**Introducción**

En el Perú se ha visto reflejado que al igual que los diferentes países de Latinoamérica, el crecimiento económico es parte fundamental para una buena recaudación de los impuestos. Por el lado del crecimiento tributario se requiere un impulso fiscal y reducir la evasión tributaria, sin embargo ,debido a diferentes sucesos externos a lo largo de los años que causan efectos negativos se puede contraer el crecimiento. Como menciona CEPAL (2019) “Si bien los ingresos tributarios en las economías de ALC registraron un mayor dinamismo en 2018, la región enfrentó posteriormente a importantes vientos en contra, que se intensificaron como resultado de la pandemia del COVID-19”.

Es de vital importancia conocer la influencia que se tiene entre las dos variables para así determinar políticas económicas contra cíclicas las cuales nos ayudan a generar mayores ingresos en la recaudación tributaria en períodos en los cuales se presente un crecimiento económico menor. Debido a que, se tiene presente que en los últimos diez años (2010-2019) la economía del Perú creció a una tasa interanual de 4,5% y en los últimos cinco años (2015-2019) se expandió a un promedio anual de 3,2% (INEI,2019).

Si bien se tiene conocimiento de las distintas investigaciones realizadas en años anteriores, en el presente, se pretende aclarar y mejorar algunas afirmaciones, de manera que logremos relacionarlas y explicar de mejor manera la influencia a través de la correlación entre el crecimiento económico y la recaudación tributaria en la Departamento de Ayacucho durante el periodo 2007-2019.

Por eso es que se espera, que haya una mayor recaudación tributaria ante un aumento en la producción, o en caso de referirnos a la recaudación tributaria que esta logre mayor disposición para la inversión que realiza el estado en obras públicas con el fin de beneficiar a la población, y que está a su vez garantiza una mejor calidad en los diferentes sectores en los cuales, en el caso peruano, la población requiere de mejoras en la calidad de los servicios de salud, infraestructura y educación. De esta manera, al tener un impacto en los sectores más deficientes estos responden a su vez en un impacto en el crecimiento que a su vez nuevamente influye en la recaudación tributaria.

Para analizar esta problemática primero realizamos la búsqueda de información relacionado al tema de investigación, desde artículos científicos hasta diversas fuentes brindadas por la SUNAT, el BCRP y el INEI.

Para el desarrollo de toda la investigación el trabajo se dividió de la siguiente manera:

En la primera parte se trató de explicar el planteamiento del problema principal y sus problemas específicos, luego se plantearon los posibles objetivos y posteriormente la justificación tanto teórica, práctica como metodológica, para luego presentar las diversas investigaciones científicas, las cuales fueron recopiladas en base a la relación que presentaban con nuestro tema de investigación. En las siguientes secciones se detalló el marco conceptual de los principales términos, se plantearon las hipótesis, variables e indicadores para luego establecer la metodología a utilizar en el presente trabajo. Para finalizar se realizaron los diferentes procesos estadísticos para obtener nuestros resultados y brindar nuestras conclusiones finales.

Instituto Nacional de Estadística e Informática: Panorama de la economía peruana 1950-2019.Base2007, Lima, 2020.

CEPAL (7 de mayo del 2020) América Latina y el Caribe: el aumento de los ingresos tributarios se ve amenazado en medio del deterioro de las perspectivas regionales. Comisión Económica para América Latina y el Caribe. https://www.cepal.org/es/noticias/america-latina-caribe-aumento-ingresos-tributarios-se-ve-amenazado-medio-deterioro

|  | Nombre de la Etapa | Tests o técnicas econométricas empleadas |
| --- | --- | --- |
| 1 | Análisis de estacionariedad de las series | Test de estacionariedad de Dickey – Fuller aumentado(DFA)  Prueba de Phillips Perron. |
| 2 | Análisis de causalidad entre pares de series | Test de causalidad de Granger (GRG) |
| 3 | Estimación del modelo econométrico de la investigación (modelo inicial) | Regresión lineal múltiple |
| 4 | Evaluación de robustez estadística del modelo: Verificación de supuestos del modelo clásico de regresión lineal (MCRL) | Test de heteroscedasticidad de White  Test de heteroscedasticidad de Koenker-Basset  Test de autocorrelación de primer orden de Durbin-Watson  Test de autocorrelación de orden múltiple de Breusch-Godfrey |

**ANEXOS**

**GRÁFICO N° 5**

**Prueba de Dickey Fuller.**

| Null Hypothesis: LOGVAB has a unit root | | | |  |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | |  |  |
| Lag Length: 1 (Fixed) | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -1.905883 | 0.3179 |
| Test critical values: | 1% level |  | -4.200056 |  |
|  | 5% level |  | -3.175352 |  |
|  | 10% level |  | -2.728985 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
| Warning: Probabilities and critical values calculated for 20 observations | | | | |
| and may not be accurate for a sample size of 11 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(LOGVAB) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 21:05 | | |  |  |
| Sample (adjusted): 3 13 | | |  |  |
| Included observations: 11 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| LOGVAB(-1) | -0.131322 | 0.068904 | -1.905883 | 0.0931 |
| D(LOGVAB(-1)) | -0.183261 | 0.286603 | -0.639425 | 0.5404 |
| C | 2.075542 | 1.066526 | 1.946078 | 0.0875 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.327569 | Mean dependent var | | 0.050467 |
| Adjusted R-squared | 0.159461 | S.D. dependent var | | 0.033297 |
| S.E. of regression | 0.030527 | Akaike info criterion | | -3.913386 |
| Sum squared resid | 0.007455 | Schwarz criterion | | -3.804869 |
| Log likelihood | 24.52362 | Hannan-Quinn criter. | | -3.981791 |
| F-statistic | 1.948563 | Durbin-Watson stat | | 2.288488 |
| Prob(F-statistic) | 0.204452 |  |  |  |
|  |  |  |  |  |

| Valores críticos asintóticos para la prueba t de raíz unitaria: sin tendencia de tiempo | | | | |
| --- | --- | --- | --- | --- |
| Nivel de sig. | 1% | 2.5% | 5% | 10% |
| Valor crítico | -3.43 | -3.12 | -2.86 | -2.57 |

**GRÁFICO N° 6**

| Null Hypothesis: RI has a unit root | | | |  |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | |  |  |
| Bandwidth: 1 (Used-specified) using Bartlett kernel | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | | | -0.056635 | 0.9339 |
| Test critical values: | 1% level |  | -4.121990 |  |
|  | 5% level |  | -3.144920 |  |
|  | 10% level |  | -2.713751 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
| Warning: Probabilities and critical values calculated for 20 observations | | | | |
| and may not be accurate for a sample size of 12 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) | | | | 60963298 |
| HAC corrected variance (Bartlett kernel) | | | | 72334618 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation | | |  |  |
| Dependent Variable: D(RI) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 21:40 | | |  |  |
| Sample (adjusted): 2 13 | | |  |  |
| Included observations: 12 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| RI(-1) | 1.23E-05 | 0.060583 | 0.000204 | 0.9998 |
| C | 9862.232 | 5233.944 | 1.884283 | 0.0889 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.000000 | Mean dependent var | | 9863.172 |
| Adjusted R-squared | -0.100000 | S.D. dependent var | | 8155.085 |
| S.E. of regression | 8553.126 | Akaike info criterion | | 21.09699 |
| Sum squared resid | 7.32E+08 | Schwarz criterion | | 21.17781 |
| Log likelihood | -124.5820 | Hannan-Quinn criter. | | 21.06707 |
| F-statistic | 4.15E-08 | Durbin-Watson stat | | 1.563275 |
| Prob(F-statistic) | 0.999842 |  |  |  |
|  |  |  |  |  |

| Valores críticos asintóticos para la prueba t de raíz unitaria: sin tendencia de tiempo | | | | |
| --- | --- | --- | --- | --- |
| Nivel de sig. | 1% | 2.5% | 5% | 10% |
| Valor crítico | -3.43 | -3.12 | -2.86 | -2.57 |

**GRÁFICO N° 7**

**Prueba de Phillips Perron**

| Null Hypothesis: VAB has a unit root | | | |  |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | |  |  |
| Bandwidth: 1 (Used-specified) using Bartlett kernel | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | | | -1.753147 | 0.3829 |
| Test critical values: | 1% level |  | -4.121990 |  |
|  | 5% level |  | -3.144920 |  |
|  | 10% level |  | -2.713751 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
| Warning: Probabilities and critical values calculated for 20 observations | | | | |
| and may not be accurate for a sample size of 12 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) | | | | 1.60E+10 |
| HAC corrected variance (Bartlett kernel) | | | | 1.16E+10 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation | | |  |  |
| Dependent Variable: D(VAB) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 21:46 | | |  |  |
| Sample (adjusted): 2 13 | | |  |  |
| Included observations: 12 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| VAB(-1) | -0.075295 | 0.048141 | -1.564052 | 0.1489 |
| C | 584524.9 | 220220.7 | 2.654268 | 0.0241 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.196546 | Mean dependent var | | 245813.2 |
| Adjusted R-squared | 0.116200 | S.D. dependent var | | 147333.4 |
| S.E. of regression | 138509.0 | Akaike info criterion | | 26.66627 |
| Sum squared resid | 1.92E+11 | Schwarz criterion | | 26.74709 |
| Log likelihood | -157.9976 | Hannan-Quinn criter. | | 26.63635 |
| F-statistic | 2.446257 | Durbin-Watson stat | | 2.529975 |
| Prob(F-statistic) | 0.148872 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**GRÁFICO N° 8**

| Null Hypothesis: ri has a unit root | | | |  |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | |  |  |
| Bandwidth: 1 (Used-specified) using Bartlett kernel | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | | | -0.056635 | 0.9339 |
| Test critical values: | 1% level |  | -4.121990 |  |
|  | 5% level |  | -3.144920 |  |
|  | 10% level |  | -2.713751 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
| Warning: Probabilities and critical values calculated for 20 observations | | | | |
| and may not be accurate for a sample size of 12 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) | | | | 60963298 |
| HAC corrected variance (Bartlett kernel) | | | | 72334618 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation | | |  |  |
| Dependent Variable: D(RI) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 12/27/21 Time: 21:40 | | |  |  |
| Sample (adjusted): 2 13 | | |  |  |
| Included observations: 12 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| RI(-1) | 1.23E-05 | 0.060583 | 0.000204 | 0.9998 |
| C | 9862.232 | 5233.944 | 1.884283 | 0.0889 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.000000 | Mean dependent var | | 9863.172 |
| Adjusted R-squared | -0.100000 | S.D. dependent var | | 8155.085 |
| S.E. of regression | 8553.126 | Akaike info criterion | | 21.09699 |
| Sum squared resid | 7.32E+08 | Schwarz criterion | | 21.17781 |
| Log likelihood | -124.5820 | Hannan-Quinn criter. | | 21.06707 |
| F-statistic | 4.15E-08 | Durbin-Watson stat | | 1.563275 |
| Prob(F-statistic) | 0.999842 |  |  |  |
|  |  |  |  |  |

**GRÁFICO N° 9**

**GRANGER**

| Pairwise Granger Causality Tests | | | |
| --- | --- | --- | --- |
| Date: 12/25/21 Time: 16:30 | | | |
| Sample: 2007 2019 | | |  |
| Lags: 1 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| RI does not Granger Cause VAB | 12 | 0.58638 | 0.4634 |
| VAB does not Granger Cause RI | | 8.32354 | 0.0180 |
|  |  |  |  |

**GRÁFICO N°10**

**MCO**

| 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 |  |  |  |
|  |  |  |  |  |

**GRAFICO N° 11**

**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 |
| PBI\_DEP^2 | -4.80E-06 | 4.35E-05 | -0.110367 | 0.9143 |
| PBI\_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 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**GRAFICO N° 12**

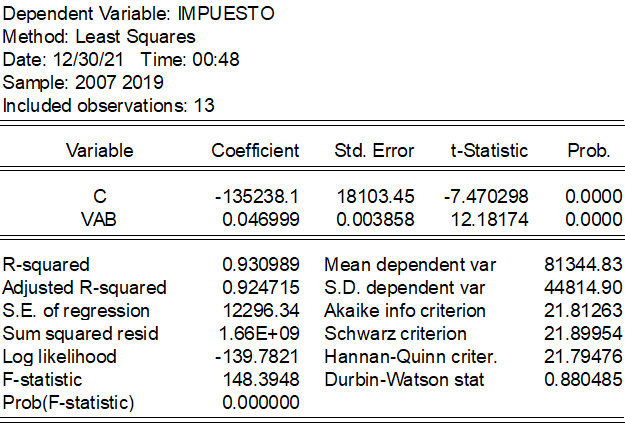
**KOENKER-BASSET**

| 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 |
| IMP\_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 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**GRAFICO N° 13**

**Autocorrelación**

**DURBIN-WATSON**



**GRAFICO N° 14**

**BREUSCH Y GODFREY**

