iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** IV **Month of publication:** April 2023

DOI: https://doi.org/10.22214/ijraset.2023.49946

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue IV Apr 2023- Available at www.ijraset.com

Income Inequality in Madagascar: Regression Analysis

Hasina D. Tianarisoanavalonirina[1], Yin Gan[2]
[1]M.S. in Applied Statistics, [2]Professor, ZUST, China

Abstract: ***This study suggests that corruption is the leading cause of income inequality in Madagascar. Corruption levels are reflected by education spending, health spending, Tax to GDP ratio, and the GDP per capita. Responsible bodies should focus on the fight against corruption to reduce income inequality, and its negative impacts such as increased mortality rates, poverty, and bad lifestyle. In this study, the Multiple Regression Analysis focused on analyzing the impacts of corruption perception index on mortality rate, healthcare spending, Tax-to-GDP ratio, GDP per capita and Education spending. Therefore, the analysis focused on the trends in the data of these variables. The results suggest that the combination of mortality rate, healthcare spending, Tax-to-GDP ratio, GDP per capita and Education spending determined the corruption perception index of the country. However, the individual variables had little impact on the corruption perception index.***
Keywords: Madagascar, income inequality, multiple regression analysis, corruption, poverty.

I. INTRODUCTION

Income inequality in a country can be caused by different factors. In Madagascar, Income inequality is majorly caused by corruption (Randrianantenaina and Kasy, 2021). According to Stanley (n.d.), income inequality in Madagascar has remained relatively low in the past years. On the other hand, the poverty rate in the country has been high. Poor people in the country have general poor welfare. Randrianantenaina and Kasy (2021) linked income inequality to the population's access to public services such as education, health, and social protection. Based on past studies, the rich are likely to use their influence to deny the poor access to such services and prioritize their needs (You & Sanjeev, 2005). This leads to income inequality in poor countries such as Madagascar. This report will focus on an analysis to determine the connection between mortality rates, income inequality, and corruption in Madagascar.

Randrianantenaina and Kasy (2021) argued that corruption is the leading cause of income inequality in Madagascar. This study further established that the expenditure on education and other social facilities such as health and crucial protection were significant aspects affecting income inequality in the country. On the other hand, numerous sectors face corruption in Madagascar. A study by Muller (2002) established that education is a significant determinant of poor lifestyles and income inequality in most countries. Corruption is the leading cause of income inequality in poor countries such as Madagascar. The corruption rates are high in the country thus affecting its economic status (Engstrom et al., 2015). Furthermore, income inequality in the poor countries is often low. Assessing the impacts of corruption on income inequality in Madagascar has to cover most of the areas affected by corruption, including education, healthcare and individual access to social services. This study will focus on conducting a regression analysis focused on linking these factors in general.

II. MATERIALS AND METHODS

The data analysis used the Corruption perception index data of Madagascar from 2005 to 2020 because the Gini data was not available for Madagascar. This is reliable data for analyzing the income inequality of any country over the 15 years suggested for the current analysis. Based on the details about Madagascar, the leading cause of income inequality is corruption. Therefore, the regression analysis will focus on the corruption perception index as presented on the transparency international website. The data analysis also focused on the mortality rates in the country across the period specified above. The data analysis used data from the Macro trends website presenting the trends in the mortality rates in Madagascar in the past years. The data reflected the death rates of the people in the country between 2005 and 2020.

The concept of income inequality gives rise to the need of establishing the changes in the GDP of the country. Based on the details, the current study will also focus on establishing the changes in the GDP of Madagascar across the years of analysis. This will also play a vital role in presenting the changes in the poverty rates in the country. Furthermore, the analysis of the GDP will assist in presenting evidence of the poverty state in Madagascar.

© IJRASET: All Rights are Reserved |

Furthermore, the analysis will also present the age-adjusted mortality of Madagascar thus presenting how poverty has affected mortality rates in the country. The use of tax to GDP ratio will determine the wage inequality aspect in Madagascar. This contributes to the income inequality significantly (Piketty, 2013). In general, this analysis will focus on regression analysis of the data and use available information on the economic status of Madagascar to give conclusions about the topic.

The analysis used data obtained from different online sources such as macrotrends.com and the transparency International Website. The following table presents the data for the analysis.

TABLE I
DATA

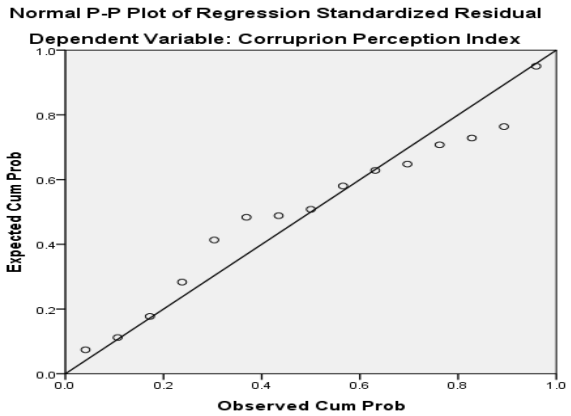
Year	Corruption Perception Index	Mortality Rate	Healthcare Spending	Education Spending	Tax-to-GDP	GDP Per Capita
2005	2.80	8.713	5.20	18.03	8.70	$312.00
2006	3.10	8.457	5.08	15.32	9.20	$331.00
2007	3.20	8.200	4.49	18.00	9.80	$428.00
2008	3.40	7.943	4.11	16.26	11.40	$523.00
2009	3.00	7.733	4.42	22.59	8.30	$455.00
2010	2.60	7.523	4.65	18.08	8.50	$459.00
2011	3.00	7.313	4.44	19.78	8.70	$517.00
2012	32.00	7.103	3.82	20.33	8.40	$504.00
2013	28.00	6.893	3.74	13.99	8.80	$527.00
2014	28.00	6.740	4.43	18.97	8.40	$517.00
2015	28.00	6.587	4.97	16.96	8.90	$456.00
2016	26.00	6.435	5.26	19.84	9.20	$465.00
2017	24.00	6.282	4.84	17.15	10.00	$503.00

The above table presents the data that the analysis used to determine the relationship between the corruption perception index, the income inequality and mortality rate in Madagascar.

III.RESULTS

The analysis focused on the corruption perception index as the measure of the corruption rates in Madagascar across the years. The analysis then focused on the relationship between the Corruption perception index and the mortality rates in the country. The mortality rate was used to present the aspect of poor welfare in the population. The analysis then established the relationship between the Corruption perception index and the economic factors that affected income inequality such as healthcare expenditure, education expenditure, GDP per capita, and tax-to-GDP ratio in Madagascar. First, the ANOVA analysis of the model presented a significant value of 0.012 showing that the model is significant.

The following table presents the regression analysis between the corruption perception index and the mortality rates in the country:



Based on the above details, the data outlined that an increase in the corruption perception index was associated with an increase in the mortality rate. On the other hand, the ANOVA analysis presented that this relationship had an R-squared value of 0.762 showing that 76.2% of the data can be used to explain the pattern. Therefore, this is proof that the corruption perception index in the country increases the mortality rate and Income inequality in general.

The regression analysis focused on the relationship between the corruption perception index and the other variables that determined the income inequality rate. The following table presents the results from the analysis:

TABLE II

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	219.272	74.679		2.936	.017					
	Healthcare Spending (Percentage of GDP)	-5.187	5.818	-.214	-.891	.396	-.289	-.285	-.145	.457	2.189
	Education Spending (Percentage of GDP)	-1.164	1.020	-.201	-1.141	.283	-.030	-.355	-.185	.852	1.174
	Mortality Rate	-14.485	3.567	-1.005	-4.061	.003	-.816	-.804	-.660	.431	2.322
	Tax to GDP Ratio	-3.464	2.419	-.257	-1.432	.186	-.031	-.431	-.233	.819	1.221
	GDP Per Capita	-.048	.061	-.259	-.792	.449	.516	-.255	-.129	.247	4.054

a. Dependent Variable: Corruption Perception Index

Based on the above data, it is evident that the selected variables combined significantly predicted the corruption perception index in Madagascar. This is seen from the significant index of 0.017 as the constant of the model. Therefore, all the variables were important for the analysis.

IV. DISCUSSION

Cabral (2017) presented that corruption affects economies negatively. Corruption reduces economic growth and increases poverty in countries. Based on past studies, education, and healthcare expenditures are the leading determinants of corruption rates in Madagascar. Tax to GDP ratio and GDP per capita are vital elements that determine the status of the economy and the welfare of the people in the country. From the analysis, the individual variables had low significance in predicting the pattern of the Corruption perception index. However, combining the variables predicted the patterns of the corruption perception index in the country. All these variables determine income inequality in the country. The analysis, therefore, presents that the corruption perception index of Madagascar is determined by the combination of all the above variables. Unlike other countries where income inequality is caused by factors such as the level of education, Madagascar's income inequality is caused by the corruption rates in the country.

Based on the analysis of the data provided, it is evident that the variables relate to each other in different ways. Based on past studies, it is evident that the income inequality index of any country affects the welfare of the people and the overall economy. This means that income inequality is significantly linked to the mortality rates of Madagascar. The study by Randrianantenaina and Kasy (2021) postulated that the major cause of income inequality in Madagascar is corruption. The level of corruption is always reflected in education spending, healthcare spending, and other aspects such as tax to GDP and GDP per capita. The analysis presented proof that these rates are significantly related to the corruption perception index in the country. The connection between all these variables presents proof that the corruption perception index in these countries affects income inequality in the country. Controlling corruption therefore will reduce the income inequality in the country thus increasing economic status.

V. RECOMMENDATIONS AND CONCLUSION

This paper has presented the importance of fighting corruption in Madagascar. Based on the information in this report, past studies have established that corruption increases the level of poverty in countries. Corruption allows influential people to sabotage the economy by denying important services to others thus increasing poor life and economic activities. Unlike in developed countries, corruption is the leading contributor to income inequality in developing countries such as Madagascar. Corruption affects the education sector, the health sector, and the overall livelihood of most people in society. Therefore, fighting corruption is a very important aspect in Madagascar because it has the potential of reducing income inequality and the overall population's well-being. Additionally, reducing corruption will influence economic growth since most people will have fair access to the required facilities.

Corruption is a worldwide issue that has a substantial influence on developing countries. Some feel that corruption has contributed to the expansion of income disparity in Madagascar by slowing economic progress. The key channel of information transmission between corruption and economic disparity is the reduction in expenditure allotted to fundamental social services, such as health and education, as a result of their indirect repercussions. In reality, individuals in positions of power utilize their influence to expand their income vertically, while the poor receive just crumbs. Furthermore, the impoverished pay more bribes than the affluent, who are already destitute. In light of these findings, the battle against corruption, as well as the struggle to decrease the economic disparity in poorer nations, should be included in the formulation of development policy priorities. Therefore, this study presented that corruption is the leading determinant of income inequality in Madagascar.

REFERENCES

[1] Styvanley, D. (n.d.). Shifting Fortunes and Enduring Poverty in Madagascar: Recent Findings. The World Bank. https://www.worldbank.org/en/country/madagascar/publication/shifting-fortunes-and-enduring-poverty-in-madagascar-recent-findingsJ. Breckling, Ed., The Analysis of Directional Time Series: Applications to Wind Speed and Direction, ser. Lecture Notes in Statistics. Berlin, Germany: Springer, 1989, vol. 61.

[2] Randrianantenaina N., & Kasy, E. (2021). Corruption and inequality of income in Madagascar: a study of canal effects of economic growth. Worldwide Journal of Multidisciplinary Research and Development, 7(2), 5 – 9. https://wwjmrd.com/upload/corruption-and-inequality-of-income-in-madagascar--study-of-canal-effects-of-economic-growth_1613202733.pdf

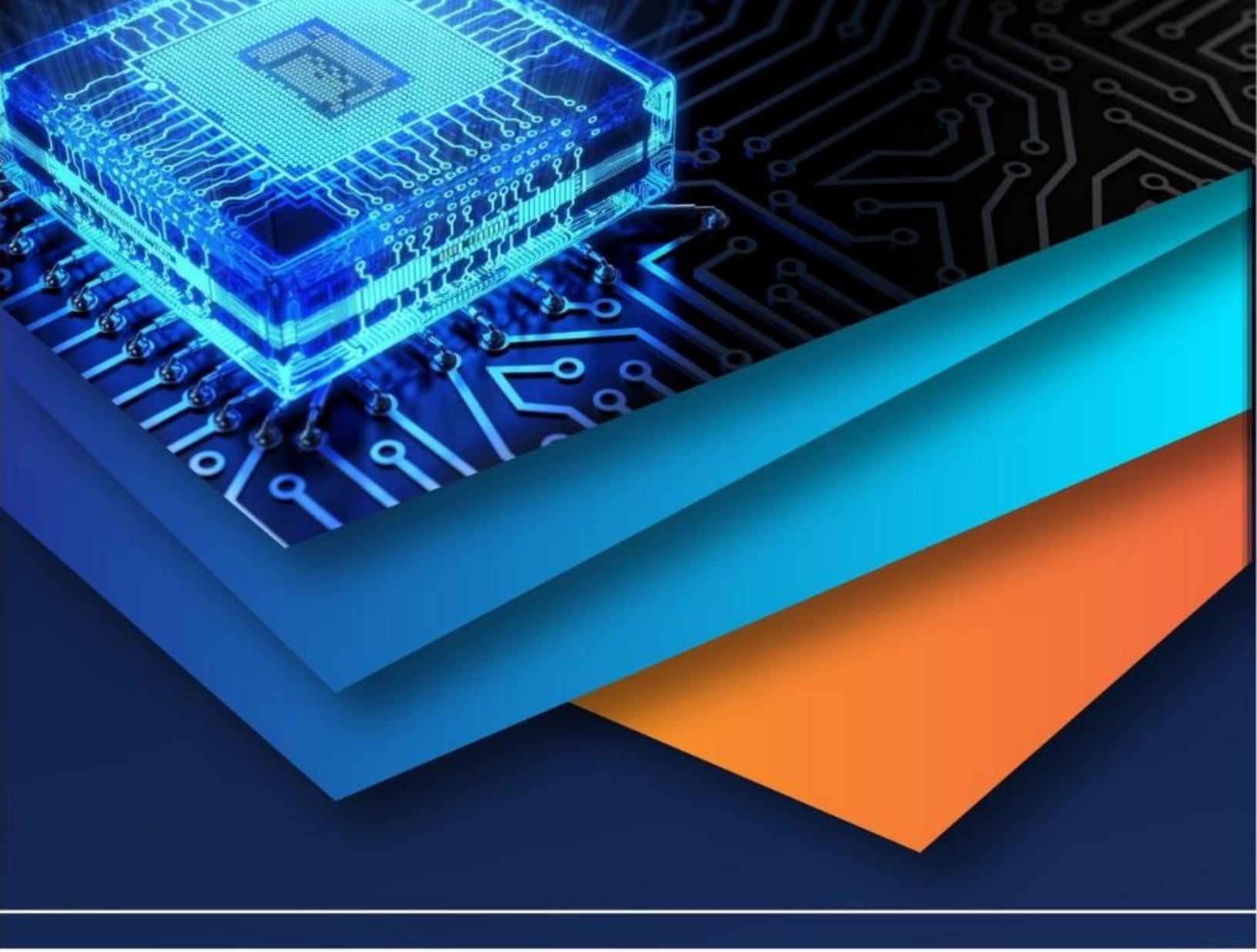
[??] Muller, A. (2002). Education, income inequality, and mortality: a multiple regression analysis. BMJ, 324.

[??] Cabral, F. J. (2017). 2017. Risk of Corruption For Economic Growth And Poverty: The Case Of A Developing Country. Risk Governance & Control : Financial Markets & Institutions, 7(2,1), 129-139

[??] You, J., & Sanjeev, K. (2005). A Comparative Study of Inequality and Corruption. American Sociological Review, 70(1), 136- 157.

[??] Engstrom, L., Imam, P., Muthoora, P., & Pienkowski, A. (2015). Republic of Madagascar. International Monetary Fund. https://www.imf.org/external/pubs/ft/scr/2015/cr1525.pdf

© IJRASET: All Rights are Reserved |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)