Regression Model and Results

1. X = Infrastructure score & Tracking_Tracing score
2. y = LPI score

```
<statsmodels.regression.linear_model.RegressionResultsWrapper object at 0x111dac4d0>
                            OLS Regression Results
==============================================================================
Dep. Variable:             lpi score   R-squared:                       0.797
Model:                           OLS   Adj. R-squared:                  0.695
Method:                Least Squares   F-statistic:                     7.847
Date:               Mon, 28 Oct 2024   Prob (F-statistic):             0.0413
Time:                       20:11:50   Log-Likelihood:                 12.654
No. Observations:                  7   AIC:                            -19.31
Df Residuals:                      4   BIC:                            -19.47
Df Model:                          2
Covariance Type:           nonrobust
==============================================================================
                        coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const                 1.4979      0.601      2.492      0.067      -0.171       3.167
infrastructure score  0.4064      0.145      2.800      0.049       0.003       0.810
tracking_tracing      0.1821      0.122      1.488      0.211      -0.158       0.522
==============================================================================
Omnibus:                         nan   Durbin-Watson:                   1.570
Prob(Omnibus):                   nan   Jarque-Bera (JB):                2.360
Skew:                          1.375   Prob(JB):                        0.307
Kurtosis:                      3.731   Cond. No.                        179.
==============================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
```
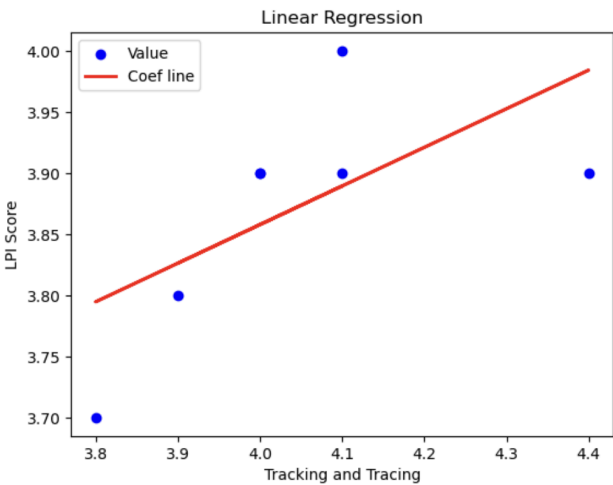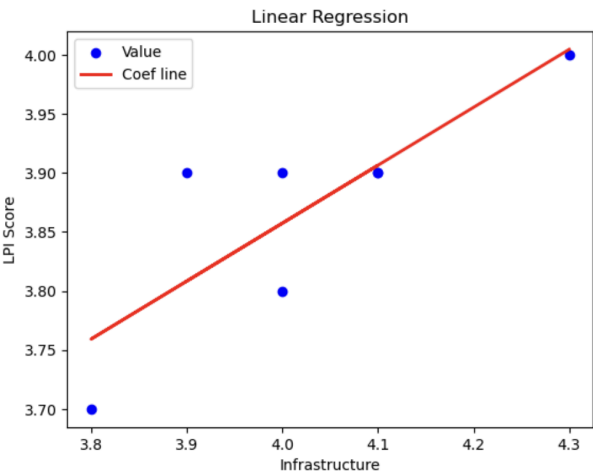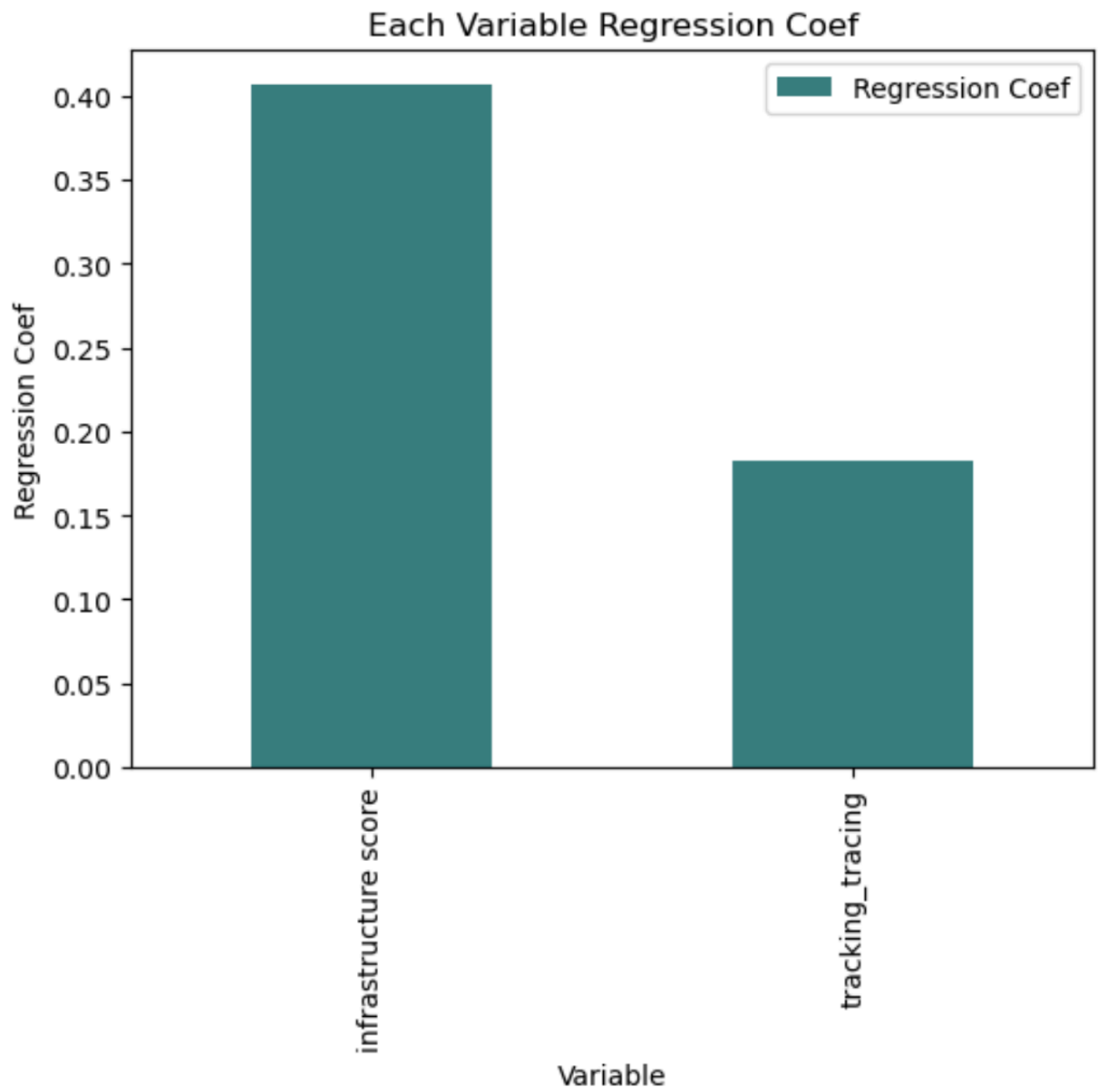
2. Linear regression - Infrastructure vs LPI and Tracking_tracing vs LPI

3. Each Variable's regression coefficients

Each Variable Regression Coef

4. ARIMA Model - LPI Score by Years

```
                              SARIMAX Results
==============================================================================
Dep. Variable:                lpi score   No. Observations:                7
Model:                   ARIMA(2, 0, 0)   Log Likelihood              11.657
Date:                Tue, 29 Oct 2024     AIC                        -15.313
Time:                        09:01:18     BIC                        -15.529
Sample:                             0     HQIC                       -17.987
                                  - 7
Covariance Type:                  opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
const          3.8590      0.009    430.961      0.000       3.841       3.877
ar.L1         -1.1286      0.492     -2.296      0.022      -2.092      -0.165
ar.L2         -0.8682      0.192     -4.518      0.000      -1.245      -0.492
sigma2         0.0013      0.002      0.759      0.448      -0.002       0.005
===================================================================================
Ljung-Box (L1) (Q):                   0.13   Jarque-Bera (JB):             0.52
Prob(Q):                              0.72   Prob(JB):                     0.77
Heteroskedasticity (H):               0.32   Skew:                        -0.11
Prob(H) (two-sided):                  0.48   Kurtosis:                     1.68
===================================================================================

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
```

5. Linear Regression - Infrastructure vs track and trace