GSS Exercise Graphs and Interpretations

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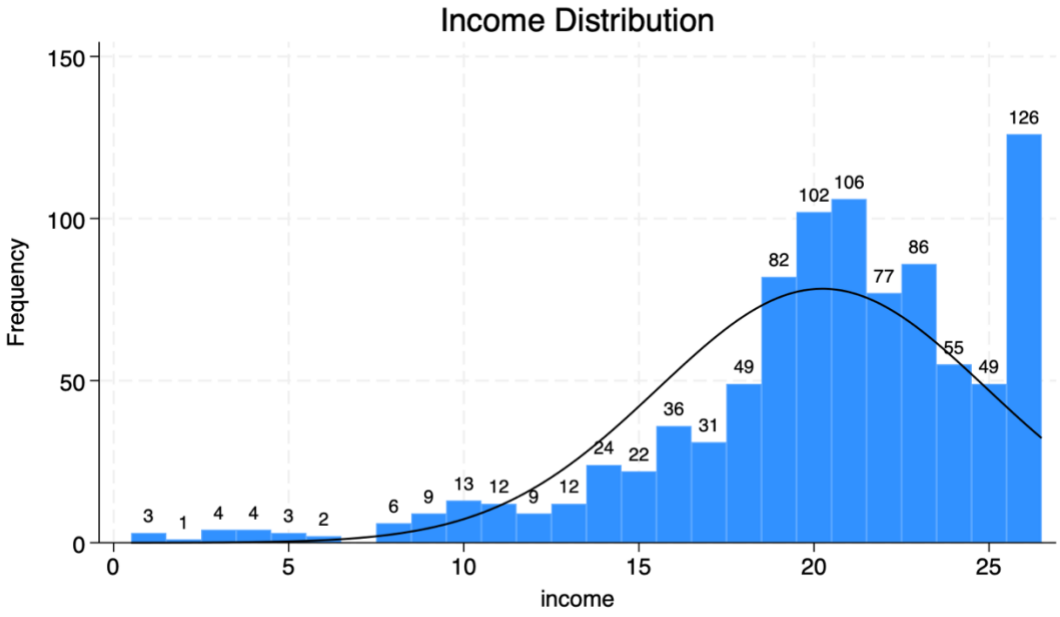
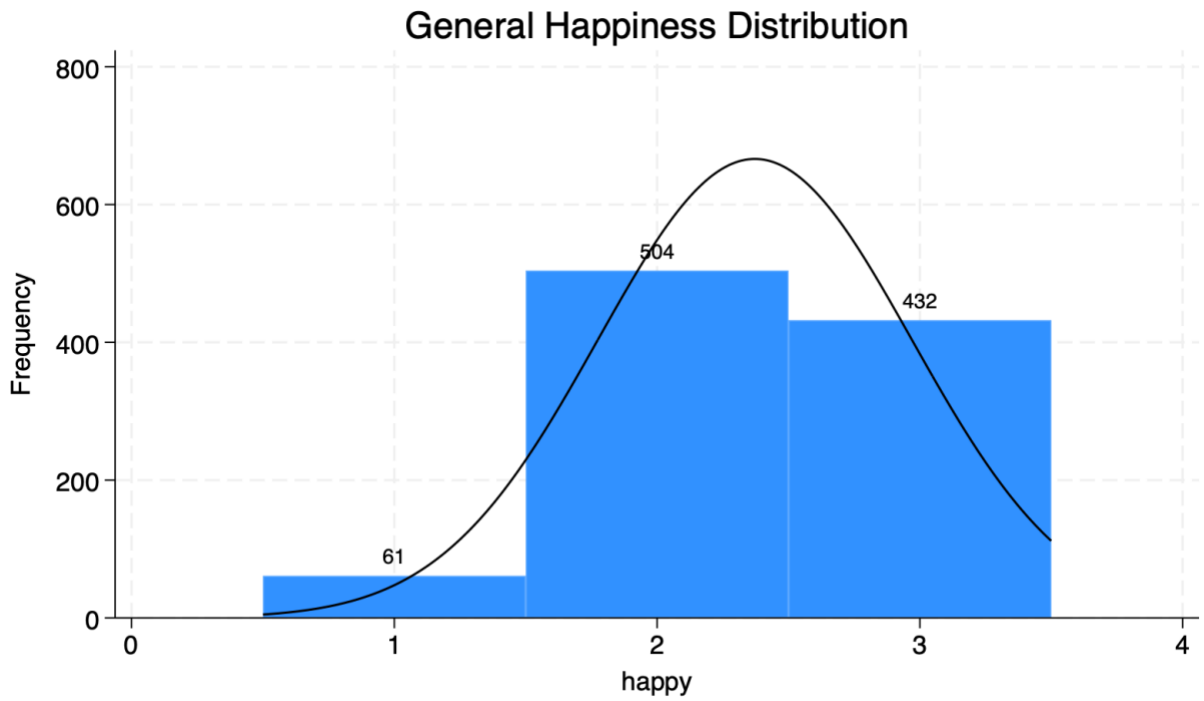
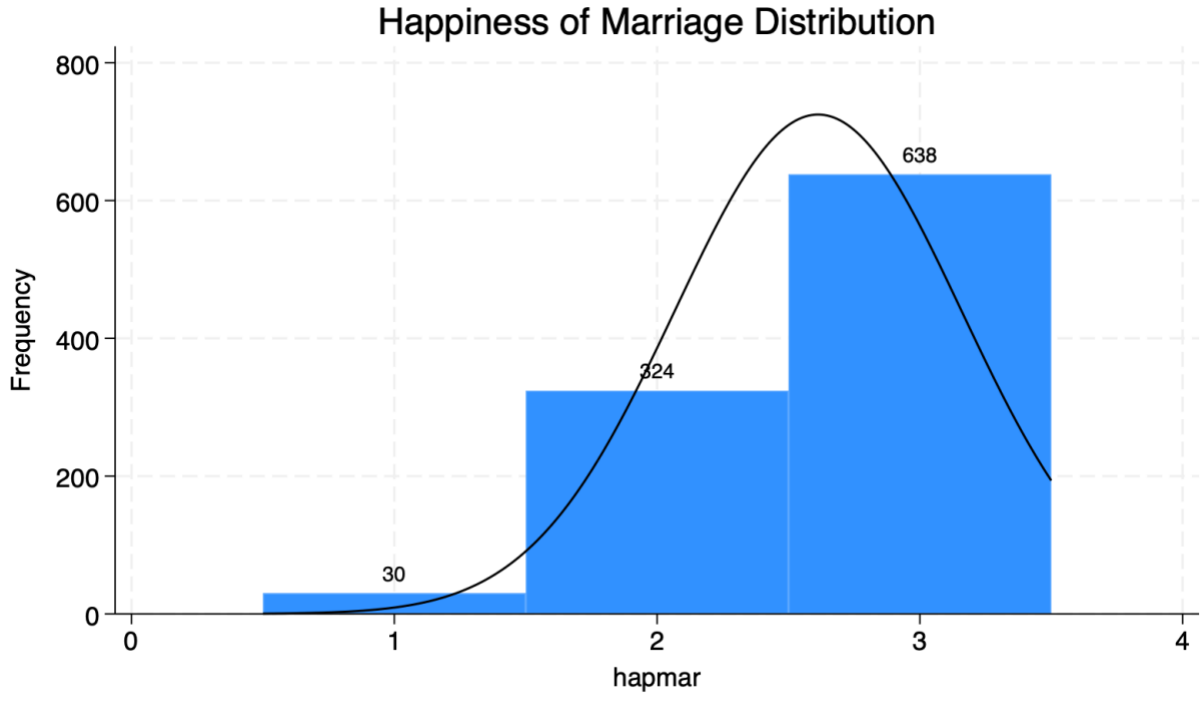
1. Distribution of Happiness, Happiness of Marriage, and Income




General Happiness Distribution
Frequency
800
600
400
200
0
61
504
432
0
1
2
3
4
happy


Happiness of Marriage Distribution
Frequency
800
600
400
200
0
30
324
638
0
1
2
3
4
hapmar

2. **Cross-tabs Results**
    a. **Happiness vs. Income**

Pearson chi2(48) = 100.0971 Pr = 0.000 (full cross-tab table truncated due to length)

Cross-tabing happiness and income leads us to a Chi-squared value of 100.097, a degree of freedom of 48, and a p-value at 0.000. Adopting a significant level at 0.05, the p-value (Pr = 0.000) is extremely small and indicates a statistically significant association between income and happy. In other words, the distribution of happiness is not "as good as random" across different income categories. However, it is note-worthy that while the Chi-Square results suggest if there is a relationship between two variables, they do not indicate the strength or the direction of the relationship.

    b. **Happiness of Marriage vs. Income**

Pearson chi2(48) = 61.9208 Pr = 0.085 (full cross-tab table truncated due to length)

Cross-tabing happiness of marriage and income leads us to a Chi-squared value of 61.9208, a degree of freedom of 48, and a p-value at 0.085. Adopting a significant level at 0.05, the p-value (Pr = 0.085) is above this level, which means that we fail to conclude a statistically significant association between income and happiness of marriage.

3. **Regression**

```
. regress happy income sex race satfin parsol kidssol, vce(robust)

Linear regression                               Number of obs     =        564
                                                F(6, 557)         =      13.52
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1253
                                                Root MSE          =     .55792

------------------------------------------------------------------------------
             |               Robust
       happy |Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
      income |   .0131753   .0059556     2.21   0.027     .0014771    .0248734
         sex |   .0337131   .0468945     0.72   0.472    -.0583986    .1258247
        race |  -.018679    .0430698    -0.43   0.665    -.1032782    .0659202
      satfin |  -.213013    .0391631    -5.44   0.000    -.2899383   -.1360876
      parsol |  -.0112921   .0247555    -0.46   0.648    -.0599177    .0373336
     kidssol |  -.0920565   .0202023    -4.56   0.000    -.1317385   -.0523745
       _cons |   2.683733   .1886743    14.22   0.000     2.313133    3.054333
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Controlling all warranted potential confounders (sex, race, satfin, parsol, kidssol), the coefficient of income(effect size) is 0.013 and it is statistically significant with a p-value at 0.027 at significance level $\alpha = 0.05$. After the variables happiness and happiness of marriage are recoded to positive directions(1 to 3 indicates an increase in happiness level), the results indicate that holding all controlled variables constant, there is a positive association between income and general happiness - for each unit of increase in income, one's general happiness increases by 0.013 units. Therefore, if the model is correctly specified and all warranted variables are included, this regression results provide evidence for that higher incomes do lead to more happiness, yet to a very limited degree. In addition, it is also likely that some of the warranted variables are not included in the model, since the r-squared value is 0.1253, meaning that only 12.53% of

the changes in happiness are accounted for by the model.

```
. regress hapmar income sex race satfin parsol kidssol, vce(robust)

Linear regression                               Number of obs     =        561
                                                F(6, 554)         =       3.40
                                                Prob > F          =     0.0026
                                                R-squared         =     0.0380
                                                Root MSE          =     .53019

------------------------------------------------------------------------------
             |               Robust
      hapmar |  Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
      income |    .0044857   .0058691     0.76   0.445    -.0070428    .0160141
         sex |   -.0899569   .0448652    -2.01   0.045    -.1780836   -.0018301
        race |   -.0649155    .038261    -1.70   0.090    -.1400699    .0102389
      satfin |   -.0952633   .0356457    -2.67   0.008    -.1652806   -.0252461
      parsol |    .0028633   .0221281     0.13   0.897    -.0406019    .0463285
     kidssol |   -.0156219   .0195053    -0.80   0.424    -.0539353    .0226914
       _cons |    2.951549    .194297    15.19   0.000       2.5699    3.333198
------------------------------------------------------------------------------
```

Controlling all warranted variables (sex, race, satfin, parsol, kidssol), the coefficient of income on happiness of marriage is 0.004 and it is not statistically significant with a p-value at 0.445. This means that holding all controlled variables constant, we fail to find strong evidence for a relationship between income and happiness in marriage. Earning more money does not necessarily lead to a happier marriage. However, it is noteworthy that the r-squared value is only 0.038, meaning that 3.8% of the variation in happiness of marriage is explainable by this model. The relatively low explanation power of the model might be due to the misspecification of model (necessary control variables not included).