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# Analysis of the Impact of Industrial Development on Tax Revenue: An Empirical Study based on Data from 2002 to 2021

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## Abstract

**As one of the main means of national macroeconomic regulation and control, tax policy plays an important guiding role in accelerating the realization of economic restructuring. With the reform of the supply side, the development of the three major industries is closely linked to tax policies. This article selects historical data from the National Bureau of Statistics from 2002 to 2021 to study the dynamic relationship between tax revenue and industrial development, and uses E-views software to conduct an empirical analysis of it. After conducting a series of tests on the model and removing unimportant explanatory variables, the final conclusion is that the second industry has the most significant impact on tax revenue.**

## Keywords

**Tax Policy; Industrial Development; Least Squares.**

## 1. Introduction

As one of the main sources of national financial revenue, tax affects macroeconomic regulation. Since the reform and development, China has adopted a series of tax policies, promoting the upgrading of industrial structure and the transformation of economic growth patterns. Ma Jinying proposed that taxation will affect the adjustment of regional industrial structure, which is embodied in a positive impact on the upgrading of industrial structure and a negative impact on the rationalization of industrial structure. In turn, the industrial structure will also affect tax revenue. Colin Clark uses econometric analysis to propose that one of the driving forces of economic growth is the development and change of industrial structure.

Therefore, there is a certain interaction and reaction relationship between tax and industrial structure. A thorough study of the dynamic relationship between them has certain theoretical and practical significance for further strengthening tax collection and management and making rational use of tax control measures in the future.

## 2. Variables and Data

### 2.1. Explanatory Variable and Explained Variable

X1 - added value of the primary industry/100 million yuan,

X2 - added value of the secondary industry/100 million yuan,

X3 - added value of the tertiary industry/100 million yuan,

Y - Tax revenue/100 million yuan.

## 2.2. Statistics on China's Tax Revenue and Three Major Industries from 2002 to 2021

**Table 1.** Statistics on China's tax revenue and three major industries

Unit: 100 million yuan

| Year | Tax Y | Added value of primary industry X1 | Added value of the secondary industry X2 | Added value of the tertiary industry X3 |
|---|---|---|---|---|
| 2002 | 17636.45 | 16190.2 | 54104.1 | 51423.1 |
| 2003 | 20017.31 | 16970.2 | 62695.8 | 57756.0 |
| 2004 | 24165.68 | 20904.3 | 74285.0 | 66650.9 |
| 2005 | 28778.54 | 21806.7 | 88082.2 | 77430.0 |
| 2006 | 34804.35 | 23317.0 | 104359.2 | 91762.2 |
| 2007 | 45621.97 | 27674.1 | 126630.5 | 115787.7 |
| 2008 | 54223.79 | 32464.1 | 149952.9 | 136827.5 |
| 2009 | 59521.59 | 33583.8 | 160168.8 | 154765.1 |
| 2010 | 73210.79 | 38430.8 | 191626.5 | 182061.9 |
| 2011 | 89738.39 | 44781.5 | 227035.1 | 216123.6 |
| 2012 | 100614.28 | 49084.6 | 244639.1 | 244856.2 |
| 2013 | 110530.70 | 53028.1 | 261951.6 | 277983.5 |
| 2014 | 119175.31 | 55626.3 | 277282.8 | 310654.0 |
| 2015 | 124922.20 | 57774.6 | 281338.9 | 349744.7 |
| 2016 | 130360.73 | 60139.2 | 295427.8 | 390828.1 |
| 2017 | 144369.87 | 62099.5 | 331580.5 | 438355.9 |
| 2018 | 156402.86 | 64745.2 | 364835.2 | 489700.8 |
| 2019 | 158000.46 | 70473.6 | 380670.6 | 535371.0 |
| 2020 | 154312.29 | 78030.9 | 383562.4 | 551973.7 |
| 2021 | 172735.67 | 83085.5 | 450904.5 | 609679.7 |

# 3. Establishment and Verification of Models

## 3.1. Model Settings

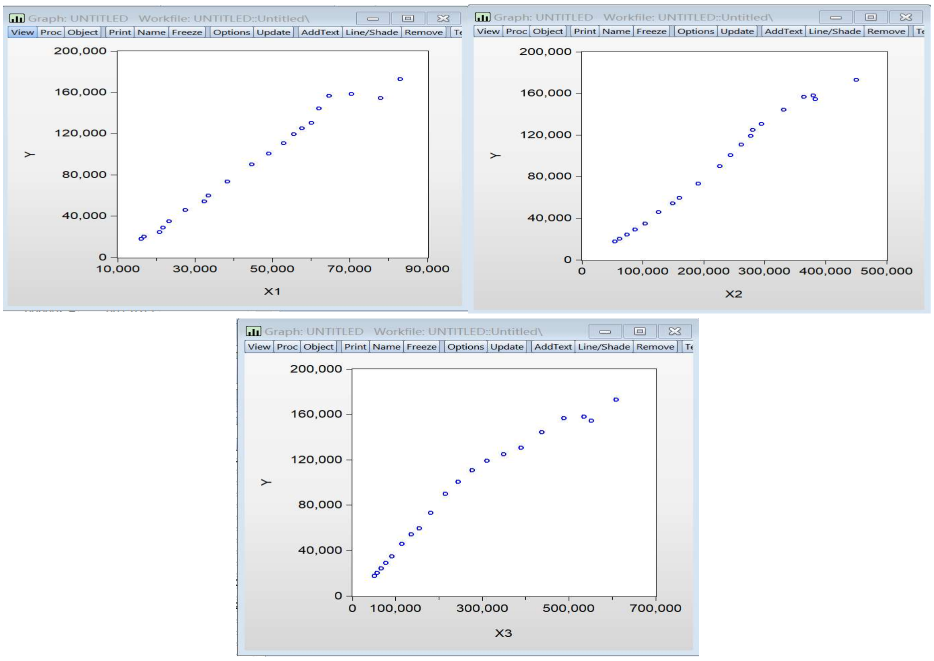


**Figure 1.** A scatter plot of the three major industries and taxes

Open E-views, create a new work file, and enter the time range: 2002-2021.

Enter the relevant commands to obtain the following scatter diagram.

It can be seen that there is a certain correlation between China's tax revenue and the three major industries, and the model can be set as follows.

## 3.2. Parameter Estimation

The results are estimated using the ordinary least square method as shown in the figure below.

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:07
Sample: 2002 2021
Included observations: 20

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -10760.21 | 6756.734 | -1.592517 | 0.1308 |
| X1 | 0.402146 | 0.701710 | 0.573094 | 0.5745 |
| X2 | 0.385793 | 0.132101 | 2.920442 | 0.0100 |
| X3 | -0.013468 | 0.047099 | -0.285954 | 0.7786 |

| | | | |
|---|---|---|---|
| R-squared | 0.987900 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.985632 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6325.438 | Akaike info criterion | 20.51940 |
| Sum squared resid | 6.40E+08 | Schwarz criterion | 20.71855 |
| Log likelihood | -201.1940 | Hannan-Quinn criter. | 20.55828 |
| F-statistic | 435.4555 | Durbin-Watson stat | 0.342778 |
| Prob(F-statistic) | 0.000000 | | |

**Figure 2.** Least-squares method of estimation

The Chinese tax revenue function is:

$$s=(0.7017)(0.1321)(0.0471)$$
$$t=(0.5731)\ (2.9204)\ (-0.2860)$$
$$=0.9880 \quad =0.9856 \quad F=435.4555 \quad D.W.=0.3428$$

## 3.3. Model Inspection and Correction

### 3.3.1. Economic Significance Test

China's tax revenue is positively correlated with the primary and secondary industries. When the secondary and tertiary industries remain unchanged, the primary industry will increase by one unit, and China's tax revenue will increase by one unit; When the primary and tertiary industries remain unchanged, the secondary industry will increase by one unit, and the tax revenue will increase by one unit; Tax revenue is negatively correlated with the tertiary industry. When the primary and secondary industries remain unchanged, the tertiary industry increases by one unit, while China's tax revenue decreases by one unit.

### 3.3.2. Goodness of Fit Test

From the chart, it can be seen that the determinability coefficient is very high, while the t values of X1 and X3 are not significant. At the same time, the sign of X3 is in the opposite direction to the trend of the scatter plot, which can be inferred that there is a serious multicollinearity in the model. The method of stepwise regression can be used to solve the problem.

Correlation

| | Y | X1 | X2 | X3 |
|---|---|---|---|---|
| Y | 1.000000 | 0.990301 | 0.993790 | 0.978292 |
| X1 | 0.990301 | 1.000000 | 0.994997 | 0.982742 |
| X2 | 0.993790 | 0.994997 | 1.000000 | 0.985401 |
| X3 | 0.978292 | 0.982742 | 0.985401 | 1.000000 |

**Figure 3.** Correlation test

Perform correlation testing on all variables to obtain the following figure:

It is found that X2 is the explanatory variable with the closest relationship to the explained variable, whereby a unitary regression equation can be established.

1) Command: LS Y C X2

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:13
Sample: 2002 2021
Included observations: 20

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -7163.832 | 2919.829 | -2.453511 | 0.0246 |
| X2 | 0.435017 | 0.011481 | 37.89145 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.987618 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.986930 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6032.812 | Akaike info criterion | 20.34245 |
| Sum squared resid | 6.55E+08 | Schwarz criterion | 20.44203 |
| Log likelihood | -201.4245 | Hannan-Quinn criter. | 20.36189 |
| F-statistic | 1435.762 | Durbin-Watson stat | 0.346718 |
| Prob(F-statistic) | 0.000000 | | |

**Figure 4.** Least-squares method of estimation

The regression result is:

s=0.0115 t=37.8915

=0.9876 =0.9869 F=1435.762 D.W.=0.3467

With X2 reserved, add other variables in turn:

2) Command: LS Y C X2 X1

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:15
Sample: 2002 2021
Included observations: 20

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -9650.913 | 5380.657 | -1.793631 | 0.0907 |
| X2 | 0.370307 | 0.117192 | 3.159846 | 0.0057 |
| X1 | 0.375360 | 0.676388 | 0.554948 | 0.5862 |

| | | | |
|---|---|---|---|
| R-squared | 0.987839 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.986408 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6152.237 | Akaike info criterion | 20.42450 |
| Sum squared resid | 6.43E+08 | Schwarz criterion | 20.57386 |
| Log likelihood | -201.2450 | Hannan-Quinn criter. | 20.45366 |
| F-statistic | 690.4352 | Durbin-Watson stat | 0.327130 |
| Prob(F-statistic) | 0.000000 | | |

**Figure 5.** Least-squares method of estimation

3) Command: LS Y C X2 X3

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Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:18
Sample: 2002 2021
Included observations: 20

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -7846.358 | 4361.165 | -1.799143 | 0.0898 |
| X2 | 0.449742 | 0.069294 | 6.490327 | 0.0000 |
| X3 | -0.009865 | 0.045746 | -0.215645 | 0.8318 |

| | | | |
|---|---|---|---|
| R-squared | 0.987652 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.986199 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6199.240 | Akaike info criterion | 20.43972 |
| Sum squared resid | 6.53E+08 | Schwarz criterion | 20.58908 |
| Log likelihood | -201.3972 | Hannan-Quinn criter. | 20.46888 |
| F-statistic | 679.8766 | Durbin-Watson stat | 0.363273 |
| Prob(F-statistic) | 0.000000 | | |

**Figure 6.** Least-squares method of estimation

4) Command: LS Y C X1 X2 X3

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:07
Sample: 2002 2021
Included observations: 20

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -10760.21 | 6756.734 | -1.592517 | 0.1308 |
| X1 | 0.402146 | 0.701710 | 0.573094 | 0.5745 |
| X2 | 0.385793 | 0.132101 | 2.920442 | 0.0100 |
| X3 | -0.013468 | 0.047099 | -0.285954 | 0.7786 |

| | | | |
|---|---|---|---|
| R-squared | 0.987900 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.985632 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6325.438 | Akaike info criterion | 20.51940 |
| Sum squared resid | 6.40E+08 | Schwarz criterion | 20.71855 |
| Log likelihood | -201.1940 | Hannan-Quinn criter. | 20.55828 |
| F-statistic | 435.4555 | Durbin-Watson stat | 0.342778 |
| Prob(F-statistic) | 0.000000 | | |

**Figure7.** Least-squares method of estimation

Result analysis: After introducing variables X1 and X3 into the optimal simple regression equation Y=f (X2), both of them improved, but the T-test failed. Therefore, delete variables X1 and X3. The regression equation obtained is.

### 3.3.3. Autocorrelation Test

1) Graphical method

From the graph, it can be seen that the sequence diagram of residuals is of a cyclic type, not with frequent symbol changes, but with consecutive positive values followed by consecutive negative values followed by consecutive positive values, indicating the existence of a positive correlation.

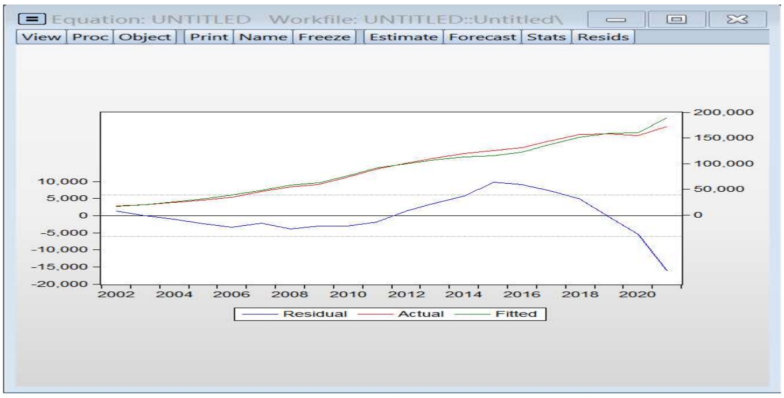
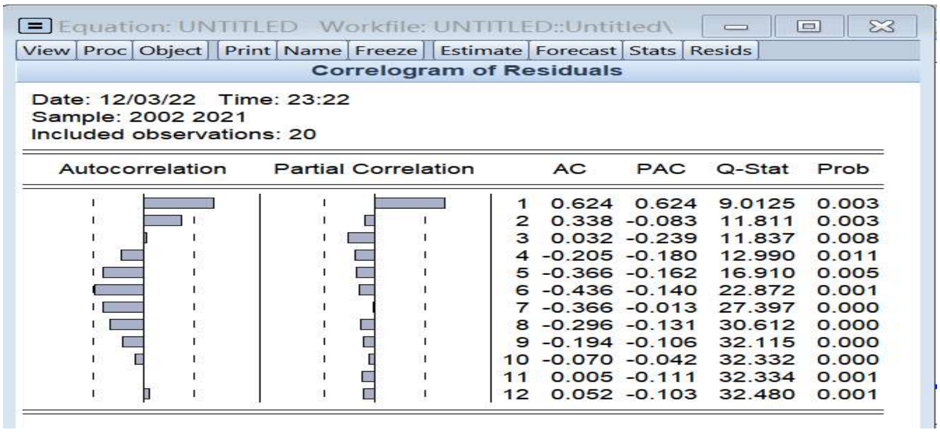



**Figure 8.** Sequence plots of residuals

2) Partial correlation coefficient test method

After entering the command, as shown in the following figure, it is easy to know that there is a first-order autocorrelation.




| Autocorrelation | Partial Correlation | | AC | PAC | Q-Stat | Prob |
|---|---|---|---|---|---|---|
| | | 1 | 0.624 | 0.624 | 9.0125 | 0.003 |
| | | 2 | 0.338 | -0.083 | 11.811 | 0.003 |
| | | 3 | 0.032 | -0.239 | 11.837 | 0.008 |
| | | 4 | -0.205 | -0.180 | 12.990 | 0.011 |
| | | 5 | -0.366 | -0.162 | 16.910 | 0.005 |
| | | 6 | -0.436 | -0.140 | 22.872 | 0.001 |
| | | 7 | -0.366 | -0.013 | 27.397 | 0.000 |
| | | 8 | -0.296 | -0.131 | 30.612 | 0.000 |
| | | 9 | -0.194 | -0.106 | 32.115 | 0.000 |
| | | 10 | -0.070 | -0.042 | 32.332 | 0.000 |
| | | 11 | 0.005 | -0.111 | 32.334 | 0.001 |
| | | 12 | 0.052 | -0.103 | 32.480 | 0.001 |

**Figure 9.** Partial correlation coefficient test

3) Correction of autocorrelation

Generalized difference method:

Based on the OLS estimation, DW=0.3428 can be obtained, which is equal to 0.8286. Using the commands GENRTX2=X2-0.8286 * X2 (- 1) and GENRTY=Y-0.8286 * Y (- 1), respectively, make a generalized difference for X2 and Y. Then perform OLS estimation for TY and TX2, and enter LS TY C TX2 on the command line to obtain the following figure:

Where, DW=0.3428, compared to the previous DW value, there is no significant change, that is, the first order autocorrelation has not been eliminated, possibly due to the presence of heteroscedasticity or other reasons.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1851.062 | 1719.899 | 1.076262 | 0.2968 |
| TX | 0.367805 | 0.027230 | 13.50742 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.914766 | Mean dependent var | 22894.13 |
| Adjusted R-squared | 0.909752 | S.D. dependent var | 10573.51 |
| S.E. of regression | 3176.420 | Akaike info criterion | 19.06420 |
| Sum squared resid | 1.72E+08 | Schwarz criterion | 19.16361 |
| Log likelihood | -179.1099 | Hannan-Quinn criter. | 19.08102 |
| F-statistic | 182.4505 | Durbin-Watson stat | 0.342759 |
| Prob(F-statistic) | 0.000000 | | |

**Figure 10.** Correction of autocorrelation

### 3.3.4. Heteroscedasticity test

1) Park inspection

In the window for estimating regression equations using all sample data and the OLS method, select View/Diagnostic/Heteroskedasticity Tests/Harvey, and add "CLOG (X)" to the dialog window Registers to obtain auxiliary regression equations and correlation test statistics. As shown in the following figure, Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Heteroskedasticity Test: Harvey

| | | | |
|---|---|---|---|
| F-statistic | 9.342185 | Prob. F(1,18) | 0.0068 |
| Obs*R-squared | 6.833532 | Prob. Chi-Square(1) | 0.0089 |
| Scaled explained SS | 7.187017 | Prob. Chi-Square(1) | 0.0073 |

Test Equation:
Dependent Variable: LRESID2
Method: Least Squares
Date: 12/03/22 Time: 23:37
Sample: 1 20
Included observations: 20

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -9.714374 | 8.363006 | -1.161589 | 0.2606 |
| LOG(X2) | 2.100507 | 0.687227 | 3.056499 | 0.0068 |

| | | | |
|---|---|---|---|
| R-squared | 0.341677 | Mean dependent var | 15.81243 |
| Adjusted R-squared | 0.305103 | S.D. dependent var | 2.337356 |
| S.E. of regression | 1.948431 | Akaike info criterion | 4.266565 |
| Sum squared resid | 68.33489 | Schwarz criterion | 4.366138 |
| Log likelihood | -40.66565 | Hannan-Quinn criter. | 4.286003 |
| F-statistic | 9.342185 | Durbin-Watson stat | 1.701202 |
| Prob(F-statistic) | 0.006795 | | |

**Figure 11.** Park inspection

As can be seen from the above figure, F=9.3422, with a P value of 0.0068, which is less than the significant level of 0.05. Therefore, the original assumption is rejected and the model is considered to have heteroscedasticity.

2) Correction of Heteroscedasticity

Set the weight variable,

GENR W1=1/X2^2.1005,

GENR W2=1/X2^0.5,

GENR W3=1/ABS(RESID),

GENR W4=1/RESID^2.

Estimating models using weighted least squares method,

In the E-views command window, type: LS (W=W1) Y C X2 as shown below.

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:41
Sample: 1 20
Included observations: 20
Weighting series: W1
Weight type: Inverse standard deviation (EViews default scaling)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -4715.661 | 806.3266 | -5.848327 | 0.0000 |
| X2 | 0.400154 | 0.011488 | 34.83262 | 0.0000 |

Weighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.985381 | Mean dependent var | 34918.73 |
| Adjusted R-squared | 0.984569 | S.D. dependent var | 24075.44 |
| S.E. of regression | 2138.975 | Akaike info criterion | 18.26868 |
| Sum squared resid | 82353841 | Schwarz criterion | 18.36825 |
| Log likelihood | -180.6868 | Hannan-Quinn criter. | 18.28812 |
| F-statistic | 1213.312 | Durbin-Watson stat | 0.514771 |
| Prob(F-statistic) | 0.000000 | Weighted mean dep. | 21753.19 |

Unweighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.970190 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.968534 | S.D. dependent var | 52770.31 |
| S.E. of regression | 9360.815 | Sum squared resid | 1.58E+09 |
| Durbin-Watson stat | 0.115522 | | |

**Figure 12.** Correction of Heteroscedasticity

In the E-views command window, type: LS (W=W2) Y C X2 as shown below.

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:43
Sample: 1 20
Included observations: 20
Weighting series: W2
Weight type: Inverse standard deviation (EViews default scaling)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -8299.255 | 1660.716 | -4.997396 | 0.0001 |
| X2 | 0.440051 | 0.008947 | 49.18633 | 0.0000 |

Weighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.992615 | Mean dependent var | 74659.79 |
| Adjusted R-squared | 0.992204 | S.D. dependent var | 27664.71 |
| S.E. of regression | 4459.067 | Akaike info criterion | 19.73791 |
| Sum squared resid | 3.58E+08 | Schwarz criterion | 19.83748 |
| Log likelihood | -195.3791 | Hannan-Quinn criter. | 19.75734 |
| F-statistic | 2419.295 | Durbin-Watson stat | 0.330680 |
| Prob(F-statistic) | 0.000000 | Weighted mean dep. | 58924.23 |

Unweighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.987486 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.986791 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6064.944 | Sum squared resid | 6.62E+08 |
| Durbin-Watson stat | 0.356589 | | |

**Figure 13.** Correction of Heteroscedasticity

In the E-views command window, type: LS (W=W3) Y C X2 as shown below.

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:45
Sample: 1 20
Included observations: 20
Weighting series: W3
Weight type: Inverse standard deviation (EViews default scaling)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -7211.732 | 137.7958 | -52.33636 | 0.0000 |
| X2 | 0.434156 | 0.001343 | 323.2223 | 0.0000 |

Weighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.999828 | Mean dependent var | 51818.62 |
| Adjusted R-squared | 0.999818 | S.D. dependent var | 88865.98 |
| S.E. of regression | 1023.115 | Akaike info criterion | 16.79373 |
| Sum squared resid | 18841756 | Schwarz criterion | 16.89330 |
| Log likelihood | -165.9373 | Hannan-Quinn criter. | 16.81317 |
| F-statistic | 104472.7 | Durbin-Watson stat | 0.462330 |
| Prob(F-statistic) | 0.000000 | Weighted mean dep. | 26758.50 |

Unweighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.987592 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.986903 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6039.147 | Sum squared resid | 6.56E+08 |
| Durbin-Watson stat | 0.343752 | | |

**Figure 14.** Correction of Heteroscedasticity

In the E-views command window, type: LS (W=W4) Y C X2 as shown below.

Equation: UNTITLED Workfile: UNTITLED::Untitled\

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: Y
Method: Least Squares
Date: 12/03/22 Time: 23:46
Sample: 1 20
Included observations: 20
Weighting series: W4
Weight type: Inverse standard deviation (EViews default scaling)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -7190.087 | 16.81211 | -427.6731 | 0.0000 |
| X2 | 0.433958 | 0.000259 | 1677.657 | 0.0000 |

Weighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.999994 | Mean dependent var | 26758.50 |
| Adjusted R-squared | 0.999993 | S.D. dependent var | 86562.88 |
| S.E. of regression | 69.77102 | Akaike info criterion | 11.42295 |
| Sum squared resid | 87623.91 | Schwarz criterion | 11.52253 |
| Log likelihood | -112.2295 | Hannan-Quinn criter. | 11.44239 |
| F-statistic | 2814534. | Durbin-Watson stat | 1.215236 |
| Prob(F-statistic) | 0.000000 | Weighted mean dep. | 20305.58 |

Unweighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.987586 | Mean dependent var | 90957.16 |
| Adjusted R-squared | 0.986896 | S.D. dependent var | 52770.31 |
| S.E. of regression | 6040.701 | Sum squared resid | 6.57E+08 |
| Durbin-Watson stat | 0.343065 | | |

**Figure 15.** Correction of Heteroscedasticity

After estimation and testing, it is found that using the weight W4 has the best effect. Below is the result of using the weight W4.

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Perform a White test to observe the adjustment of heteroscedasticity. The White test corresponding to the figure below shows that the P value of the weight W4 is large, so it is better to select this model.

s=0.0003 t=1677.657
=0.9999 =0.9999 F=2814534 D.W.=1.2152

Compared with the original model, this model has improved the decision coefficient, t statistics and F statistics, and all of them are very good, indicating that the regression model with weighted least squares method is more suitable for samples than the regression model estimated with least squares method without considering other problem.

## 4. Conclusion and Recommendations

Based on the empirical analysis of this experiment, we find that the primary and tertiary industries - agriculture and services - have little correlation with tax revenue, while the secondary industry has a closer and positive correlation with tax revenue. In particular, it should be mentioned that the impact of the epidemic may have weakened the role of related service industries in taxation, leading to the conclusion that the tertiary industry has little relevance to taxation. In general, the tertiary industry is positively correlated with tax revenue, with a positive long-term impact. Although the effect is not significant in a short period of time, the development of the tertiary industry has broad prospects. I believe that in the future, the tertiary industry can contribute more to tax revenue.

Therefore, this article proposes the following policy recommendations:

Optimize the industrial structure, promote the upgrading of the industrial structure, vigorously develop the tertiary industry while taking into account the secondary industry, gradually optimize the internal structure of the tertiary industry, guide enterprises to promote the reform of the service industry through tax policies, reduce the proportion of traditional service industries, increase support for high-tech enterprises, and focus on the development of new service industries such as the Internet and finance.

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