708, 31546334470, 39515651442)

years_pak <- 1971:(1971 + length(exports_pak) - 1)

# Export data for Finland
exports_fin <- c(2827196647, 3487225409, 4596304652, 6381402237, 6523355423,
7499615325, 8995130589, 10101083032, 13152190505, 16534905961, 16409479195,
15244850130, 14631725021, 15594578552, 15638910207, 18858784893, 22897335317,
26071073205, 27400581959, 31323277873, 27176885752, 28745686222, 27996252732,
35158793398, 47992919390, 47988609889, 47944107204, 50182465510, 50865246751,
52967332461, 51507654130, 54947289188, 64062137649, 76257431519, 82514287315,
```

```r
93509466784, 1.1236E+11, 1.28287E+11, 91464252097, 95814846367, 1.07211E+11,
1.00238E+11, 1.03166E+11, 1.00274E+11, 83041492299, 83813596801, 95994657971,
1.06062E+11, 1.07086E+11, 97301402129, 1.17039E+11, 1.2815E+11)

years_fin <- 1971:(1971 + length(exports_fin) - 1)

# Filter the common years
common_years_exports <- intersect(years_pak, years_fin)

data_exports <- data.frame(years = common_years_exports,
                           exports_pak =
exports_pak[match(common_years_exports, years_pak)],
                           exports_fin =
exports_fin[match(common_years_exports, years_fin)])

ggplot(data_exports, aes(x = years)) +
  geom_line(aes(y = exports_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = exports_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = exports_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = exports_fin, color = "Finland"), size = 3) +
  labs(title = "Export Comparison: Pakistan vs. Finland", x = "Years", y =
"Export Amount") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#FFD8D8")) +
  transition_reveal(years)
```
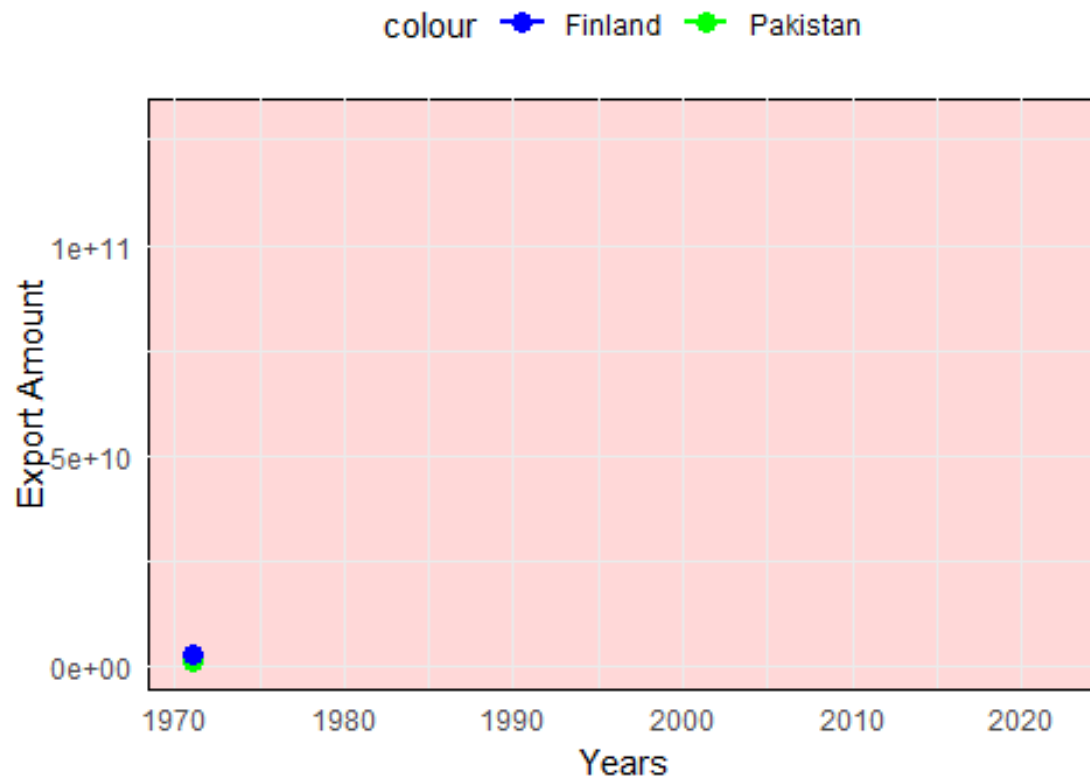
Export Comparison: Pakistan vs. Finland

colour ← Finland ← Pakistan


```r
library(ggplot2)
library(dplyr)
library(gganimate)
# Debt data for Finland
debt_finland <- c(
  2367, 2913, 3837, 5490, 5502, 6342, 7665, 8570, 11172, 14150,
  14005, 13088, 12518, 13472, 13617, 16356, 20037, 21748, 23298,
  26571, 23080, 23981, 23495, 29703, 40490, 41124, 41471, 43752,
  42243, 46102, 43237, 45145, 53171, 61520, 65433, 77289, 90089,
  96839, 62893, 69488, 79145, 73116, 74445, 74333, 59818, 57907,
  68074, 75870, 73469, 66221, 81996
)

years_finland <- 1971:(1971 + length(debt_finland) - 1)

# Debt data for Pakistan
debt_pakistan <- c(
  19938.15, 17284.48, 20986.31, 25178.08, 24418.19, 25022.93,
  24515.38, 21890.75, 20355.19, 21477.01, 23344.41, 23268.40,
  21951.06
)

years_pakistan <- 2008:(2008 + length(debt_pakistan) - 1)
```

```
# Filter the common years
common_years_debt <- intersect(years_pakistan, years_finland)

data_debt <- data.frame(
  years = common_years_debt,
  debt_pakistan = debt_pakistan[match(common_years_debt, years_pakistan)],
  debt_finland = debt_finland[match(common_years_debt, years_finland)]
)

ggplot(data_debt, aes(x = years)) +
  geom_line(aes(y = debt_pakistan, color = "Pakistan"), size = 1) +
  geom_point(aes(y = debt_pakistan, color = "Pakistan"), size = 3) +
  geom_line(aes(y = debt_finland, color = "Finland"), size = 1) +
  geom_point(aes(y = debt_finland, color = "Finland"), size = 3) +
  labs(title = "Debt Comparison: Pakistan vs. Finland", x = "Years", y =
"Debt Amount (US$)") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#E1F7EC")) +
  transition_reveal(years)
```


Debt Comparison: Pakistan vs. Finland
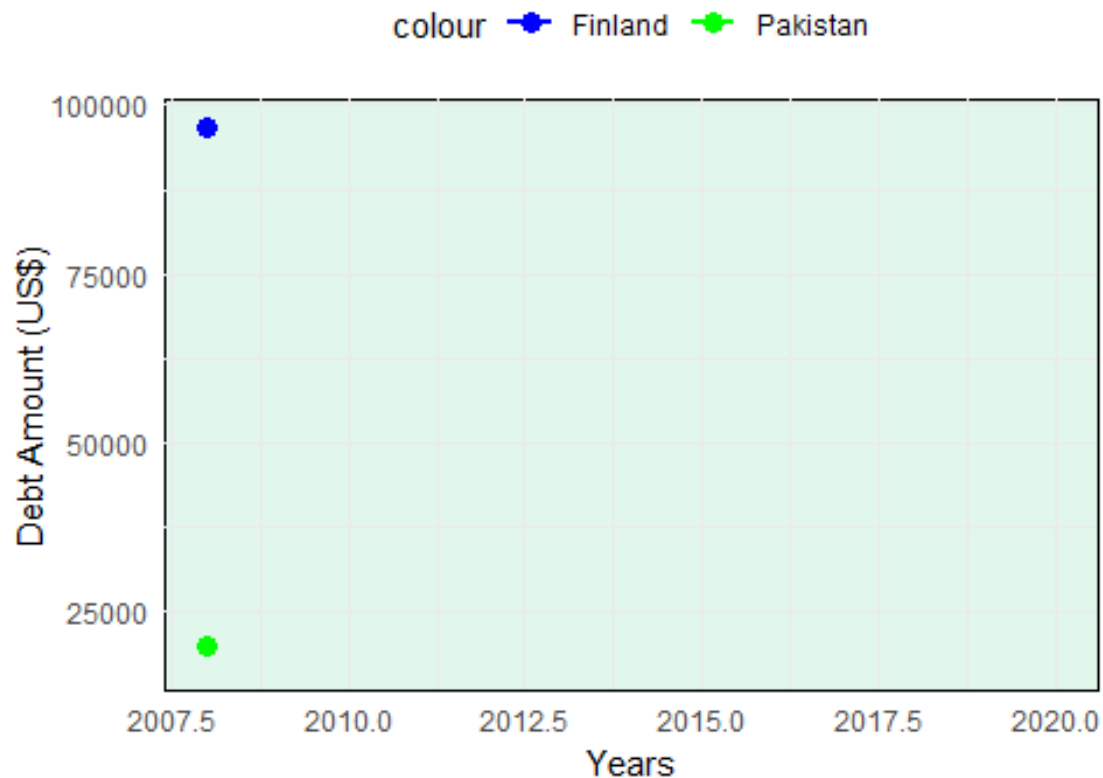
```r
library(ggplot2)
library(dplyr)
library(gganimate)
# Balance of payment data for Pakistan
bop_pak <- c(2202.09, 2499.24, 3236.25, 4309.38, 5470.41, 5682.52, 5770.83,
5618.27, 6263.36, 5905.89, 5999.17, 6283.34, 7130.85, 7400.90, 8132.50,
8683.28, 9716.53, 9379.89, 9355.28, 11247.76, 12163.73, 10750.18, 9834.00,
9520.00, 9896.00, 9741.00, 10428.00, 11978.00, 16643.00, 21683.20, 26597.00,
28639.00, 38132.00, 28536.00, 32843.00, 38995.00, 40385.00, 41214.00,
42675.00, 39815.00, 42200.00, 52757.00, 56753.00, 47681.00, 44113.00,
65927.00, 65696.00)

years_pak <- 1976:(1976 + length(bop_pak) - 1)

# Balance of payment data for Finland
bop_fin <- c(5508.47, 6294.64, 7609.27, 8503.56, 11099.78, 14069.60,
13661.61, 12841.86, 12172.12, 13086.77, 13351.14, 16030.89, 19107.72,
21851.47, 22921.23, 26139.23, 22760.61, 23815.42, 23366.65, 29544.03,
39785.14, 39959.40, 40426.24, 42040.12, 41228.68, 45051.99, 42362.13,
48006.72, 55564.83, 65704.64, 70041.74, 81902.89, 98615.71, 105433.84,
71766.07, 75038.96, 83030.37, 76760.16, 77796.80, 74459.46, 58806.70,
58351.64, 67198.32, 74302.41, 72690.21, 67416.39, 82912.15, 93058.31)

years_fin <- 1975:(1975 + length(bop_fin) - 1)

# Filter the common years
common_years_bop <- intersect(years_pak, years_fin)

data_bop <- data.frame(
  years = common_years_bop,
  bop_pak = bop_pak[match(common_years_bop, years_pak)],
  bop_fin = bop_fin[match(common_years_bop, years_fin)]
)

ggplot(data_bop, aes(x = years)) +
  geom_line(aes(y = bop_pak, color = "Pakistan"), size = 1) +
  geom_point(aes(y = bop_pak, color = "Pakistan"), size = 3) +
  geom_line(aes(y = bop_fin, color = "Finland"), size = 1) +
  geom_point(aes(y = bop_fin, color = "Finland"), size = 3) +
  labs(title = "Balance of Payments Comparison: Pakistan vs. Finland", x =
"Years", y = "Balance of Payments") +
  scale_color_manual(values = c("Pakistan" = "green", "Finland" = "blue")) +
  theme_minimal() +
  theme(legend.position = "top", panel.background = element_rect(fill =
"#E1F7EC")) +
  transition_reveal(years)
```

Balance of Payments Comparison: Pakistan vs. Fin