



THE ECONOMIC COST OF CRIMINALITY: AN ANALYSIS OF ITS IMPACT ON DEVELOPMENT

Leomar M. Sabrosoⁱ,

Cathy Cadusale,

Eulalio C. Patayon

University of Mindanao,

Department of Agrarian Reform,

University of Southeastern Philippines,

Philippines

Abstract:

Maintaining peace and harmony is a crucial challenge for developing nations, and the crime rate is a significant factor in achieving this goal. This study is intended to examine the relationship between a developing country's crime rate and the economic factors that influence it. This quantitative study aims to test the objective hypotheses through multiple regression analysis. The study utilized secondary data from the World Bank from 1990 to 2018 to assess the Philippines' crime rate and economic factors. The analysis reveals that economic factors, such as urbanization, GDP per capita, financial development, and labor force, substantially impact the national crime rate. This study provides policymakers with vital insights for implementing evidence-based peace and development initiative strategies.

Keywords: criminality, economic cost, impact on development

1. Introduction

The intricate nature of a developing country's economy in addressing criminal activities has been a crucial consideration for policymakers seeking to promote peace and stability. Strengthening a country's laws and regulations is essential for creating a secure and healthy environment, which is attractive to foreign and domestic investors, visitors, tourists (Pilapil-Añasco & C. Lizada, 2014), and other stakeholders. This, in turn, can lead to economic growth.

In the previous year, crime has been challenging in addressing peace and security taking for example in 2010, where the estimated crime recorded jumped from around 4 million to over 5 million cases in 2011 (PSA, 2013). The safety and security to do business

ⁱ Correspondence: email lmsabroso00422@usep.edu.ph

and the ease of doing business have always been hampered in succeeding years due to crime and criminality (Plaza, 2020).

The problem of crime and criminality affects the economy of a country as this is one of the considerations to engage in economic activities both locally and internationally (Jonathan et al., 2021). Furthermore, crimes in any form affect everyone living in society and will continue to destabilise the economy and the development of the country (Paredes, 2002).

Crime may affect economic development and social factors which illuminate growth and prosperity. Measuring these economic factors to understand how crime disrupts and destabilizes the country which is the primary target of the study.

2. Objective of the Study

The primary aim of the study is to examine the relationship between the economic factors that influence the crime rate in the country.

3. Review of Related Literature

This section explores the information related to the particular research that helps to analyze and decide the essence of the study by theoretically defining knowledge and concepts, strengths, and limitations as a guiding principle to express the study's intent.

3.1 Crime

Thotakura (2011) defines crime as a socially unacceptable act that goes against the norms and values of society. Criminal behavior is not inherent in individuals; rather, it is influenced by a range of factors, including social, economic, biological, and psychological factors. During the 19th century, crime was a topic of significant interest and concern for both the government and the general public in Europe. According to Malik (2016), the rise in urban-industrial crime can be attributed to social changes and complex processes associated with urban development.

3.2 Population

The United Nations Office for West Africa (UNOWA) argued in 2016 that a rapid and disorganized shift of people from rural areas to urban centers is taking place in many developing countries. This phenomenon hinders the ability of national governments and local authorities to provide security and essential social infrastructure in urban areas. Consequently, this results in the growth of slums or shantytowns that engulf and overwhelm the already compromised urban infrastructure, which further exacerbates security and crime challenges (Owusu et al., 2015).

In the Philippines, plenty of crimes directly related to urbanization that airs serious concern for the government and civil society, foremost of these are street crimes, illegal drug trafficking, robbery and theft, violent crimes against women and children, and terrorism (Leones, 2004).

3.3 Foreign Direct Investments

Foreign Direct Investments (FDI) have played a fundamental role in reshaping the business environment in CEE countries over the last 20 years and helped in the development of a well-functioning market economy (Cazacu, et al., 2021).

In the assessment conducted by Brown & Hibbert (2019), it has been observed that crime has an effect on the service industry sub-sector in financial services. Thus, policymakers are interested in boosting FDI in the affected sectors in the reduction of criminal activities.

3.4 Gross Domestic Product per Capita

The Economist (2011) looks at the relationship between GDP per capita and crime at the state level during the recession from 2007 until 2010. At that time, crime rates had been dropping for two decades nationwide and the Economist wanted to investigate whether this trend would continue through harsh economic times.

Roman (2013) conducted research to examine the relationship between GDP and violent and property crime rates from 1960 until 2013. He begins by outlining the difficulty in testing the hypothesis that big macroeconomic factors explain crime trends. 'Crime obviously affects macroeconomic factors. In the thesis conducted by Thapa (2021), was concluded that economic growth (state's GDPs) positively affects economic offenses and crime against women.

3.5 Financial Development

The growing digital economy together with the period of crisis like COVID-19, create challenges for criminals to engage in new crimes, cyber cams, fraud, disinformation, and other cyber-enabled crimes (Violeta Achim et al., 2021).

In the study conducted by Barua & Mahesh (2018), it was observed that in the presence of high-income inequality, the states have witnessed an increase in crime rates. Thus, financial development needs to be accompanied by other policies that reduce inequality and prioritize inclusivity, so that as income inequality falls, the benefits of financial development may be realized.

3.6 Total Unemployment

In Sweden, in a study conducted by Lundqvist (2018), the results suggested at best a weak effect from unemployment on violent crime and no effect from unemployment on property crime which goes against the established crime theory.

Draca & Machin (2015) mentioned that if the loot value from crime increases, this will necessarily increase the crime rate. Cited by Becker (1968) and Ehrlich (1973) recognize that the risk appetite of a criminal is another element of the type of individuals who are willing to commit a crime.

3.7 Labor Force Participation Rate

Those who were working were less likely to have reported that they had engaged in criminal behavior in the year prior to their interview. Young adults who are employed in

secondary sector jobs, that are more marginal to the labor market, are more likely to have committed criminal violations. We found these effects in urban areas but not among the rural sub-samples (Crutchfield et al., 2006; Crutchfield & Pitchford, 1997). A paper written by Gustavsson & Österholm (2012), presents strong evidence against mean reversion in disaggregated participation rates of subpopulations of the US labor force. Thus, the major implication is that resorting to unemployment rates for subpopulations does not overcome the informational problems of a non-stationary aggregate participation rate.

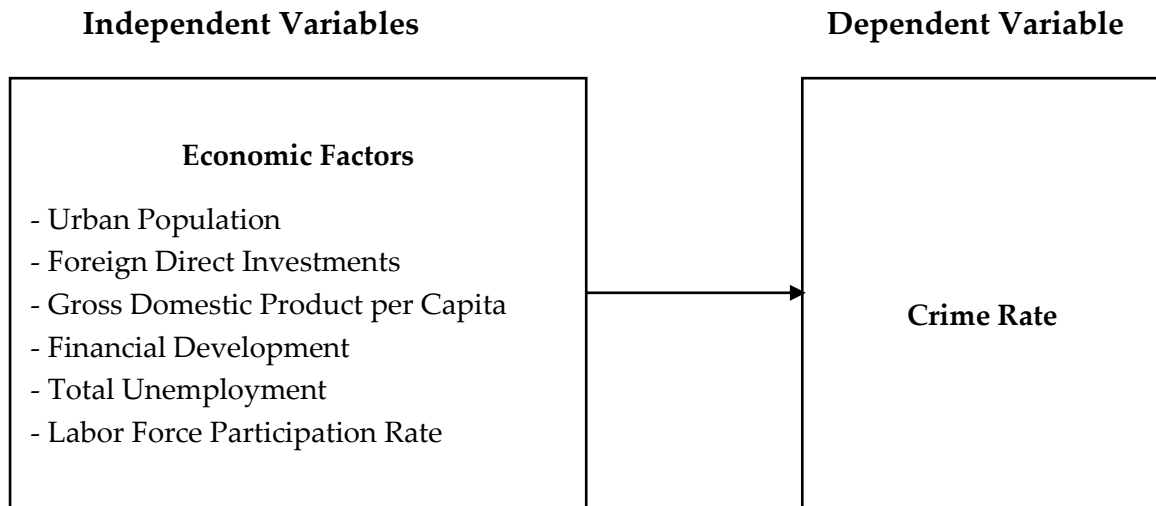


Figure 1: Conceptual Framework of the Study

4. Methodology

The approach employed in the study is presented, including the research design, data source, and statistical treatment of the data.

4.1 Research Design

This study employed a quantitative method (Creswell & Creswell, 2018; Greene, 2013; Perreault, 2011) which examines the link between factors that may be quantified to evaluate objective hypotheses. Multiple Regression Analysis is used to measure the relationship between the dependent and independent variables. Independent variables are variables whose values are known that can explain the dependent variable (Dhakai, 2018; Frieman et al., 2022). In other words, multiple regression is a statistical method for examining the connection between numerous independent variables and a single dependent variable. The goal of multiple regression analysis is to predict the value of a single dependent variable by using known independent variables (Moore et al., 2006).

Likewise, several studies have used multiple regression to measure the relationship between the crime rate and economic factors which elaborated the validity used in the study (Abdullah, 2015; Hosseini et al., 2019; Wijaya, 2021).

4.2 Data Sources

The study makes use of the available secondary data from World Bank. These secondary data obtained was from the year 1990 to 2018 (a 29-year observation) in measuring the crime rate of the Philippines and the economic factors thereof (Abdouli & Hammami, 2020). Furthermore, the variables used in the study and its descriptions are as follows:

Table 1: The variables used in the study

Variables	Description
Crime Rate	Intentional homicides (per 100,000 people)
Urban Population	Urban population (% of total population)
Foreign Direct Investments	Foreign direct investment, net inflows (% of GDP)
Gross Domestic Product per Capita	GDP per capita (constant 2015 US\$)
Financial Development	Domestic credit to private sector (% of GDP)
Total Unemployment	Unemployment, total (% of total labor force) (national estimate)
Labor Force Participation Rate	Labor force participation rate, total (% of total population ages 15+) (national estimate)

Source: World Bank.

4.3 Statistical Treatment of Data

The gathered data was analyzed through multiple linear regression. This is the efficient statistical tool used to regress and measure the relationship between the variables. Each predictor value is weighed, the weights denoting their relative contribution to the overall prediction.

$$Y = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \dots + \beta_n X_{ni} \quad (1)$$

Here, Y is the dependent variable, and X_1, \dots, X_n are the n independent variables. In calculating the weights, a, b_1, \dots, b_n , regression analysis ensures maximal prediction of the dependent variable from the set of independent variables. This is usually done by least squares estimation (Moore et al., 2006).

4.4 Model Specification

The regressor econometric equation model of the study is as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \mu_i \quad (2)$$

Where:

Y_i = Crime rate of the i -th;

B_0 = Intercept term;

β_{is} = Efficiency parameters to be estimated;

X_{1i} = Urban population;

X_{2i} = Foreign direct investments;

X_{3i} = Gross domestic product per capita;

X_{4i} = Financial development;

X_{5i} = Total unemployment;

X_{6i} = Labor force participation rate; and
 μ_i = represents the error term.

5. Results and Discussions

A multiple regression was processed to predict Crime rate from Urban, Foreign Direct Investment, GDP per Capita, Financial Development, Total Unemployment and Labor Force Participation. The r^2 value indicates that the proportion of variance in the dependent variable that can be explained by the independent variables with a value of 0.8205 these independent variables explain 82% of the variability of the dependent variable. Furthermore, the output shows that the independent variables statistically significantly predict the dependent variable, $F(6, 22) = 16.76$, $p < 0.000$, thus statistically significant to the prediction, $p < 0.05$.

Moreover, the result revealed that there is a significant relationship between urban population ($2.18 < 0.001$) and crime rate where an increase in the population would translate to an increase in crime rate in the country. Consonance with the findings of (Battin & Crowl, 2017; Chang et al., 2021; Hu et al., 2018) stating that the crime mostly happened in an urbanized area with many available places to hang out with. Moreso, different crimes happened in urban populations such as property crime, collective violence, robbery and aggravated assault, where highly urbanized cities and migrant people (from rural to urban) have a strong relationship with crime rate (Lodhi & Tilly, 1973; Qi, 2020). Conversely, not all crimes happen in one specific location but rather crime happens in “crime hotspot” where offenders venture into unknown territory, and frequently select targets in or near places they are most familiar with as part of their activity space (Tayebi et al., 2016).

Likewise, the GDP per Capita ($0.0033882 < 0.001$) has shown highly significant towards the Crime rate which indicates that a 1% increase in GDP per Capita would slightly increase the crime rate to 0.33%. The findings resonate with the study of (Andresen, 2015; Cui & Hazra, 2017) stating that macroeconomic variables matter which significantly affect the crime level. The latest statistics have shown that there is a reduction in the crime rate year per year (2019 – 5.7, 2020 – 4.8 and 2021 – 4.4) in the Philippines (PSA, 2021) while the GDP per capita accelerated (2018 - 4.87, 2019 - 4.68 and 2020 - -10.78) higher than the target (WORLD BANK, 2021). Although there was a problem due to the pandemic, the country has bounced back with an 8.3% growth rate (PSA, 2022). However, this finding was refuted as there is no sufficient evidence that crime is related to real GDP per Capita and unemployment (Cui & Hazra, 2017). Also, an increase in the crime rate causes a ripple reduction in GDP (Plotnikov, 2021).

In addition, the financial development towards the crime rate shows a highly significant relationship which may interpret as the crime rate would decrease by 21.94% ($p = 0.000$) when there is an increase in financial development. “*Money is the root of all evil*” where money is the motivation in conducting crime and violence (Coleman, 1992) – the truth be told that as people have more money crime may arise, however, different in the findings as the more money the person has the less chances of crime occurs. The findings

were supported by (Fajnzylber et al., 2002) stating that the less inequality occurs the lesser the crime may happen. As refuted by Moran (2020), the situation of abundance did not translate to decreasing crime in Latin America, this is the direct result of weak criminal justice making a profit out of illegal enterprise. Furthermore, another study has refuted the claim that financial development decreases crime but rather it has a positive relationship with crime. This broaden the state that the main factor was income inequality where an increase in financial development also increases the crime for inciting criminal behavior (Barua & Mahesh, 2018). Indeed, inequality and poverty would lead to problems such as crime and violence (Fajnzylber et al., 2002).

Similarly, the result has shown a positive relationship between the crime rate and labor force ($p < 0.005$) which indicate that an increase in labor force (people who have work) would result in an increase in the crime rate. The findings of the study are in agreement with (Harun et al., 2021) in which, more crime mostly happened among a female who is working compared to their male counterparts (Harun et al., 2021), the stigma of women being weak and vulnerable has caused an increase in crime in labor force while decreasing the labor force participation (Chakraborty et al., 2018). Furthermore, hiring workers may reduce unemployment but this creates an increase in the crime rate of employed workers (Engelhardt et al., 2008). The inverse relationship between employment and crime rate created a clear picture as to why many preferred to not work than be employed which tends to be a stronger crime rate than those who are not employed (Wang & Minor, 2002). Conversely, whatever it may seem the government intervention whether small or enough subsidies may increase employment would translate to an increase in social welfare causing a decrease in crime rates which raise society's welfare. Likewise, an auxiliary study refuted the findings that those people who were employed were less likely to report committing a crime (Crutchfield et al., 2006).

Nevertheless, the Foreign Direct Investment and Total Unemployment indicate no significant relationship with the crime rate which means that it is not a factor that can increase/decrease the crime rate of a country. Although other studies found that FDI has a negative relationship with the crime rate (Cabral et al., 2019) others also found out that FDI does not significantly affect the crime rate (Afriyanto, 2017). So much so, unemployment has an inverse effect on the crime rate which tells us that an increase in unemployment, decreases the crime rate (Lee, 2018).

Table 1. Multiple Regression Output

Crime Rate	Coef.	Std. Err.	t	P>t
Urban Population	2.180006	0.5556378	3.92	0.001***
Foreign Direct Investment	-0.6068181	0.3568822	-1.7	0.103
GDP per Capita	0.0033882	0.0008588	3.95	0.001***
Financial Development	-0.2194029	0.0309989	-7.08	0.000***
Total Unemployment	-0.0481259	0.1455222	-0.33	0.744
Labor Force Participation	0.6405789	0.2044716	3.13	0.005***
Constant	-131.1122	26.99689	-4.86	0.000***
Number of Observation	=	29		
F(6, 22)	=	16.76		
Prob > F	=	0.0000***		

R-squared	=	0.8205		
Adj R-squared	=	0.7715		
Root MSE	=	1.0521		

Note: *P < 0.10, **P < 0.05, ***P < 0.01

6. Conclusions and Recommendations

The following presents the conclusions and recommendations of the study, obtained from the analysis of the results.

6.1 Conclusions

Based on the findings of the study, the following conclusions were drawn:

- 1) Crime rate is positively significantly related to the urban population where an increase in the number of people in the urban cities/ places would implicate an increase in crime.
- 2) The Philippines with its accelerated GDP per capita would have an associated increase in crime rate in the country. Peace and security are the key factors to ensure consistent growth while preventing crime-related violence.
- 3) With the financial development of the country, an increase in financial status and stability translates to a negative effect on crime-related incidence. The more financially capable individual the lesser the likelihood of a crime incident.
- 4) People who are employed would have a higher possibility of an increase in crime rate where environmental factors be considered especially people going to and from work might be involved in crime-related incidents.

6.2 Recommendations

From the conclusions rendered above by the researcher, would like to recommend the following:

To the government and attached agencies/departments: to impose policies on the implementation as well as on the structure of each of the Philippine National Police and attached agencies in the country. Specifically on the technology budget allocation and intelligence information of the National Police on par with other developed countries.

To the policymakers: to strengthen the existing law on criminality and implement and create new laws pertaining to criminal offenses which may hamper the economic development of the country. In addition, lifting the restrictions and limitations of national police and attached agencies in the access of information and the jurisdiction of the law.

To future researchers, there are many aspects of the study that need further investigation to fill in the gap, including the updated data on the crime rate. Exploring other statistical tools in addressing social issues related to crime and economic development of the country such as forecasting or Granger-causality. Hence, the next generation of researchers, to conduct an exploration valuing the economic development of the country and its safety and security.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Authors

Mr. Leomar M. Sabroso, License Professional Teacher; Master of Science in Agricultural Economics, University of Mindanao; University of Mindanao, College of Business Administration Education; Program Head - Business Economics.

Research interests: Agricultural Economics, Green Economics, Environmental Economics

Email: leomar_sabroso@umindanao.edu.ph

ORCID: <https://orcid.org/0000-0002-0553-3303>

ResearchGate: <https://www.researchgate.net/profile/Leomar-Sabroso>

AcademiaEdu: <https://umindanao.academia.edu/LeomarSabroso>

Institutional webpage: <https://umindanao.edu.ph/>

Ms. Cathy Cadusale, Administrative Staff in the Department of Agrarian Reform Region XI, Philippines.

Research interests: Social Studies, Urban and Rural Development, Environment Development.

Email: cocadusale00426@usep.edu.ph

ORCID: <https://orcid.org/my-orcid?orcid=0000-0001-9580-4754>

ResearchGate: <https://www.researchgate.net/profile/Cathy-Cadusale>

Dr. Eulalio C. Patayon, Former Dean, College of Development Management, Doctor of Business Administration, Ateneo de Davao, MS Agri Econ, Xavier University.

Research interests: Consumer Preference Studies, Value Chain Analysis, Time Series Studies.

Email: eulalio.patayon@usep.edu.ph

References

Abdouli, M., & Hammami, S. (2020). Economic Growth, Environment, FDI Inflows, and Financial Development in Middle East Countries: Fresh Evidence from Simultaneous Equation Models. *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-018-0546-9>

Abdullah, L. (2015). Linear relationship between CO2 emissions and economic variables: Evidence from a developed country and a developing country. *Journal of Sustainable Development*. <https://doi.org/10.5539/jsd.v8n2p66>

Afriyanto, M. M. (2017). The impact of crime on foreign direct investment in Indonesia. *Economic Journal of Emerging Markets*. <https://doi.org/10.20885/ejem.vol9.iss2.art8>

Andresen, M. A. (2015). Unemployment, GDP, and crime: The importance of multiple measurements of the economy. *Canadian Journal of Criminology and Criminal Justice*. <https://doi.org/10.3138/cjccj.2013.E37>

Battin, J. R., & Cowl, J. N. (2017). Urban sprawl, population density, and crime: An examination of contemporary migration trends and crime in suburban and rural

- neighborhoods. *Crime Prevention and Community Safety*.
<https://doi.org/10.1057/s41300-017-0020-9>
- Barua, R., & Mahesh, M. (2018). Financial Development, Crime, and Income Inequality in India. <https://www.isid.ac.in/~epu/acegd2018/papers/MalvikaMahesh.pdf>
- Becker, G. S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy*. <https://doi.org/10.1086/259394>
- Brown, L., & Hibbert, K. (2019). The Incidence of Crime on Industry-Level Foreign Direct Investment: An Assessment of OECD Member Countries. *Social Science Quarterly*.
<https://doi.org/10.1111/ssqu.12624>
- Cabral, R., Mollick, A. V., & Saucedo, E. (2019). Foreign Direct Investment in Mexico, Crime, And Economic Forces. *Contemporary Economic Policy*.
<https://doi.org/10.1111/coep.12401>
- Chakraborty, T., Mukherjee, A., Rachapalli, S. R., & Saha, S. (2018). Stigma of sexual violence and women's decision to work. *World Development*.
<https://doi.org/10.1016/j.worlddev.2017.10.031>
- Chang, Y. S., Jo, S. J., Lee, Y. T., & Lee, Y. (2021). Population density or populations size. Which factor determines urban traffic congestion? *Sustainability (Switzerland)*.
<https://doi.org/10.3390/su13084280>
- Coleman, J. W. (1992). Crime and money: Motivation and opportunity in a monetarized economy. *American Behavioral Scientist*.
- Creswell, J. W., & Creswell, J. D. (2018). Research Design Qualitative, Quantitative, and Mixed Methods Approaches. In *SAGE Publications*.
- Crutchfield, R. D., Drakulich, K., Groninger, H., & Wadsworth, T. (2006). Labor Force Participation, Labor Markets, and Crime, Final Report. *National Criminal Justice Reference Service, May 2006, 110 Pp*.
- Crutchfield, R. D., & Pitchford, S. R. (1997). Work and Crime: The Effects of Labor Stratification. *Social Forces*. <https://doi.org/10.1093/sf/76.1.93>
- Cui, Z., & Hazra, D. (2017). Macroeconomic Determinants of Crime: Evidence from India. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3005019>
- Dhokal, C. P. (2018). Interpreting the basic outputs (SPSS) of multiple linear regression. *International Journal of Science and Research (IJSR)*.
<https://www.ijsr.net/archive/v8i6/4061901.pdf>
- Draca, M., & Machin, S. (2015). Crime and Economic Incentives. *Annual Review of Economics*. <https://doi.org/10.1146/annurev-economics-080614-115808>
- Ehrlich, I. (1973). Participation in Illegitimate Activities: A Theoretical and Empirical Investigation. *Journal of Political Economy*. <https://doi.org/10.1086/260058>
- Engelhardt, B., Rocheteau, G., & Rupert, P. (2008). Crime and the labor market: A search model with optimal contracts. *Journal of Public Economics*.
<https://doi.org/10.1016/j.jpubeco.2008.04.016>
- Fajnzylber, P., Lederman, D., & Loayza, N. (2002). Inequality and violent crime. *Journal of Law and Economics*. <https://doi.org/10.1086/338347>

- Frieman, J., Saucier, D. A., & Miller, S. S. (2022). Multiple Regression and Beyond. In *Principles & Methods of Statistical Analysis*. <https://doi.org/10.4135/9781071878903.n18>
- Greene, W. H. (2013). *Econometric Analysis*. Fifth Edition. In *Journal of Chemical Information and Modeling*.
- Gustavsson, M., & Österholm, P. (2012). Labor-force participation rates and the informational value of unemployment rates: Evidence from disaggregated US data. *Economics Letters*. <https://doi.org/10.1016/j.econlet.2012.04.020>
- Harun, N. H., Shaari, M. S., & Tunku Ahmad, T. S. (2021). The Relationship between Female Labour Force Participation and Violent Crime in Malaysia: An ARDL Approach. *International Journal of Academic Research in Economics and Management Sciences*. <https://doi.org/10.6007/ijarems/v10-i2/9861>
- Hosseini, S. M., Saifoddin, A., Shirmohammadi, R., & Aslani, A. (2019). Forecasting of CO2 emissions in Iran based on time series and regression analysis. *Energy Reports*. <https://doi.org/10.1016/j.egy.2019.05.004>
- Hu, T., Zhu, X., Duan, L., & Guo, W. (2018). Urban crime prediction based on spatiotemporal Bayesian model. *PLoS ONE*. <https://doi.org/10.1371/journal.pone.0206215>
- Jonathan, O. E., Olusola, A. J., Bernadin, T. C. A., & Inoussa, T. M. (2021). Impacts of Crime on Socio-Economic Development. *Mediterranean Journal of Social Sciences*. <https://doi.org/10.36941/mjss-2021-0045>
- Lee, K. (2018). Unemployment and crime: the role of apprehension. *European Journal of Law and Economics*. <https://doi.org/10.1007/s10657-016-9526-3>
- Lodhi, A. Q., & Tilly, C. (1973). Urbanization, Crime, and Collective Violence in 19th-Century France. *American Journal of Sociology*. <https://doi.org/10.1086/225548>
- Lundqvist, F. (2018). *Unemployment and crime*. Retrieved from <http://www.diva-portal.org/smash/get/diva2:1252037/FULLTEXT01.pdf>
- Malik, A. A., (2016). Urbanization and Crime: A Relational Analysis. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*. <https://www.iosrjournals.org/iosr-jhss/papers/Vol.%202021%20Issue1/Version-4/G021146874.pdf>
- Moore, A. W., Anderson, B., Das, K., & Wong, W. K. (2006). Combining Multiple Signals for Biosurveillance. In *Handbook of Biosurveillance*. <https://doi.org/10.1016/B978-012369378-5/50017-X>
- Moran, T. P. (2020). More Money, More Crime: Prosperity and Rising Crime in Latin America. *Contemporary Sociology: A Journal of Reviews*. <https://doi.org/10.1177/0094306120902418d>
- Owusu, G., Wrigley-Asante, C., Oteng-Ababio, M., & Yaa Owusu, A. (2015). Crime prevention through environmental design (CPTED) and built-environmental manifestations in Accra and Kumasi, Ghana. *Crime Prevention and Community Safety*. <https://doi.org/10.1057/cpcs.2015.8>
- Paredes, O. T. (2002). Capital, Coercion, and Crime: Bossism in the Philippines, John T. Sidel. *Moussons*. <https://doi.org/10.4000/moussons.2774>

- Peace Corp. (n.d.). *Crime, Harassment, and Early Termination of Service Data*. Retrieved from https://files.peacecorps.gov/documents/Philippines_CHET_OSS.pdf
- Perreault, K. (2011). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. *Manual Therapy*, 16(1), 103. <https://doi.org/10.1016/j.math.2010.09.003>
- Philippine Statistics Authority. (2013). *Defense, Crime and Delinquency*. Philippine Statistics Authority.
- Philippine Statistics Authority. (2022). *The Philippine Statistics Authority releases the Seasonally Adjusted National Accounts Publication covering the period Q1 2019 to Q1 2022*. Philippine Statistics Authority.
- Pilapil-Añasco, C., & C. Lizada, J. (2014). Philippine Tourism: Evolution towards Sustainability. *SHS Web of Conferences*. <https://doi.org/10.1051/shsconf/20141201032>
- Plaza, P. P. (2020). *Ease of doing business in the Philippines*. Retrieved from Asia Business Law Journal - ACCRALAW: <https://law.asia/ease-doing-business-philippines/>
- Plotnikov, D. (2021). Crime and Output: Theory and Application to the Northern Triangle of Central America. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3533125>
- Qi, Z. (2020). Rural to urban migration, crime, and sentencing disparities in Guangdong, China. *International Journal of Law, Crime and Justice*. <https://doi.org/10.1016/j.ijlcrj.2020.100421>
- Tayebi, M. A., Glässer, U., Ester, M., & Brantingham, P. L. (2016). Personalized crime location prediction. *European Journal of Applied Mathematics*. <https://doi.org/10.1017/S0956792516000140>
- Thapa, A. (2022). *Crime, Crisis, and Economic Growth: An Investigation of Socio Economic Determinants of Crimes in the Indian States*. Retrieved from <https://thekeep.eiu.edu/theses/4921>
- The Economist. (2011). *Falling together the relationship between crime and GDP in America*. The Economist online.
- Thotakura, S. (2011). Crime: A Conceptual Understanding. *Indian Journal of Applied Research*.
- Torres, R. C., & Mollick, A. V. (2018). *The Impact of Crime and Other Economic Forces on Mexico's Foreign Direct Investment Inflows*. Banco de México.
- UNOWA. (2007). *Urbanization and Insecurity in West Africa Population Movements, Mega Cities and Regional Stability*. Dakar: UNOWA.
- Violeta Achim, M., Nicolae Borlea, S., Ligia Văidean, V., Remus Florescu, D., Ramona Mara, E., & Constantin Cuceu, I. (2021). Economic and Financial Crimes and the Development of Society. In *Improving Quality of Life - Exploring Standard of Living, Wellbeing, and Community Development*. <https://doi.org/10.5772/intechopen.96269>
- Wang, F., & Minor, W. W. (2002). Where the jobs are: Employment access and crime patterns in Cleveland. In *Annals of the Association of American Geographers*. <https://doi.org/10.1111/1467-8306.00298>
- Wijaya, W. A. (2021). The Effect of CO2 Emissions, Energy Consumption, Coal Consumption on Gross Domestic Product per Capita in Indonesia. *AFEBI Economic and Finance Review*. <https://doi.org/10.47312/aeifr.v6i01.377>

World Bank. (2021). *Foreign direct investment, net inflows (% of GDP) - Philippines* | Data.
World Bank.

Creative Commons licensing terms

Author(s) will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Social Sciences Studies shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflicts of interest, copyright violations and inappropriate or inaccurate use of any kind content related or integrated into the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons Attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).