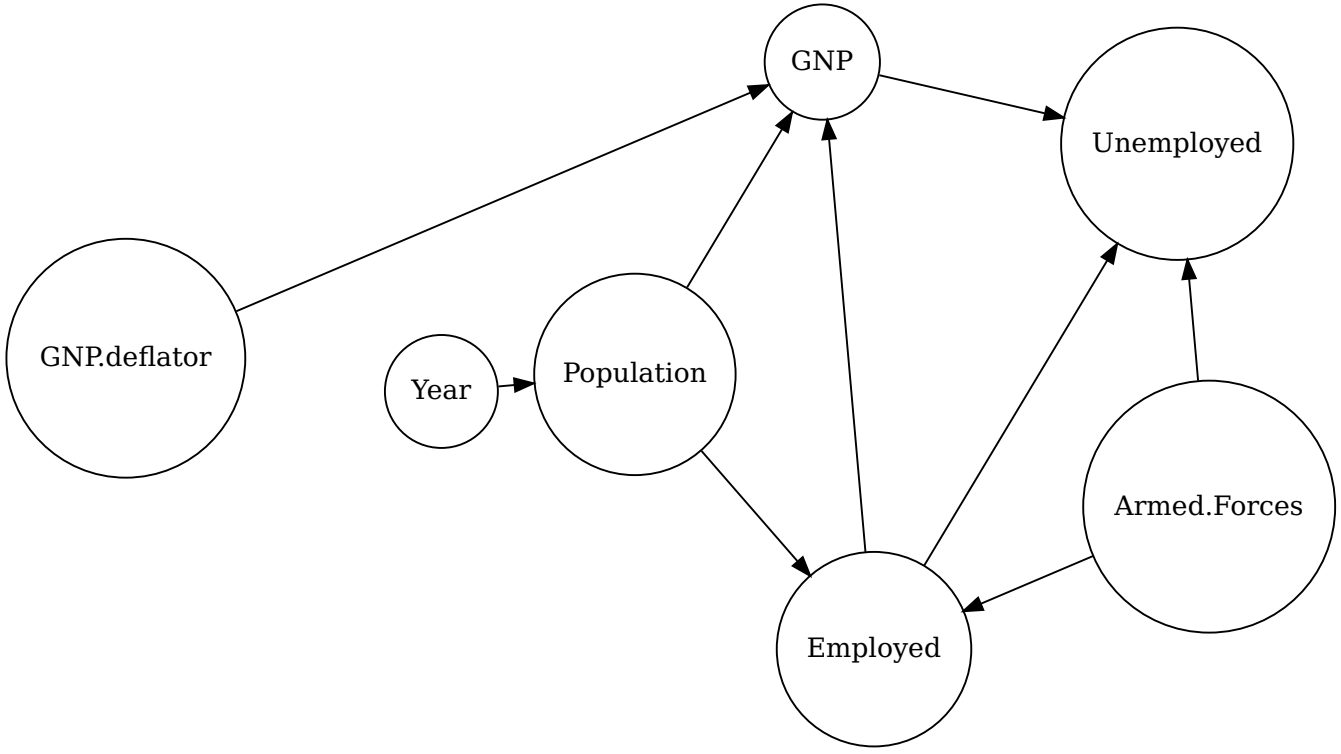
Tutorial / Lösungshinweise (RStudio)

Dennis Klinkhammer (2022)

Aufgabe: LONGLEY

Analysemodell



Univariate Analyse

```
summary(longley)
```

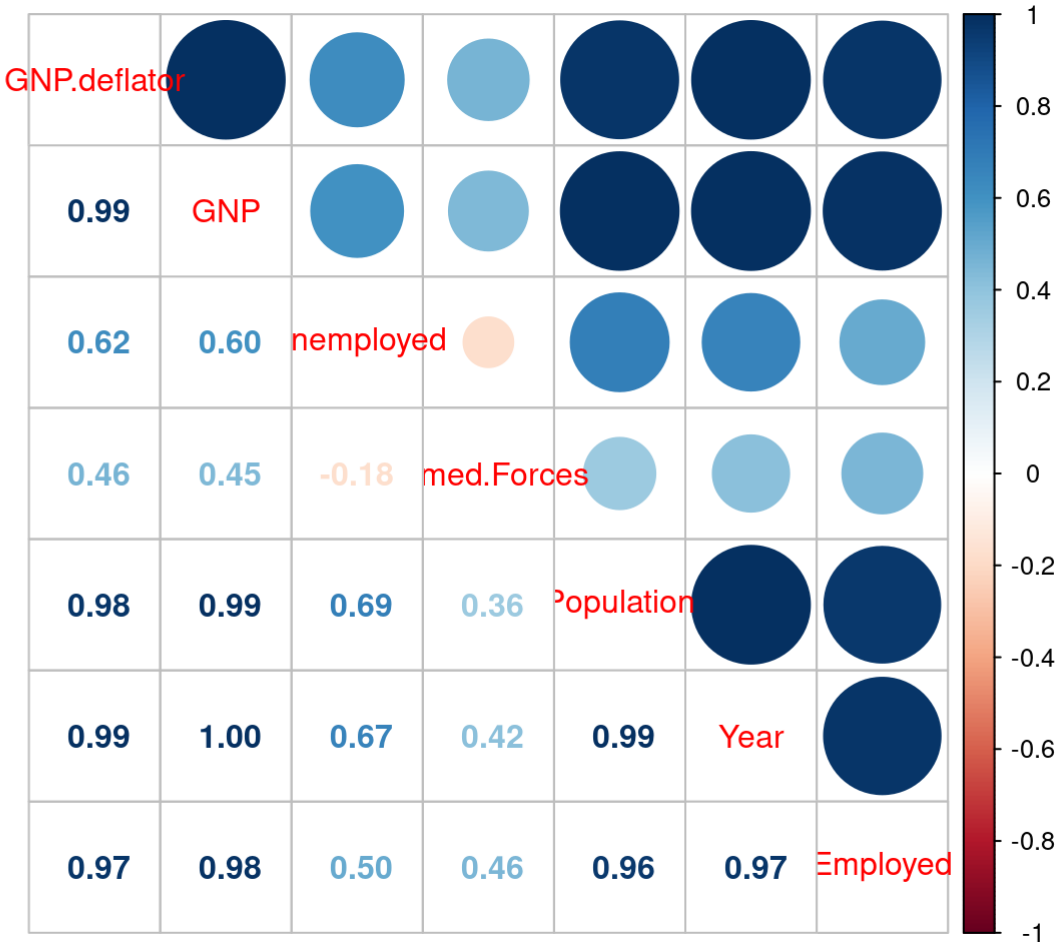
```
##   GNP.deflator         GNP          Unemployed     Armed.Forces
##  Min.   : 83.00   Min.   :234.3   Min.   :187.0   Min.   :145.6
##  1st Qu.: 94.53   1st Qu.:317.9   1st Qu.:234.8   1st Qu.:229.8
##  Median :100.60   Median :381.4   Median :314.4   Median :271.8
##  Mean   :101.68   Mean   :387.7   Mean   :319.3   Mean   :260.7
##  3rd Qu.:111.25   3rd Qu.:454.1   3rd Qu.:384.2   3rd Qu.:306.1
##  Max.   :116.90   Max.   :554.9   Max.   :480.6   Max.   :359.4
##    Population         Year         Employed
##  Min.   :107.6   Min.   :1947   Min.   :60.17
##  1st Qu.:111.8   1st Qu.:1951   1st Qu.:62.71
##  Median :116.8   Median :1954   Median :65.50
##  Mean   :117.4   Mean   :1954   Mean   :65.32
##  3rd Qu.:122.3   3rd Qu.:1958   3rd Qu.:68.29
##  Max.   :130.1   Max.   :1962   Max.   :70.55
```

Bivariate Analyse

```
library(corrplot)
```

```
## corrplot 0.92 loaded
```

```
corrmatrix <- cor(longley)
corrplot.mixed(corrmatrix)
```



Multivariate Analyse

```
summary(lm(Unemployed~GNP + Armed.Forces + Employed, data=longley))
```

```
##
## Call:
## lm(formula = Unemployed ~ GNP + Armed.Forces + Employed, data = longley)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -72.823 -24.747  -4.997  26.707  60.275
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  3689.5526   935.0511   3.946 0.001942 **
## GNP             3.1222     0.6343   4.922 0.000353 ***
## Armed.Forces   -0.6725     0.1840  -3.655 0.003298 **
## Employed      -67.4465    18.0635  -3.734 0.002854 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 44.1 on 12 degrees of freedom
## Multiple R-squared:  0.8219, Adjusted R-squared:  0.7773
## F-statistic: 18.45 on 3 and 12 DF,  p-value: 8.628e-05
```