**MCO**

Modelo : Ri = β1 + β2\*VAB + ui

| Dependent Variable: RI | | |  |  |
| --- | --- | --- | --- | --- |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 19:06 | | |  |  |
| Sample: 2007 2019 | | |  |  |
| Included observations: 13 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -135238.1 | 18103.46 | -7.470290 | 0.0000 |
| VAB | 0.046999 | 0.003858 | 12.18173 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.930989 | Mean dependent var | | 81344.83 |
| Adjusted R-squared | 0.924715 | S.D. dependent var | | 44814.89 |
| S.E. of regression | 12296.35 | Akaike info criterion | | 21.81263 |
| Sum squared resid | 1.66E+09 | Schwarz criterion | | 21.89955 |
| Log likelihood | -139.7821 | Hannan-Quinn criter. | | 21.79477 |
| F-statistic | 148.3945 | Durbin-Watson stat | | 0.880483 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

La variable independiente de PBI departamental explica a la variable dependiente que son los impuestos en 93.1% , con 13 observaciones. De acuerdo a la prueba de t-student , los parámetros del modelo son estadísticamente significativos con un nivel de significancia del 5% . Así mismo, según la prueba F , el modelo es estadísticamente significativo.

**HETEROCEDASTICIDAD**

* **GLEJSER**

| Heteroskedasticity Test: Glejser | | | |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 5.298506 | Prob. F(1,11) | | 0.0419 |
| Obs\*R-squared | 4.226190 | Prob. Chi-Square(1) | | 0.0398 |
| Scaled explained SS | 2.861498 | Prob. Chi-Square(1) | | 0.0907 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: ARESID | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 19:43 | | |  |  |
| Sample: 2007 2019 | | |  |  |
| Included observations: 13 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 27655.41 | 8019.777 | 3.448401 | 0.0054 |
| PBI\_DEP | -0.003934 | 0.001709 | -2.301848 | 0.0419 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.325092 | Mean dependent var | | 9525.618 |
| Adjusted R-squared | 0.263736 | S.D. dependent var | | 6348.341 |
| S.E. of regression | 5447.246 | Akaike info criterion | | 20.18425 |
| Sum squared resid | 3.26E+08 | Schwarz criterion | | 20.27116 |
| Log likelihood | -129.1976 | Hannan-Quinn criter. | | 20.16638 |
| F-statistic | 5.298506 | Durbin-Watson stat | | 1.688338 |
| Prob(F-statistic) | 0.041895 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**HIPÓTESIS :**

H0 : β2 = 0 No heterocedasticidad

HA : β2 ≠ 0 Heterocedasticidad

**PRUEBA DE PARK**

**MODELO: Lne^2=LNa+BLnpbidepartamental**

**Hipotesis:**

**H0: B=0 NO HETERO**

**H0:B ≠0 HETERO**

| Dependent Variable: LNE2 | | |  |  |
| --- | --- | --- | --- | --- |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 10:56 | | |  |  |
| Sample: 2007 2019 | | |  |  |
| Included observations: 13 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 135.6263 | 51.84093 | 2.616201 | 0.0240 |
| LNPBIDEPATAMENTAL | -7.721194 | 3.382789 | **-2.282493** | **0.0433** |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.321397 | Mean dependent var | | 17.31011 |
| Adjusted R-squared | 0.259706 | S.D. dependent var | | 2.877115 |
| S.E. of regression | 2.475480 | Akaike info criterion | | 4.791384 |
| Sum squared resid | 67.40799 | Schwarz criterion | | 4.878299 |
| Log likelihood | -29.14399 | Hannan-Quinn criter. | | 4.773519 |
| F-statistic | 5.209775 | Durbin-Watson stat | | 0.928305 |
| Prob(F-statistic) | 0.043346 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

NOTA: Mi parámetro B resulta significativo, por lo tanto, rechazamos nuestro Ho con un nivel de significancia del 5% entones hay presencia del heterocedasticidad.

* **BREUSCH-PAGAN GODFREY**

| Heteroskedasticity Test: Breusch-Pagan-Godfrey | | | | |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 4.412739 | Prob. F(1,11) | | 0.0595 |
| Obs\*R-squared | 3.721961 | Prob. Chi-Square(1) | | 0.0537 |
| Scaled explained SS | 1.170714 | Prob. Chi-Square(1) | | 0.2793 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: RESID^2 | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 19:42 | | |  |  |
| Sample: 2007 2019 | | |  |  |
| Included observations: 13 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.62E+08 | 1.62E+08 | 2.852043 | 0.0157 |
| PBI\_DEP | -72.59332 | 34.55752 | -2.100652 | 0.0595 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.286305 | Mean dependent var | | 1.28E+08 |
| Adjusted R-squared | 0.221423 | S.D. dependent var | | 1.25E+08 |
| S.E. of regression | 1.10E+08 | Akaike info criterion | | 40.01301 |
| Sum squared resid | 1.33E+17 | Schwarz criterion | | 40.09993 |

Respecto a la suma explicada de cuadrados , su probabilidad es mayor al nivel de significancia del 5%, por lo tanto , se acepta la hipótesis nula. Según la prueba de Breusch- Pagan - Godfrey no hay indicios de heterocedasticidad

* **WHITE**

| Heteroskedasticity Test: White | | | |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 2.014324 | Prob. F(2,10) | | 0.1840 |
| Obs\*R-squared | 3.733249 | Prob. Chi-Square(2) | | 0.1546 |
| Scaled explained SS | 1.174264 | Prob. Chi-Square(2) | | 0.5559 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: RESID^2 | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 19:24 | | |  |  |
| Sample: 2007 2019 | | |  |  |
| Included observations: 13 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.69E+08 | 8.60E+08 | 0.429767 | 0.6765 |
| VAB\_DEP^2 | -4.80E-06 | 4.35E-05 | -0.110367 | 0.9143 |
| VAB\_DEP | -29.47838 | 392.3272 | -0.075137 | 0.9416 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.287173 | Mean dependent var | | 1.28E+08 |
| Adjusted R-squared | 0.144608 | S.D. dependent var | | 1.25E+08 |
| S.E. of regression | 1.15E+08 | Akaike info criterion | | 40.16564 |
| Sum squared resid | 1.33E+17 | Schwarz criterion | | 40.29601 |
| Log likelihood | -258.0767 | Hannan-Quinn criter. | | 40.13884 |
| F-statistic | 2.014324 | Durbin-Watson stat | | 2.035596 |
| Prob(F-statistic) | 0.184044 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

H0 = No heterocedasticidad

H1 = Heterocedasticidad

**Análisis de resultados:**

Con un nivel de significancia del 5% no se rechaza la H0 de no heterocedasticidad, el resultado no es significativo con un p-valor superior a 0.05.

Según la prueba de White no existe heterocedasticidad

* **KOENKER-BASSET**

| Dependent Variable: E2 | | |  |  |
| --- | --- | --- | --- | --- |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 19:32 | | |  |  |
| Sample: 2007 2019 | | |  |  |
| Included observations: 13 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.09E+08 | 50013725 | 4.173075 | 0.0016 |
| IR\_EST2 | -0.009682 | 0.004726 | -2.048359 | 0.0652 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.276115 | Mean dependent var | | 1.28E+08 |
| Adjusted R-squared | 0.210307 | S.D. dependent var | | 1.25E+08 |
| S.E. of regression | 1.11E+08 | Akaike info criterion | | 40.02719 |
| Sum squared resid | 1.35E+17 | Schwarz criterion | | 40.11411 |
| Log likelihood | -258.1767 | Hannan-Quinn criter. | | 40.00932 |
| F-statistic | 4.195774 | Durbin-Watson stat | | 2.086037 |
| Prob(F-statistic) | 0.065160 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Modelo : e i2 = β1 + β2 ()2 + vi

HIPÓTESIS :

H0 : β2 = 0 No heterocedasticidad

HA : β2 ≠ 0 Heterocedasticidad

**Análisis de resultados :**

Con un valor de significancia del 5%, no se rechaza la H0 , los resultados no son estadísticamente significativos

Según la prueba de Koenker-Basset no existe Heterocedasticidad