Growth of Internet Users and Impact on Gross Domestic Product and Corruption in Singapore

Nehruddin[1], Rachmawati Rachman[2], Siti Mutmainah[3]
[1,2,3]STIE Jaya Negara Tamansiswa Malang, Indonesia

Abstract

Since ancient times, there has been corruption until now, and we already have data that we examines in this study from 2000 to 2020 to develop "autoregressive vectors" that may be used to determine relationships between variables about Internet Users and the Impact on Gross Domestic Product in Singapore. This design was used to examine Corruption, the Gross Domestic Product, and Internet Users in Singapore, with data from the World Bank. We discover something about this research, Corruption is a major problem facing a nation, in Singapore the level of corruption can decrease when Internet users increase, but more and more Internet users in Singapore can also result in a decrease in gross domestic product. When gross domestic product falls in Singapore, the growth of corruption in Singapore will also increase.

Keywords: Gross Domestic Product, Internet User, Corruption, Singapore
JEL Classification: D73, L86, N7

Received: May 6,2022 Accepted: June 1,2022
DOI : 10.54204/TAJI/Vol612022009

Background

Local autonomy to handle its own budget frequently leads to misuse of authority, which contributes to corruption. (Elkagiani & Wibowo, 2021). Corruption is a major problem facing a nation (Kriyantono & Pratama, 2019). The eradication of corruption is important in sustainable development. The level of corruption is proxied by the Corruption Perception Index (Robiah & Apandi, 2020; Mukhlis & Viphindrartin, 2021). The corruption perception index of a nation is still relatively high so that joint countermeasures are needed, including from universities (Kriyantono & Pratama, 2019). Corruption itself is included in the White Collor Crime where the crime is committed by stakeholders, so that in the settlement of cases there is often a disparity in decisions due to conflicts of interest from several parties (Rabathi & Zakaria, 2022). However, the implementation of substitute money crimes in corruption cases creates a complicated dynamic because it is clashed with normative rules that provide a loophole for convicts to serve subsidary crimes (Mahmud, 2017).

Corruption has become a problem that occurs in all countries of the world. In addition, the problem is, Since ancient times, there has been corruption until now. The impact of these acts of corruption can reduce the quality and welfare of people's lives (Nugroho, 2022). Corruption is known as an extraordinary crime that has an impact on the country's losses and economy, which has a bad impact on the prosperity and welfare of the community (Mastalia, 2017). Meanwhile,a country's success in developing its economy is characterized by the value and growth rate of gross domestic product (GDP) (Suwali, Putranto, Panunggul, Kinding, Noviani, 2022; Prabowo, Sulisnaningrum, & Harnani, 2021). However, it is also aggregatory moment who affect Gross Domestic Product, with Hyperinflation also with joblessness (Harjunawati & Hendarsih, 2020).

Mini, Tiny and Normal size Enterprise or (MSMEs) have an strong impact to the country's economic. MSMEs contributed to the addition of fields by 60% and the formation of Gross Domestic Product (GDP) by 40% (Purwanto, Sukadani, Dwiarta, Parsetyo, 2020).

Economic growth is one of the most important indicators in measuring the success of economic development that occurs in a country (Fajriyah, 2022; Purwantini, 2017; Soniansih & Rachman, 2021). Economicgrowth increases in value and the quantity in products and services produced that some nation calculates on a given time based on numerous measures, including a growth in economic output, per median spending, or a bigger number of employees than activities (Krisnanto, 2017; Prabowo, 2022; Rachman & Sok, 2022).

Exports have a significant effect on economic growth, this is because export activities can provide very large foreign exchange (Irawan, Sasongko, Mukhlis, Yanto, & Wulandari, 2022). Widespread export to different countries allows increasing the amount of production that supports economic growth. The influence of exports and imports greatly affects a country's economic growth because a country has not been able to manage existing natural resources so that its economic growth is fairly slow (Pratama, 2022; Viphindrartin & Bawono, 2021). In addition, the existence of Foreign Direct Investment in some nation be helpful as taxes collected via taxes resources, and also the link amongst modernization, practical skill exchange, entrepreneurship product expansion, that increasing overall income level inside the economic (Mahendra, 2021; Widarni & Bawono, 2021).That also increase in FDI or Foreign Direct among academics relating to the link among web usage and job prosperity (Mukhlis, 2021; Bawono, 2021).

The internet's adoption produces an efficient product transaction platform enables convenience and comfort in doing business internationally, resulting in a substantial dependence on technology to develop its firm domestically and abroad (Tommi Elang, & Prabowo, 2021; Widarni, Irawan, Harnani, Rusminingsih, & Alim, 2022; Priyanto, Widarni, & Bawono, 2022). As a result, the presence of the internet plays a vital part inside a growth of the economy and, to a certain extent, influences an economy (Wahabi, Nayan, Cheah, 2020; Damayanti, 2021).

As the usage of Internet grows fast, so does the method they surf the Website and his activity (Krairit, 2018; Soniansih & Sulisnaningrum, 2021). Having a 67% share worldwide, Internet Service Providers, smartphone is critical (ISPs). Because mobile Internet connection is a shared resource, Key Performance Indicators (KPIs) that measure the The level of data flow on specific network segments/servers may not accurately reflect the real customer experience portions (Uzun & Abul, 2022). As a result, mobile ISPs engage in powerful commercial speed analysis systems that gather and analyze packet data from significant network (Puspaningtyas, 2021). So, the internet is a major necessity for smart phone users. Mobile phones are the best friend of today's generation. Most of the people use smart phones (Singh, 2020; Rusminingsih, Harnani, & Damayanti, 2022). In addition, additional offline services that support and enhance core products are one of the key factors that bring success to online sellers and online marketplaces (Zheng, Li, Cheng, Wu, 2022; Puspaningtyas, Irawan, & Castellano, 2022). This research looks at Corruption, the Gross Domestic Product, and Internet Users. This study examines data from 2000 to 2020 to develop "autoregressive vectors" that may be used to determine relationships between variables.

Research methods

This model is used to assess Corruption, GDP, and Internet Users in Singapore using secondary data from the World Bank. From the year 2000 to the year 2020, a 21-year research study was undertaken, and " vectors' autoregressive " are used to describe variable one to the other

variables connection. In Singapore, we look into corruption, the GDP, and Internet users. To investigate some connections, we employ the multivariate regression method among the variables Corruption, GDP, and Internet Users in Singapore:

Table 1. An explanation of the variable description that we will use

Variable	Description
Gross Domestic Product (GRSDT)	This figure represents overall goods' market cap values with goods services manufactured by a nation between 2000 and 2020.
Corruption (CRPTN)	This variable discusses data on the growth of corruption in Singapore from 2000 to 2020.
Internet Users (IUSR)	This variable discusses the growth and development of internet users in Singapore from 2000 to 2020.

$GRSDT_t = \beta_0 + \beta_1 CRPTN_{t1} + \beta_2 IUSR_{t2} + e_t$ fma 1
$CRPTN_t = \beta_0 + \beta_1 GRSDT_t + \beta_2 IUSR_{t2} + e_t$ fma 2
$IUSR_t = \beta_0 + \beta_1 GRSDT_t + \beta_2 IUSR_t + e_t$ fma 3

Information :
GRSDT : Gross Domestic Product
IUSR : Internet Users
CRPTN : Corruption
e : erroneous title
t : time sequence
β : degree in terms of causation influence
fma: formula
This research employs vector computations, in which every regression connection is combined so that every variable simultaneously becomes both the independent and the dependent variables. The concept of zero from Dickey-Fuller, derived by PP analyze, with p=1 and $\Delta yt = (\rho - 1)yt\text{-}1 + ut$ are formula, while Δ – This is very first try, various operations were utilize. For the "unit root test," the following equation was employed in this study:
$\Delta Y1 = \alpha_0 + \beta_0 T + \beta_1 Y_{t-1} + \sum\_(i\text{-}1)\text{^}q\ \alpha_1 \Delta Y_{t-1} + e_t$

Caption:
Y are check of unit root variables.
T "linear pattern" variable represented, and "different in lag" are Yt1, 0 are displayed as "single equation," also with "t" being a "time trends" indication. The null hypothesis (h0) and the following are some alternate unit root test hypotheses:
H0 : $\alpha=0$
H1 : $\alpha\neq0$

Results and Discussion

We utilized the stationarity test to determine whether or not a data set is stationary. Term of Error analysis is used to assess if a series is static, including some possibilities if the series isn't truly stationary. Table 2 shows some results from attempting some root of the test unit.

Table 2. The test of ADF's Unit Root on CRPTN, GRSDT and IUSR data in Singapore.

Variable	Unit Root	Include in the examination Equation	Statistics for the ADF Test	5% Critical Value	Description
Gross Domestic Product (GRSDT)	Level	Intercept	-3.353059	0.0258	Stationer
Corruption (CRPTN)	Level	Intercept	-3.353059	0.0258	
	First Diff	Intercept	-4.411738	0.0030	Stationer
Internet Users (IUSR)	Level	Intercept	-2.229913	0.2033	
	First Diff	Intercept	-3.834050	0.0105	Stationer

CRPTN with IUSR data are stationary on the first diff, when variable GRSDT are stationer on the original Level. This is demonstrated by Augmented Dickey-Fuller with results like, running the test -3.353059 and probability 0.0258, since the probability is less than 5%, in this situation, the GRSDT First Diff data indicates that it is stationary. Both VAR and causationtry should be tested for sensitivity before starting a VAR investigation, there should be a selection of an acceptable optimal time lag with the results presented in table 3.

Table 3. The test of Optimum Lag at Lag 0 to 4 CRPTN, GRSDT and IUSR data in Singapore

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-182.1414	NA	578454.7	21.78134	21.92838	21.79595
1	-156.2944	39.53060	81852.17	19.79935	20.38750	19.85781
2	-144.4469	13.93829	66604.57	19.46434	20.49361	19.56665
3	-119.0656	20.90225*	13958.81	17.53713	19.00751	17.68329
4	-93.36011	12.09670	4987.153*	15.57178*	17.48327*	15.76178*

And the results of the variations in the length of CRPTN, GRSDT and IUSR lags on the LR, FPE, with SC at position number 1. Some outcome by the three components concludes that lag 4 is different, so lag 4 will be chosen. The VAR analysis's outcome is presented at the table 4.

Table 4. VAR Model Analysis

	CRPTN	GRSDT	IUSR
CRPTN	0.884389	0.003410	0.043258
	(0.20674)	(0.07403)	(0.06778)
	[4.27783]	[0.04607]	[0.63817]
GRSDT	-2.100080	-0.141224	-0.599646
	(1.02492)	(0.36702)	(0.33604)
	[-2.04903]	[-0.38478]	[-1.78444]
IUSR	-0.427214	-0.349513	-0.311814
	(1.17335)	(0.42018)	(0.38471)
	[-0.36410]	[-0.83182]	[-0.81052]

C	-1.180831	20.97070	72.88927
	(62.4497)	(22.3633)	(20.4755)
	[-0.01891]	[0.93773]	[3.55983]
R-squared	0.987761	0.871260	0.981616
Adj. R-squared	0.951044	0.485040	0.926464
Sum sq. resids	297.2411	38.11723	31.95347
S.E. equation	8.620341	3.086958	2.826370
F-statistic	26.90199	2.255865	17.79839
Log likelihood	-48.44326	-30.98531	-29.48603
Akaike AIC	7.228619	5.174742	4.998356
Schwarz SC	7.865782	5.811905	5.635519
Mean dependent	49.37059	4.886070	75.77211
S.D. dependent	38.96022	4.301738	10.42267

The relationship between GRSDT and CRPTN, very negative, has -2.100080 the coefficient with the -2.04903 t-statistic. The connection among CRPTN to the IUSR are very good, having 0.043258 coefficient with 0.63817 t-statistic, meaning that the more the more Internet Users. Some connection among IUSR to the GRSDT are super negative, with -0.349513 coefficient also with -0.83182 t-statistic. From this we can see that Gross Domestic Product can reduce the level of Corruption, if the Gross Domestic Product decreases, then the level of corruption will also decrease. After doing the VAR test, The test of Causality Granger was carried out with the results presented in table 5.

Table 5. The test of Causality's Granger

Null Hypothesis:	Obs	F-Statistic	Prob.
GRSDT is not the cause of CRPTN	17	3.37368	0.0674
CRPTN is not the cause of GRSDT		1.70510	0.2412
IUSR is not the cause of CRPTN	17	0.45385	0.7678
CRPTN is not the cause of IUSR		3.15014	0.0784
IUSR is not the cause of GRSDT	17	7.25945	0.0090
GRSDT is not the cause of IUSR		0.75791	0.5806

Table 5 shows the results of the Granger Causality test in Singapore. The causal relationship between a single variable and another is between the GRSDT variable for CRPTN, the IUSR variable for CRPTN, and the IUSR variable for GRSDT. This is demonstrated by the probability being less than 5%.

Conclusion

Corruption is a major problem facing a nation, in Singapore the level of corruption can decrease when Internet users increase, but more and more Internet users in Singapore can also result in a decrease in gross domestic product. When gross domestic product falls in Singapore, the growth of corruption in Singapore will also increase.

References

Bawono,S.(2021).The Opportunity of Internet Literacy to Increase Consumption and Attract Foreign Investor in Indonesia.Tamansiswa Management Journal International,2(1),16-19.

Damayanti,L.(2021).Digital Marketing in Encouraging Economic Growth and Domestic Consumption in Indonesia.Tamansiswa Management Journal International,3(1),48-53.https://doi.org/10.54204/TMJI/Vol312021011

Elkagiani, V. W., & Wibowo, P. (2021). Disclosure laporan k euangan pemerintah d aerah dan indeks p ersepsi korupsi : A peliminary study, My journal. 1(3), 222–233. https://doi.org/10.54957/jurnalku.v1i3.31

Fajriyah, N.R. (2022). The effect of import exports on GDP in France and Italy for the period 2011-2022, OSF Printing House. 1(1), 1-27. https://doi.org/10.31219/osf.io/zwgfy

Harjunawati, S., Hendarsih, I. (2020). The effect of unemployment and gross domestic product inflation in 2009-2019, Journal of education and entrepreneurship, 7(2), 13-24. https://doi.org/10.47668/pkwu.v7i2.27

Irawan, C. B., Sasongko, B., Mukhlis, M., Yanto, D. D. G. F., & Wulandari, M. W. (2022). Trade and Foreign Direct Investment on Economic Growth in Indonesia: ARDL Approach. Tamansiswa Accounting Jurnal International, 5(1), 70-75. https://doi.org/10.54204/TAJI/Vol512022011

Krairit, D. (2018). The new face of internet user typology: the Thai case, Journal of theoretical and applied electronic commerce research. 13(2), 58-79. https://doi.org/10.4067/S0718-18762018000200106

Krisnanto, A. B. (2017). Green Strategic Management Untuk Keunggulan Bersaing Berkelanjutan. INOBIS: Jurnal Inovasi Bisnis dan Manajemen Indonesia 1 (1), 1-10.

Kriyantono, R., Primary B.I. (2019). Pemanfaatan computer games licensed free software as an anti-corruption learning medium for children, journal abdimas bsi journal community service. 2(2), 374-386. https://doi.org/10.31294/jabdimas.v2i2.5929

Mahendra, W. (2021). Determinants of foreign direct investment (fdi) in the countries of the Organization of Islamic Cooperation (OIC) for the period 2010-2019, Panangkaran journal of religious and community research. 4(1),99-118. https://doi.org/10.14421/panangkaran.2020.0401-06

Mastalia, A. (2017). Kedudukan death penalty as a sanction against corruption, Syiar law journal of legal science. 15(1), 1-16. https://doi.org/10.29313/sh.v15i1.2146

Mukhlis,M.(2021).The Role of Digital Marketing in Encouraging Foreign Direct Investment, Economic Growth and Domestic Consumption in Indonesia.Tamansiswa Management Journal International,3(1),54-60. https://doi.org/10.54204/TMJI/Vol312021012

Mukhlis,M., & Viphindrartin,S.(2021).Inflation, Exchange Rate, Corruption Effect on Foreign Direct Investment (FDI) in ASEAN 3.Tamansiswa Accounting Journal International,1(1),49-54.

Nugroho, B. (2022). The massive impact of corruption, Anti-corruption education. 1(1), 65-81.

Prabowo, B. H. (2022). The The Digital Economy and the Importance of Technology in Economic Growth. Tamansiswa Accounting Jurnal International, 4(1), 24-31.

Prabowo, B. H., Sulisnaningrum, E., & Harnani, S. (2021). FINANCIAL CRISIS AND USURY IN DIGITAL ECONOMIC: WHY MAJOR RELIGION PROHIBIT USURY? MONETARY STUDIES IN ASIA 5. JBFEM, 4(1), 27-46.

Primary, N.N. (2022). "The effect of export-import on the GDP of Brazil and Mexico for the period 2011-2021.", Preprint OSF. 1(1), 1-14. https://doi.org/10.31219/osf.io/evncg

Priyanto, E., Widarni, E. L., & Bawono, S. (2022). The Effect of Internet Inclusion on Financial Inclusion in P2P Lending in Indonesia Based on Human Capital Point of View. In Modeling Economic Growth in Contemporary Indonesia (pp. 107-121). Emerald Publishing Limited.

Purwantini, H. (2017). Minimizing Tax Avoidance by Using Conservatism Accounting Through Book Tax Differences: Case Study in Indonesia. International Journal of Research in Business and Social Science, 6(5), 55-67.

Purwanto, T., Sukadani, Y., Dwiarta, I.M.B., Prasetyo, A. (2020). "Maximizing the business potential of MSME actors through the innovation of processed agricultural products in Banjarsari village, cerme district, Gresik regency", Ekobis Abdimas Journal of Community Service. 1(2), 98-103. https://doi.org/10.36456/ekobisabdimas.1.2.3025

Puspaningtyas,M.(2021). Information and Communication Technology Infrastructure in Public-Private Partnership In Financial Technology In Indonesia.Tamansiswa Management Journal International,3(1),15-18.https://doi.org/10.54204/TMJI/Vol312021005

Puspaningtyas, M., Irawan, C. B., & Castellano, A. (2022). English Education System in International Marketing Based on Digital Marketing. Asia Pacific Journal of Management and Education (APJME), 5(2), 62-73.

Rabathi, Q., Zakaria, C.A.F. (2022). Disparity of verdicts on corruption crimes committed by individuals is connected with law number 20 of 2001 concerning amendments to law number 31 of 1999 concerning the eradication of criminal acts, series of bandung conference: a study of hukum, 2(1),1-10. https://doi.org/10.29313/bcsls.v2i1.527

Rachman,R., & Sok,A. (2022).Domestic Savings, Money Supply and Economic Growth In Sri Lanka. Tamansiswa Management Journal International.5(1),18-22.https://doi.org/10.54204/TMJI/Vol512022004

Robiah, I.S., Apandi, R.N.N. (2020). Does the quality of supreme audit institutions and the type of state law affect the level of corruption?, Journal of accounting & finance education. 8(1):107-122. https://doi.org/10.17509/jpak.v8i1.21444

Rusminingsih,D., Harnani,S., & Damayanti,L. (2022). The Concept of Information and Communication Technology on Human Capital Development: Content Analysis Method Approach.Asia Pacific Journal of Management and Education,5(3),14-24.

Singh, J. (2021). Growth and potintial of wireless internet user in rural india, Psychology and education. 58(2), 1010-1022. https://doi.org/10.17762/pae.v58i2.2130

Soniansih,S., & Rachman,R. (2021). Communication and Information Technology in Encouraging Economic Growth.Tamansiswa Management Journal International,1(1),28-30.

Soniansih, S., & Sulisnaningrum, E. (2021). Digital Economy and Tourism Industry Within the Frame of Information and Communication Technology. Tamansiswa Accounting Journal International, 1 (1), 6-11.

Suwali, S., Putranto, A.H., Panunggul, V.B., Kinding, D.P.N., Noviani, F. (2022). Analysis of the contribution of coffee exports to the GDP of the plantation sector in the country, Officer of the Journal of Economics & Business. 2(2), 43–49. https://doi.org/10.54199/pjeb.v2i2.143

Tommi Elang, H., & Prabowo, B. H.(2021). Strategic Planning for Human Resources, Technology, and Organizational Performance.Splash Magz,1(2),101-104.

Uzun, M., Abul, O. (2022). Proactive measurement of mobile internet user experience, Journal of electrical and computer engineering balkans. 10(3), 264-272. https://doi.org/10.17694/bajece.1089321

Viphindrartin, S., & Bawono, S. (2021). International Economics. Munich : BookRix.

Wahabi, N.A., Nayan, S., Cheah, Y.K. (2020). Internet users and economic growth: emipirical evidence from data panels, Journal of emerging economies and islamic research. 8(3), 17-25. https://doi.org/10.24191/jeeir.v8i3.8952

Widarni, E. L., & Bawono, S. (2021). The Impact of Combination of Human Capital and Financial Literacy in Encouraging Economic Growth in Indonesia. In 6th INTERNATIONAL CONFERENCE OF GRADUATE SCHOOL ON SUSTAINABILITY (ICGSS) (Vol. 121).

Widarni, E. L., Irawan, C. B., Harnani, S., Rusminingsih, D., & Alim, M. B. (2022). Human capital and internet literacy impact on economic growth in Indonesia. Journal of Management, Economics, and Industrial Organization, 6 (3), 101-112.

Zheng, Z., Li, G., Cheng, T., Wu, F. (2022). Offline complementary services strategy for the online marketplace: Third-party services or marketplace services?, Research t ransporasi bagian E kajian ogistik and transportasi. 164(8),1-10. https://doi.org/10.1016/j.tre.2022.102810