Formatting, Latex, plot and table samples

output: Rmarkdown PDF

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```
library(tidyverse) # import/wrangle
library(ggplot2) # plot/maps
library(tmap) # Dataset/Maps
library(kableExtra) # tables
library(viridis) # palettes
```

```
data("World")

# Data mit geometry
WorldGeom <- World
# Data ohne
WorldData <- World %>%
  sf::st_drop_geometry()
```

Mögliche Packages

rtcles

Mögliche Lösungen für 2 Spalten: https://github.com/yihui/rmarkdown-cookbook/issues/19 https://stackoverflow.com/questions/34808612/how-make-2-column-layout-in-r-markdown-when-rendering-pdf

package Multicol https://tex.stackexchange.com/questions/8683/how-do-i-force-a-column-break-in-a-multi-column-page https://stackoverflow.com/questions/40982836/latex-multicolumn-block-in-pandoc-markdown

Latex Page Breaks https://web.archive.org/web/20100622022829/http://help-csli.stanford.edu/tex/latex-pagebreaks.shtml

Text

Headline 1

Headline 2

Headline 3

Headline 4

Headline 5

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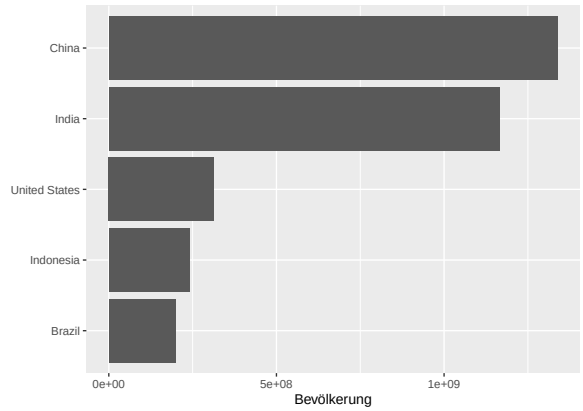
Gemischtes 1 und 2 Spalten Layout



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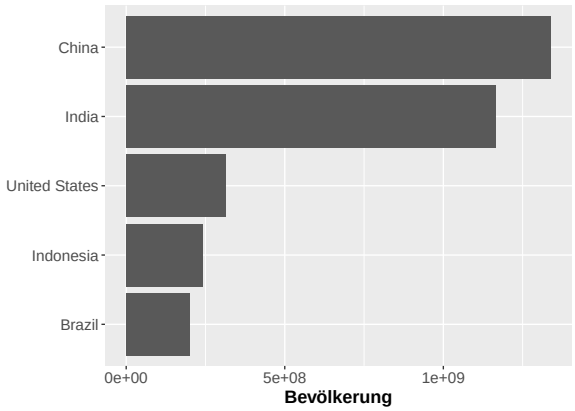

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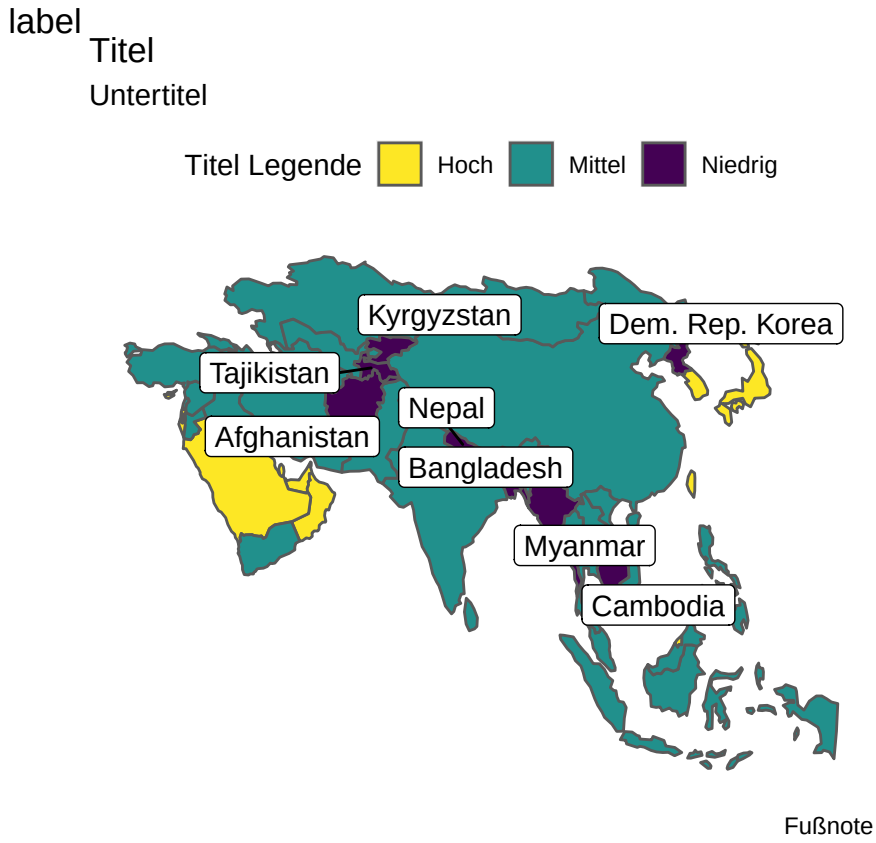
Map

```
# Data
mapData <- WorldGeom %>%
  select(
    name,
    continent,
    pop_est,
    income_grp,
    geometry) %>%
  filter(continent == "Asia") %>%
  mutate(
    # Vereinigung der 5 Kategorien zu 3
    income_grp = forcats::fct_collapse(income_grp,
      Hoch = c("1. High income: OECD", "2. High income: nonOECD"),
      Mittel = c("3. Upper middle income", "4. Lower middle income"),
      Niedrig = c("5. Low income")))

  ggplot() +
    geom_sf(
      data = mapData,
      aes(fill = income_grp)) +
    # Externe Farbpalette, Beispiel viridis
    # https://www.rdocumentation.org/packages/viridis/versions/0.5.1/topics/scale_color_viridis
    viridis::scale_fill_viridis(
      # Diskrete Variable (Einkommensgruppen)
      discrete = TRUE,
      # Umkehr der Palette, damit dunkel = low income
      direction = -1) +
    labs(
      title = "Titel",
      subtitle = "Untertitel",
      caption = "Fußnote",
      tag = "label",
      fill = "Titel Legende") +
    xlab("Beschriftung x") +
    ylab("Beschriftung y") +
    ggrepel::geom_label_repel(
      data = subset(mapData, income_grp == "Niedrig"),
      stat = "sf_coordinates",
      aes(
        geometry = geometry,
        label = name)) +
    # geom_sf_label(data = subset(mapData, income_grp == "5. Low income"), aes(label = name)) +
    theme(
      legend.position = "top",
      # keine Achsenlinien
      axis.line=element_blank(),
      # keine Achsentitel
      axis.title.x=element_blank(),
      axis.title.y=element_blank(),
      # keine Achsen-Markierungen
      axis.ticks=element_blank(),
```

```
    # kein Achsentext
    axis.text.x=element_blank(),
    axis.text.y=element_blank(),
    # kein Hintergrund
    panel.background=element_blank(),
    # kein Hilfslinien
    panel.grid.major=element_blank(),
    panel.grid.minor=element_blank(),
    # kein Hintergrund
    plot.background=element_blank())
```



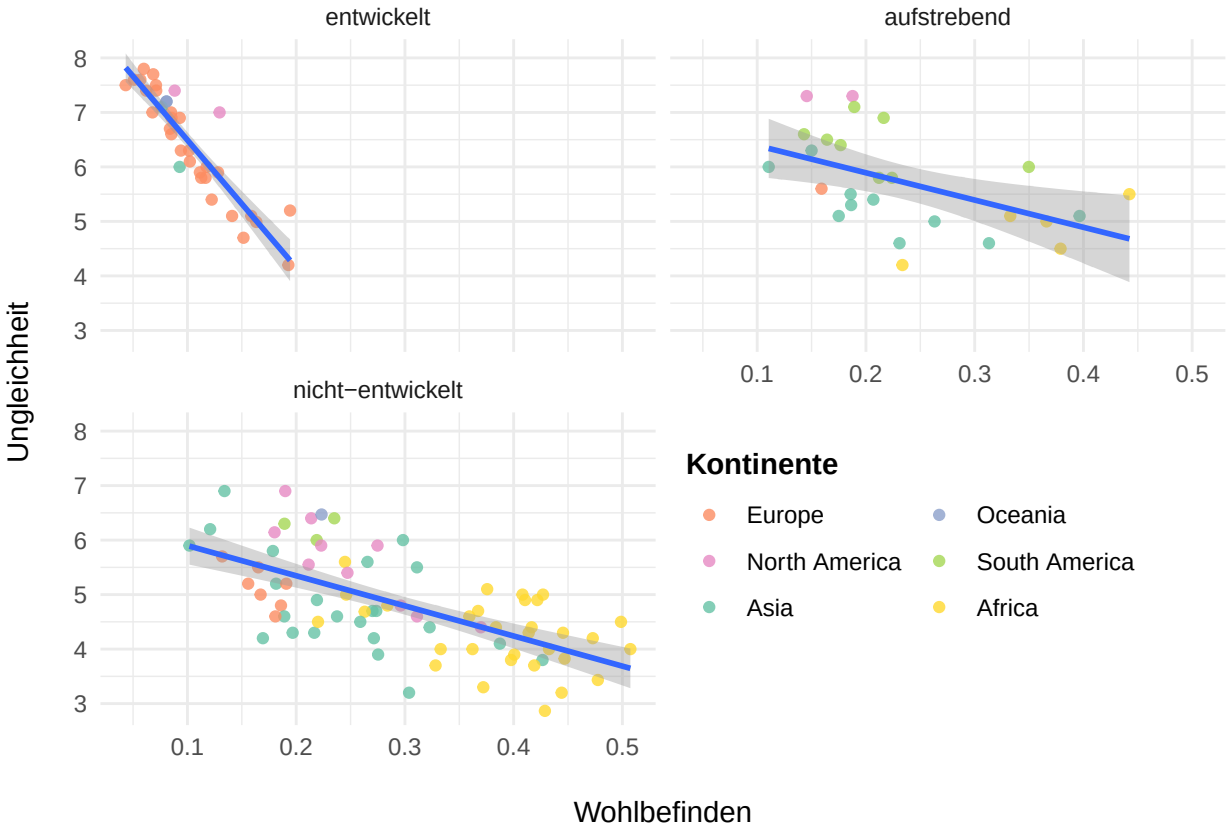
Scatter

```
# Manuelle Farbpalette
PAL_well <- c("#fc8d62","#e78ac3","#66c2a5", "#8da0cb","#a6d854","#ffd92f","#e5c494")

WorldData %>%
    select(
    name,
    continent,
    inequality,
    well_being,
    gdp_cap_est,
    economy) %>%
  group_by(
    continent) %>%
  mutate(avg_gdp = mean(gdp_cap_est, na.rm = TRUE)) %>%
  ungroup() %>%
  drop_na() %>%
  mutate(
    # Vereinigung der Kategorien
    economy = forcats::fct_collapse(economy,
      "entwickelt" = c("1. Developed region: G7", "2. Developed region: nonG7"),
      "aufstrebend" = c("3. Emerging region: BRIC", "4. Emerging region: MIKT", "5. Emerging region: G2
      "nicht-entwickelt" = c("6. Developing region", "7. Least developed region"))) %>%
  ggplot() +
  geom_point(
    aes(
      inequality,
      well_being,
    colour = fct_reorder(continent, desc(avg_gdp))),
    alpha = 0.8) +
  facet_wrap(
    ~ economy,
    nrow = 2) +
  scale_colour_manual(
    values = PAL_well,
    guide = guide_legend(
                      title.position = "top",
                      title="Kontinente",
                      direction="horizontal",
                      nrow = 3,
                      ncol = 2)) +
  geom_smooth(aes(x = inequality, y = well_being), method = "lm") +
  theme_minimal() +
  xlab("Wohlbefinden") +
  ylab("Ungleichheit") +
  theme(
    # Legenden Position, Alternativ: "top", "bottom", "right", "left"
    legend.position = c(0.72, 0.27),
    # Legenden Schrift fett
    legend.title = element_text(face="bold"),
    # Abstand der Achsentitel zum Achsentext
    axis.title.x = element_text(margin = margin(t = 15, r = 0, b = 0, l = 0)),
```

```
    axis.title.y = element_text(margin = margin(t = 0, r = 15, b = 0, l = 0)))
```

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



kableExtra

```
WorldData %>%
  select(
    continent,
    pop_est_dens,
    gdp_cap_est,
    life_exp,
    well_being,
    inequality,
    HPI) %>%
  group_by(continent) %>%
  summarise(
    across(
      pop_est_dens:HPI,
      ~round(
        mean(., na.rm = TRUE)
        ,1))) %>%
  filter(!is.na(well_being)) %>%
  kableExtra::kbl(
    col.names = c(
      "Kontinent",
      "Bevölkerungsdichte",
      "BIP (pro Kopf)",
      "Lebenserwartung",
      "Wohlbefinden",
      "Ungleichheit",
      "Happy Planet"),
    booktabs = T) %>%
  kableExtra::add_header_above(c(
    " " = 4,
    "Index" = 3)) %>%
  kableExtra::kable_styling(latex_options = c(
    "striped",
    "scale_down",
    "reapeat_header"))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

				Index		
Kontinent	Bevölkerungsdichte	BIP (pro Kopf)	Lebenserwartung	Wohlbefinden	Ungleichheit	Happy Planet
Africa	60.4	3391.9	59.8	4.4	0.4	19.9
Asia	176.0	13605.7	71.7	5.1	0.2	27.9
Europe	114.6	25960.5	77.9	6.1	0.1	27.2
North America	136.3	14725.4	73.9	6.1	0.2	32.2
Oceania	19.4	13074.2	78.3	7.0	0.1	31.0
South America	20.6	11045.6	74.2	6.3	0.2	32.3