

# Adolescent Birth Rate vs. Birth Reg - UNFPA Regions

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# Load WPP Age Specific Fertility & UNICEF Birth Registration Data
br_uni <- read_excel("./Ado BR/WPP2019_FERT_F07_AGE_SPECIFIC_FERTILITY.xlsx",
                    skip = 16)
birt_cert_uni <- read_excel("./Ado BR/Birth_registration_database_June-2020.xlsx",
                           skip = 9, n_max = 203)
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# Load UNPA Countries + Regions Lookup
lookup_table_all <-
  as_tibble(read_excel("UNFPA_countries.xlsx"))
```

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# Clean Adolescent Birth Rate (WPP)
ado_br_uni_clean <-
  br_uni %>%
  clean_names() %>%
  rename(countries_areas = region_subregion_country_or_area) %>%
  rename (ado_afr = x15_19) %>%
  select(c(countries_areas, period:ado_afr)) %>%
  filter (period == c("2010-2015", "2015-2020")) %>%
  group_by(countries_areas) %>%
  summarise(ado_afr = (sum(as.numeric(ado_afr))/2))
```

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#Prep UNICEF Birth Cert. Data
birt_cert_uni_clean <-
  birt_cert_uni %>%
  clean_names() %>%
  select(1:2) %>%
  rename_all(~c("countries_areas", "br_percent"))
```

```
# Merge WPP & UNICEF Data
br_bc_merge <-
  left_join(lookup_table_all,
            merge(birt_cert_uni_clean, ado_br_uni_clean),
            by="countries_areas")
```

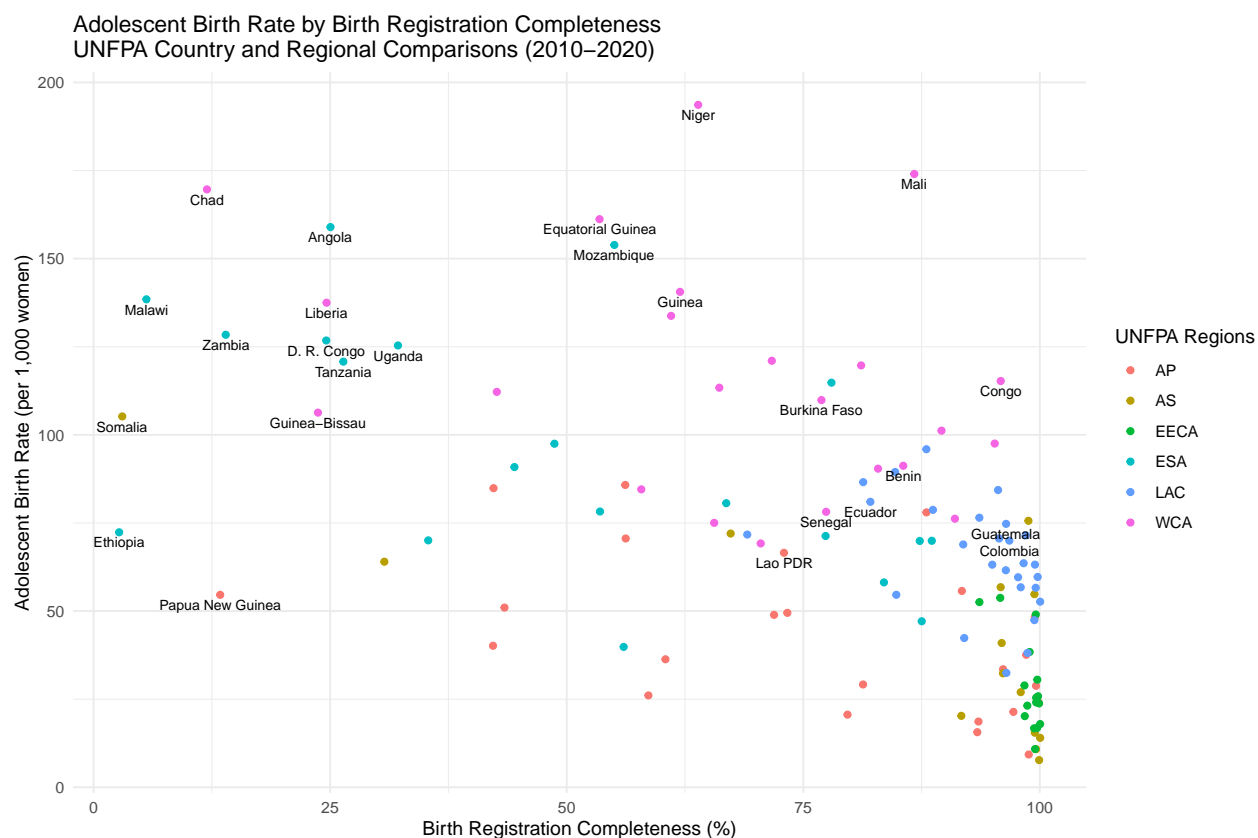
```
# More Cleaning & Data Prep for Viz
br_bc_clean <-
br_bc_merge %>%
  replace_with_na_all(condition = ~.x == "-") %>%
  mutate_at(.vars = 3:4, ~as.numeric(.)) %>%
  mutate(countries_areas = recode(countries_areas,
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    "Democratic Republic of the Congo" = "D. R. Congo",
    "United Republic of Tanzania" = "Tanzania",
    "Lao People's Democratic Republic" = "Lao PDR")) %>%
filter(!is.na(br_percent)) %>%
filter(!is.na(ado_afr))

# Plot
ggplot(br_bc_clean, aes(br_percent, ado_afr, color = UNFPA_Regions)) +
  geom_jitter() +
  geom_text(data=subset(br_bc_clean, ((br_percent < 35 & ado_afr > 100) |
    (countries_areas %in%
      c("Benin", "Congo",
        "Burkina Faso",
        "Guinea", "Senegal", "Guatemala",
        "Ecuador", "Colombia",
        "Papua New Guinea", "Equatorial Guinea",
        "Niger", "Mali", "Mozambique", "Lao PDR", "Ethiopia")
    ))),
    aes(br_percent, ado_afr, label=countries_areas), size = 2.75, vjust = 1.5, color = "Black") +
  theme_minimal() +
  labs(title = "Adolescent Birth Rate by Birth Registration Completeness\nUNFPA Country and Regional Comparisons (2010–2020)",
    x = "Birth Registration Completeness (%)",
    y = "Adolescent Birth Rate (per 1,000 women)", color = "UNFPA Regions",
    caption = "Data sources: UNICEF – Birth Registration Data 2020 & UN World Population Prospect Age-Specific Fertility Rates Data 2019")

```



Data sources: UNICEF – Birth Registration Data 2020 & UN World Population Prospect Age-Specific Fertility Rates Data 2019

Note: Label selections were by request