m1_MO_health

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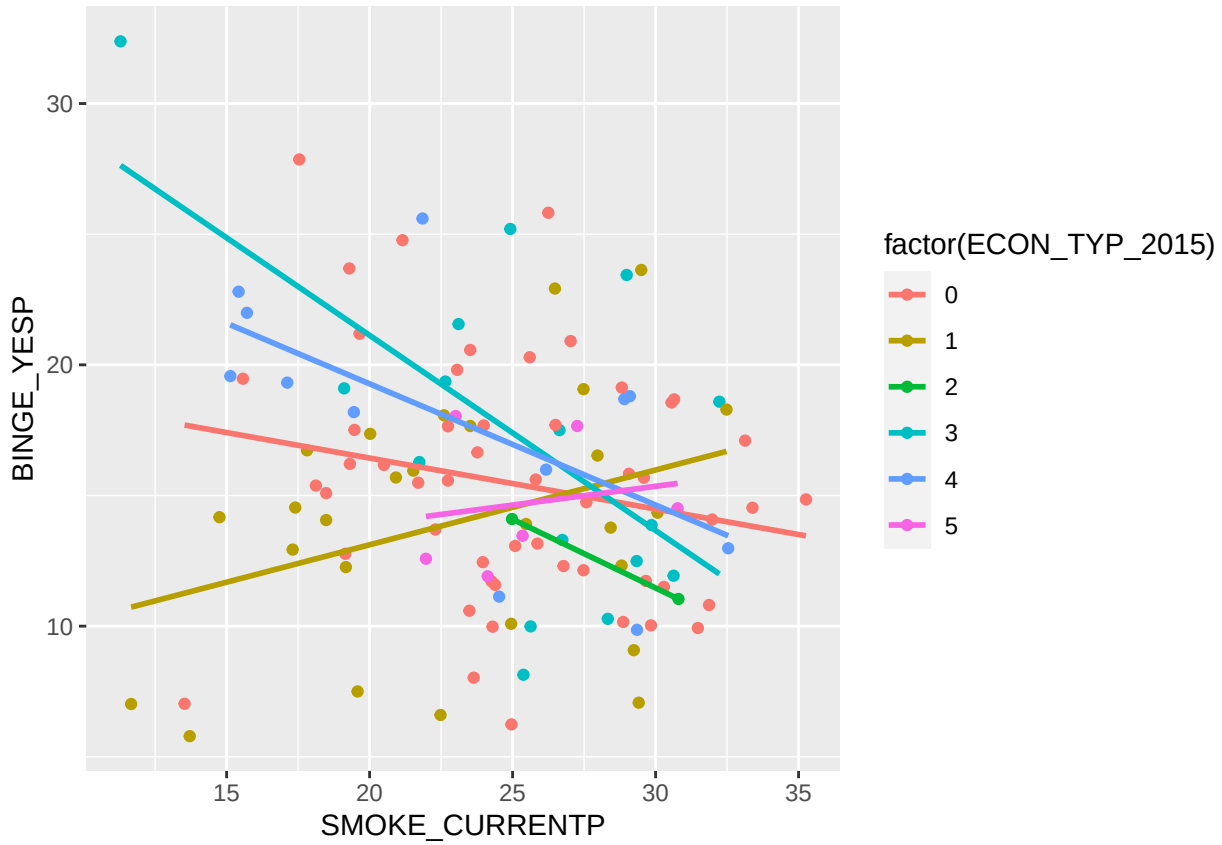
```
orig.df<- read_excel("2016_MO_health.xls")
df <- orig.df
head(df)
```

```
## # A tibble: 6 x 110
##    FIPS COUNTY   RFHLTH_GOODP RFHLTH_POORP PHLTHDAYS_AVG_WT MNLTHDAYS_AVG_WT
##   <dbl> <chr>           <dbl>        <dbl>            <dbl>            <dbl>
## 1 29001 Adair            80.6         19.4              4.6             4.86
## 2 29003 Andrew           82.3         17.7              3.69            3.45
## 3 29005 Atchison         76.8         23.2              5.12            4.02
## 4 29007 Audrain          74.7         25.3              3.59            4.12
## 5 29009 Barry            71.0         29.0              6.67            4.38
## 6 29011 Barton           79.2         20.8              5.52            3.46
## # ... with 104 more variables: ACTLIMDAYS_AVG_WT <dbl>, ACTLIM_YESP <dbl>,
## #   HLTHINS_NOP <dbl>, DENT1YR_NOP <dbl>, NEEDDENTE_YESP <dbl>,
## #   REGDOC_NOP <dbl>, NEEDCARE_YESP <dbl>, NEEDCARE_COST_YESP <dbl>,
## #   NEEDCARE_TRANS_YESP <dbl>, NEEDCARE_OTHER_YESP <dbl>, PHYS_NOP <dbl>,
## #   FV5PERDAY_NOP <dbl>, BMI_UNDERP <dbl>, BMI_NORMLP <dbl>, BMI_OVERP <dbl>,
## #   BMI_OBESEP <dbl>, HIGHBP_YESP <dbl>, CHOLCHK_NOP <dbl>,
## #   HIGHCHOL_YESP <dbl>, MICHD_YESP <dbl>, CHD_YESP <dbl>, ...
```

```
#3 variables to compare
  #df$ECON_TYP_2015 - The following types are mutually exclusive. Each county in the U.S. is assigned o
      #Farming-dependent
      #Mining-dependent
      #Manufacturing-dependent
      #Federal/State government-dependent
      #Recreation
      #Nonspecialized
  #df$BINGE_YESP- % of respondents who have binge drinked in the past 30 days
  #df$PHYS_NOP - % of persons who have smoked at least 100 cigarettes in their lifetime and still smoke

ggplot(df, aes(x=SMOKE_CURRENTP, y=BINGE_YESP, color=factor(ECON_TYP_2015))) +
  geom_point() +
  geom_smooth(method="lm", se=FALSE)
```

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




```
  scale_fill_viridis(discrete=TRUE)
```

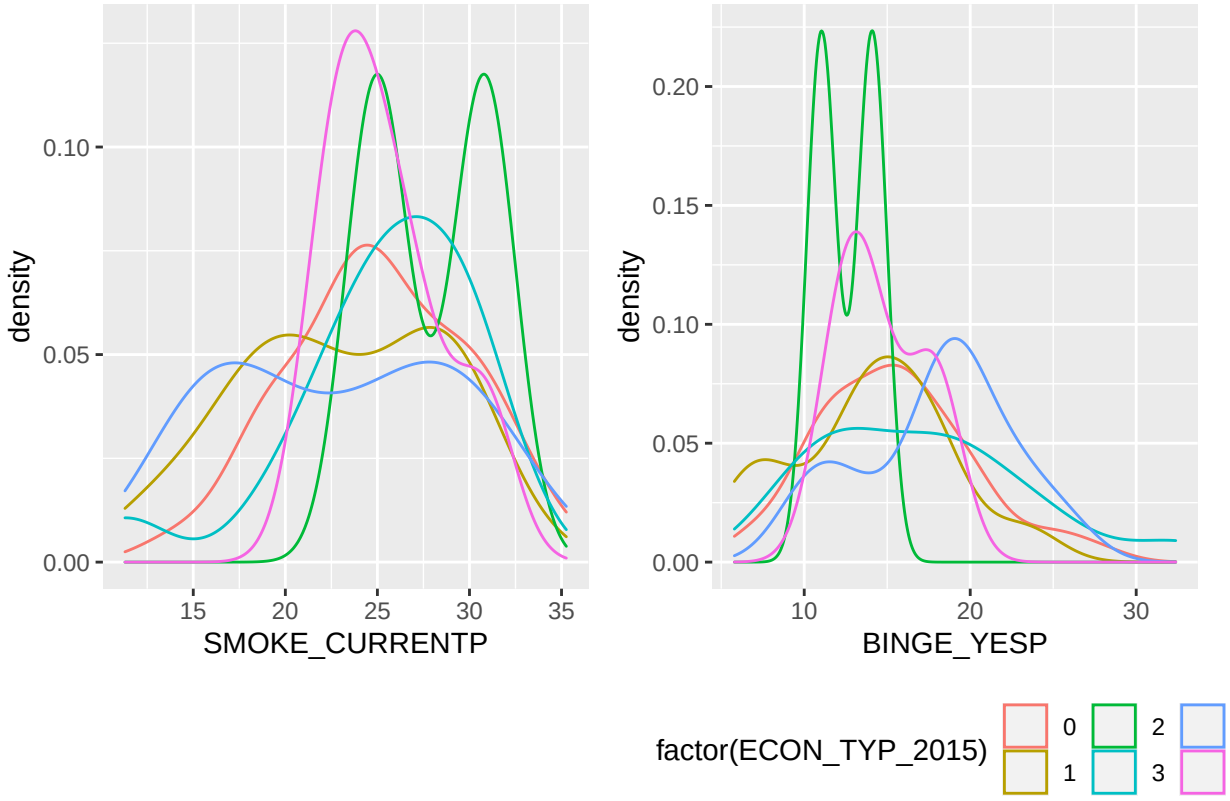
```
## <ggproto object: Class ScaleDiscrete, Scale, gg>
##     aesthetics: fill
##     axis_order: function
##     break_info: function
##     break_positions: function
##     breaks: waiver
##     call: call
##     clone: function
##     dimension: function
##     drop: TRUE
##     expand: waiver
##     get_breaks: function
##     get_breaks_minor: function
##     get_labels: function
##     get_limits: function
##     guide: legend
##     is_discrete: function
##     is_empty: function
##     labels: waiver
##     limits: NULL
##     make_sec_title: function
##     make_title: function
##     map: function
```

```
##     map_df: function
##     n.breaks.cache: NULL
##     na.translate: TRUE
##     na.value: NA
##     name: waiver
##     palette: function
##     palette.cache: NULL
##     position: left
##     range: <ggproto object: Class RangeDiscrete, Range, gg>
##         range: NULL
##         reset: function
##         train: function
##         super:  <ggproto object: Class RangeDiscrete, Range, gg>
##     rescale: function
##     reset: function
##     scale_name: viridis
##     train: function
##     train_df: function
##     transform: function
##     transform_df: function
##     super:  <ggproto object: Class ScaleDiscrete, Scale, gg>
```

```
a <- ggplot(df, aes(SMOKE_CURRENTP, colour = factor(ECON_TYP_2015))) +
  geom_density() +
  theme(legend.position="none")

b <- ggplot(df, aes(BINGE_YESP, colour = factor(ECON_TYP_2015))) +
  geom_density()+
  theme(legend.position="bottom")

a + b
```


density
0.10
0.05
0.00
15
20
25
30
35
SMOKE_CURRENTP
density
0.20
0.15
0.10
0.05
0.00
10
20
30
BINGE_YESP
factor(ECON_TYP_2015)
0
1
2
3