EFFECT OF WORKING HOURS AND OCCUPATION TYPE ON MENTAL WELL-BEING – A MULTIPLE LINEAR REGRESSION STUDY USING STATA

1. Background and Problem Statement

A social research organization partnered with an NGO to investigate the link between work-related stress factors and mental well-being among salaried employees in India. With rising cases of burnout and anxiety among professionals, especially in urban environments, the organization wanted to understand if working hours and occupation types significantly affect mental well-being scores. A cross-sectional survey provided the necessary data. Given the continuous nature of the mental well-being index, a multiple linear regression model was chosen to quantify the influence of each factor while adjusting for age, gender, income, and job security.

2. Objectives

- To examine the effect of weekly working hours on mental well-being scores
- To compare mental well-being across different occupation types (corporate, teaching, healthcare, manual labor, etc.)
- To quantify the impact of work-related factors after adjusting for socioeconomic and demographic variables
- To detect interaction effects between working hours and occupation type
- To generate practical recommendations for work-life policy reform

3. Methodology

3.1 Data Overview

- Source: Primary data collected via online and offline surveys (2023)
- Sample Size: 3,500 salaried employees aged 21–60
- Dependent Variable:
    - Mental Well-being Score (continuous scale from 0 to 100 based on WHO-5 index)
- Independent Variables:
    - Weekly Working Hours (continuous)

- Occupation Type (corporate, education, healthcare, blue-collar, public service)
- Control Variables: Age, Gender, Monthly Income, Marital Status, Job Security

3.2 Analysis in Stata

- Multiple linear regression with robust standard errors
- Categorical variables handled using factor notation (i.variable)
- Interaction term for occupation type and working hours
- Checked assumptions: linearity, homoscedasticity, normality of residuals
- Model fit assessed via R^2, adjusted R^2, and residual plots
- VIF diagnostics for multicollinearity

3.3 Model Specification

```
reg mental_score c.working_hours##i.occupation_type i.gender c.age i.marital_status c.monthly_income i.job_security, robust
```

4. Results

- **Model Summary**
  - $R^2 = 0.39$; Adjusted $R^2 = 0.37$
  - F-statistic = 46.7 ($p < 0.001$), model statistically significant
- **Key Findings**
  - **Working Hours**: Each additional hour worked per week was associated with a 0.42-point decline in mental well-being ($p < 0.01$)
  - **Occupation Type**: Healthcare workers and corporate employees had significantly lower well-being scores compared to teachers (baseline)
  - **Interaction Effects**: Negative impact of long hours was stronger in corporate roles than in public service or education
  - **Income and Age**: Higher income had a mild positive association with well-being; age had no significant impact
  - **Job Security**: Permanent employment status correlated with a 4.6-point higher mental score ($p < 0.05$)

5. Interpretation and Insights

- Long working hours are a strong predictor of poor mental health, especially in high-pressure sectors like corporate and healthcare
- Teaching and public service roles showed relatively better mental well-being, possibly due to structured hours and job security
- Interaction terms revealed that flexible work environments could mitigate the harmful effects of extended hours
- Mental health interventions should prioritize high-risk groups such as corporate professionals and healthcare workers

6. Deliverables

- Cleaned .dta dataset and .do file with stepwise regression execution
- Summary Excel sheet with regression coefficients and model diagnostics
- Publication-ready report with graphs, interpretation, and policy suggestions
- Visualization pack (boxplots, regression slopes, interaction plots)

7. Stakeholder Relevance

Academic:

- Can be used in coursework for labor economics, social psychology, and public health
- Demonstrates practical application of multiple regression with interactions in Stata

Corporate/Government:

- Supports development of mental health policies and employee wellness programs
- Can aid HR departments in work-hour regulation and benefit design