|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | IWW | Cooling1 | Cooling2 | Cooling3 | Cooling4 | Cooling5 | Low Circular | High Circular | Multi |
| (Intercept) | -16342.953 | 4101.873 | 4775.467 | 1779.762 | 1477.789 | 603.537 | -28653.388 | -8882.306 | -8427.680 |
|  | (3598.853) | (4430.150) | (4685.194) | (907.337) | (689.337) | (2276.778) | (4807.717) | (5399.093) | (2582.846) |
| **log\_gva** | 3121.645 |  |  |  |  |  | 5377.390 | 1889.679 | 1695.431 |
|  | (581.783) |  |  |  |  |  | (821.688) | (857.020) | (429.073) |
| **summer\_TXK** |  | -134.327 |  |  |  |  |  |  |  |
|  |  | (184.629) |  |  |  |  |  |  |  |
| **summer\_TMK** |  |  | -216.431 |  |  |  |  |  |  |
|  |  |  | (260.194) |  |  |  |  |  |  |
| **hot\_days25** |  |  |  | -22.091 |  |  |  |  |  |
|  |  |  |  | (21.481) |  |  |  |  |  |
| **hot\_days30** |  |  |  |  | -50.431 |  |  |  | -96.083 |
|  |  |  |  |  | (54.407) |  |  |  | (50.431) |
| **mean\_temp** |  |  |  |  |  | 33.065 |  |  |  |
|  |  |  |  |  |  | (266.641) |  |  |  |
| Num.Obs. | 138 | 66 | 66 | 66 | 66 | 66 | 36 | 102 | 66 |
| R2 | 0.175 | 0.008 | 0.011 | 0.016 | 0.013 | 0.000 | 0.557 | 0.046 | 0.209 |
| R2 Adj. | 0.169 | -0.007 | -0.005 | 0.001 | -0.002 | -0.015 | 0.544 | 0.037 | 0.184 |
| AIC | 2663.2 | 1199.5 | 1199.3 | 1198.9 | 1199.1 | 1200.0 | 689.3 | 1968.1 | 1186.5 |
| BIC | 2671.9 | 1206.0 | 1205.9 | 1205.5 | 1205.7 | 1206.6 | 694.1 | 1976.0 | 1195.3 |
| RMSE | 3671.95 | 2043.62 | 2041.05 | 2035.31 | 2038.42 | 2051.81 | 3203.00 | 3638.42 | 1824.80 |
| P val; model | 3.3786e-07 | 0.46954 | 0.40861 | 0.30763 | 0.35745 | 0.9017 | 1.7064e-07 | 0.02975 | 0.00061468 |

From the above results;

GVA significantly influences the industrial water withdrawals but given that the model with only singular water use has the highest R squared and adjusted R squared values, it can be considered as the best performing model because it explains a substantial portion of the variance in the dependent variable.

Since all the cooling models have a very high p value, they do not provide statistically significant explanatory power even for the usage of cooling water.

Base year 2004

Dependent = Log\_wa

Check all the above models with the base year

Standardize the log\_gva for this year, then we look at the change of gva from this year onwards

Mean log gva in 2004

Kreis fixed effects. For all models

Also check cooling models again in multiple regression with taking log gva as well in both cases, original and base year

Write down the full methodology, main steps and data types and other stuff we discussed (descriptive stats)

Check the distribution of GVA

Trend analysis of GVA

We take the 2004 as the base year for the log\_gva and then standardize all the log-gva values based on that year by substracting the log-gva of every year for every Kreis separately and then use it as a standardized log gva variable.

Then we test it across all the above models and see if it is more interpretable than what we already have.