# Tidyverse

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## The Global Findex 2017

Recreating the Global Findex 2017 Indicator table using the tidyverse package in R.

## Loading the package and dataset

```
Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
(as 'lib' is unspecified)
```

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     v readr     2.1.5
v forcats   1.0.0     v stringr   1.5.1
v ggplot2   3.5.1     v tibble    3.2.1
v lubridate 1.9.3     v tidyr     1.3.1
v purrr     1.0.2
-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to becon
Rows: 154923 Columns: 105
-- Column specification --------------------------------------------------------
Delimiter: ","
chr   (3): economy, economycode, regionwb
dbl (102): pop_adult, wpid_random, wgt, female, age, educ, inc_q, emp_in, fi...

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.
```

### Percentage of adults with accounts

Creating a table for the percentage of adults with account in each country.

```
adults_with_account_in_percentage <-
  micro_world %>%
  group_by(economy) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt))

adults_with_account_in_percentage
```

```
# A tibble: 144 x 2
   economy     account
   <chr>         <dbl>
 1 Afghanistan    14.9
 2 Albania        40.0
 3 Algeria        42.8
 4 Argentina      48.7
 5 Armenia        47.8
 6 Australia      99.5
 7 Austria        98.2
 8 Azerbaijan     28.6
 9 Bahrain        82.6
10 Bangladesh     50.0
# i 134 more rows
```

### Percentage gap of account ownership by gender

Creating a table for the gap in account ownership between genders male and female.

```
# Gender gap in account ownership
account_gap_between_gender_in_percentage <-
  micro_world %>%
  group_by(economy, female) %>%
  summarize(account = 100 * weighted.mean(account, w = wgt)) %>%
  pivot_wider(id_cols = economy,
              names_from = female,
              names_prefix = "female",
              values_from = account) %>%
    mutate(gap_female = female1 - female2) %>%
  select(economy, gap_female)
```

```
`summarise()` has grouped output by 'economy'. You can override using the
`.groups` argument.
```

```
account_gap_between_gender_in_percentage
```

```
# A tibble: 144 x 2
# Groups:   economy [144]
   economy     gap_female
   <chr>            <dbl>
 1 Afghanistan     15.4
 2 Albania          3.94
 3 Algeria         27.0
 4 Argentina       -4.29
 5 Armenia         14.8
 6 Australia        0.659
 7 Austria         -0.441
 8 Azerbaijan       1.72
 9 Bahrain         10.9
10 Bangladesh      28.7
# i 134 more rows
```

### Income percentage gap of account ownership

Creating a table for the gap in account ownership between the poor and rich using the gap in income.

```
# Income gap in account ownership
account_gap_between_rich_and_poor_in_percentage <-
    micro_world %>%
    mutate(lower_inc = inc_q <= 2) %>%
    group_by(economy, lower_inc) %>%
    summarize(account = 100 * weighted.mean(account, w = wgt)) %>%
      pivot_wider(id_cols = economy,
                  names_from = lower_inc,
                  names_prefix = "lower_inc",
                  values_from = account) %>%
      mutate(gap_inc = lower_incFALSE - lower_incTRUE) %>%
      select(economy, gap_inc)
```

```
`summarise()` has grouped output by 'economy'. You can override using the
`.groups` argument.
```

```
account_gap_between_rich_and_poor_in_percentage
```

```
# A tibble: 144 x 2
# Groups:   economy [144]
   economy     gap_inc
   <chr>         <dbl>
 1 Afghanistan   1.82
 2 Albania      28.8
 3 Algeria      13.0
 4 Argentina    17.7
 5 Armenia      22.2
 6 Australia     0.386
 7 Austria       0.428
 8 Azerbaijan   17.4
 9 Bahrain      11.3
10 Bangladesh   16.6
# i 134 more rows
```

### The Indicator Table

Joining all tables created previously to create the indicator table.

```
# Indicator table
indicator_table <-
 full_join(adults_with_account_in_percentage, account_gap_between_gender_in_percentage,
        by = "economy")%>%
   full_join(account_gap_between_rich_and_poor_in_percentage, by = "economy") %>%
   mutate(account = round(account), gap_female = round(gap_female), gap_inc = round(gap_inc))
knitr::kable(indicator_table)
```

| economy | account | gap_female | gap_inc |
|---|---|---|---|
| Afghanistan | 15 | 15 | 2 |
| Albania | 40 | 4 | 29 |
| Algeria | 43 | 27 | 13 |
| Argentina | 49 | -4 | 18 |
| Armenia | 48 | 15 | 22 |
| Australia | 100 | 1 | 0 |
| Austria | 98 | 0 | 0 |
| Azerbaijan | 29 | 2 | 17 |
| Bahrain | 83 | 11 | 11 |

| economy | account | gap_female | gap_inc |
|---|---|---|---|
| Bangladesh | 50 | 29 | 17 |
| Belarus | 81 | 0 | 11 |
| Belgium | 99 | 0 | 0 |
| Benin | 38 | 20 | 11 |
| Bolivia | 54 | 1 | 19 |
| Bosnia and Herzegovina | 59 | 8 | 19 |
| Botswana | 51 | 9 | 27 |
| Brazil | 70 | 5 | 22 |
| Bulgaria | 72 | -3 | 29 |
| Burkina Faso | 43 | 17 | 27 |
| Cambodia | 22 | 0 | 12 |
| Cameroon | 35 | 9 | 16 |
| Canada | 100 | 0 | 0 |
| Central African Republic | 14 | 8 | 8 |
| Chad | 22 | 14 | 13 |
| Chile | 74 | 6 | 12 |
| China | 80 | 8 | 20 |
| Colombia | 46 | 7 | 18 |
| Congo, Dem. Rep. | 26 | 3 | 14 |
| Congo, Rep. | 26 | 10 | 13 |
| Costa Rica | 68 | 15 | 16 |
| Cote d'Ivoire | 41 | 11 | 12 |
| Croatia | 86 | 7 | 9 |
| Cyprus | 89 | -3 | 8 |
| Czech Republic | 81 | 5 | 17 |
| Denmark | 100 | 0 | 0 |
| Dominican Republic | 56 | 4 | 23 |
| Ecuador | 51 | 18 | 30 |
| Egypt, Arab Rep. | 33 | 12 | 21 |
| El Salvador | 30 | 13 | 18 |
| Estonia | 98 | -1 | 3 |
| Ethiopia | 35 | 12 | 21 |
| Finland | 100 | 0 | 1 |
| France | 94 | 6 | 1 |
| Gabon | 59 | 10 | 15 |
| Georgia | 61 | -5 | 25 |
| Germany | 99 | 0 | 2 |
| Ghana | 58 | 8 | 16 |
| Greece | 85 | 2 | 7 |
| Guatemala | 44 | 4 | 23 |
| Guinea | 23 | 8 | 6 |

| economy | account | gap_female | gap_inc |
|---|---|---|---|
| Haiti | 33 | 5 | 25 |
| Honduras | 45 | 9 | 20 |
| Hong Kong SAR, China | 95 | 1 | 5 |
| Hungary | 75 | 6 | 12 |
| India | 80 | 6 | 5 |
| Indonesia | 49 | -5 | 20 |
| Iran, Islamic Rep. | 94 | 5 | 1 |
| Iraq | 23 | 6 | 7 |
| Ireland | 95 | 0 | 4 |
| Israel | 93 | -2 | 12 |
| Italy | 94 | 5 | 5 |
| Japan | 98 | 0 | 1 |
| Jordan | 42 | 30 | 16 |
| Kazakhstan | 59 | -3 | 16 |
| Kenya | 82 | 8 | 18 |
| Korea, Rep. | 95 | 0 | 5 |
| Kosovo | 52 | 17 | 13 |
| Kuwait | 80 | 10 | 15 |
| Kyrgyz Republic | 40 | 2 | 7 |
| Lao PDR | 29 | -6 | 19 |
| Latvia | 93 | 2 | 8 |
| Lebanon | 45 | 24 | 25 |
| Lesotho | 46 | -2 | 22 |
| Liberia | 36 | 15 | 15 |
| Libya | 66 | 11 | 12 |
| Lithuania | 83 | 4 | 8 |
| Luxembourg | 99 | 1 | 1 |
| Macedonia, FYR | 77 | 7 | 16 |
| Madagascar | 18 | 3 | 9 |
| Malawi | 34 | 8 | 21 |
| Malaysia | 85 | 5 | 8 |
| Mali | 35 | 20 | 7 |
| Malta | 97 | 1 | 4 |
| Mauritania | 21 | 11 | 13 |
| Mauritius | 90 | 6 | 6 |
| Mexico | 37 | 8 | 18 |
| Moldova | 44 | -2 | 20 |
| Mongolia | 93 | -4 | 4 |
| Montenegro | 68 | 2 | 13 |
| Morocco | 29 | 25 | 16 |
| Mozambique | 42 | 18 | 25 |

| economy | account | gap_female | gap_inc |
|---|---|---|---|
| Myanmar | 26 | 0 | 6 |
| Namibia | 81 | 0 | 17 |
| Nepal | 45 | 8 | 12 |
| Netherlands | 100 | 0 | 0 |
| New Zealand | 99 | 0 | 0 |
| Nicaragua | 31 | 13 | 18 |
| Niger | 16 | 9 | 8 |
| Nigeria | 40 | 24 | 25 |
| Norway | 100 | -1 | 1 |
| Pakistan | 21 | 28 | 12 |
| Panama | 46 | 9 | 23 |
| Paraguay | 49 | 5 | 17 |
| Peru | 43 | 17 | 26 |
| Philippines | 34 | -9 | 27 |
| Poland | 87 | -3 | 4 |
| Portugal | 92 | 4 | 8 |
| Romania | 58 | 9 | 33 |
| Russian Federation | 76 | -1 | 9 |
| Rwanda | 50 | 11 | 19 |
| Saudi Arabia | 72 | 22 | 12 |
| Senegal | 42 | 8 | 13 |
| Serbia | 71 | 3 | 12 |
| Sierra Leone | 20 | 9 | 11 |
| Singapore | 98 | 3 | 3 |
| Slovak Republic | 84 | 2 | 10 |
| Slovenia | 98 | 1 | 3 |
| South Africa | 69 | -2 | 11 |
| South Sudan | 9 | 8 | 8 |
| Spain | 94 | 4 | 1 |
| Sri Lanka | 74 | 0 | 5 |
| Sweden | 100 | -1 | 0 |
| Switzerland | 98 | -1 | 2 |
| Taiwan, China | 94 | 1 | 5 |
| Tajikistan | 47 | 10 | 14 |
| Tanzania | 47 | 9 | 16 |
| Thailand | 82 | 4 | 7 |
| Togo | 45 | 15 | 18 |
| Trinidad and Tobago | 81 | 15 | 6 |
| Tunisia | 37 | 17 | 26 |
| Turkey | 69 | 29 | 20 |
| Turkmenistan | 41 | 10 | 1 |

| economy | account | gap_female | gap_inc |
|---|---|---|---|
| Uganda | 59 | 13 | 20 |
| Ukraine | 63 | 4 | 16 |
| United Arab Emirates | 88 | 16 | 9 |
| United Kingdom | 96 | 1 | 3 |
| United States | 93 | 1 | 13 |
| Uruguay | 64 | 7 | 25 |
| Uzbekistan | 37 | 2 | 12 |
| Venezuela, RB | 73 | 7 | 22 |
| Vietnam | 31 | 1 | 18 |
| West Bank and Gaza | 25 | 19 | 22 |
| Zambia | 46 | 11 | 24 |
| Zimbabwe | 55 | 8 | 19 |