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PRESCRIPTIONS

POLICY BRIEF

Gaining a Better Understanding of How Social Determinants Affect Health

POLICY LESSONS

Several possible relationships were extracted as a result of combining various health-related datasets.

For example, environmental variables were found to have moderate to high positive correlations with communicable diseases. In the Philippine context, however, not enough literature has explored this topic to fully support the findings. Researchers should be encouraged to study on the magnitude of environmental consequences in depth, as well as to investigate other factors relating to communicable diseases in the Philippines.

Having a data governance policy will enable proper data management and accountability.

A policy of data governance is necessary as it provides a framework-guided structure to properly manage data within the Department of Health. Proper management assures accountability and implementation of roles and standards for efficient and effective use of data. To improve health outcomes in the Philippines, quality data is essential in research and policy development.

Use big data analysis to verify new and innovative research topics.

The results from the big data analysis has been consistent with existing literature. Thus, big data analysis can be used to verify new or innovative topics, in addition to reviewing related studies. This analysis is also able to support idea generation for researchers and highlight topics not usually prioritized in research agendas, with the collaboration of different government sectors.

INTRODUCTION

Universal health care (UHC) aims to improve population health by ensuring access to and improving utilization of health care (WHO, 2017). Social determinants of health (SDH), defined as the conditions in which people are born, grow up, live, work and age, and the systems put in place to deal with illness (CDSH, 2008), are a key component in implementing UHC. In the Philippines, however, both health equity among wealth quintiles and health care utilization within regions have worsened over the period (ADB, 2009). To effectively work towards UHC, both UHC and SDH indicators must be included in the overall monitoring of health system performance (Boerma et al., 2014). The data needed for a comprehensive view of UHC and SDH indicators is diverse at different ecological levels (Harrison and Dean, 2011). As such, big data and data science are useful tools for analyzing the data and communicating the results. This study aimed to measure the association of SDH-driven health inequalities and UHC-related inequalities using big data tools and analysis.

METHODS

This study was a mixed ecologic study that included data from 18 regions and 81 provinces in the Philippines within 2000-2015. Data collection consisted of review of literature, and review of secondary sources. A grand total of 370 data sets were requested from 12 government agencies and the Freedom of Information (FOI) website, while 218 data sets were scoped from 58 government websites. Univariate, bivariate, and multivariate analysis through logistic regression were done through SPSS Statistics. Only p-values of 0.05 were considered significant. Pearson's correlation coefficient was also run separately for each dependent variable with independent variables lagged to the optimum time-period. Significant coefficients were identified as those with moderate (0.33 to 0.67) to high (0.68 to 1.00) degrees of correlation.

RESULTS

Existing literature were found to support moderate to high correlations of health outcomes and UHC indicators for total population density, total population, rate of basic sanitation facilities, access to safe water, and rate of doctors, PHNs, and midwives. Correlations between health outcomes and social determinants of health and health system indicators, such as labor force rate, health facilities (e.g., PhilHealth accredited facilities), patents issued, and employment status were also supported by various literature. Literature on health outcomes with a low number of cases (e.g., paralytic shellfish poisoning) and some health system indicators, like the rate of newborn screening are very limited. Studies on the association between environmental variables, such as rate of open dumping, and communicable diseases are also insufficient.

CONCLUSION

The results of the study, as supported by existing literature, verify the association between UHC indicators and health outcomes to SDH and health system indicators. The rates of PhilHealth-accredited facilities, labor force, employment, unemployment, and underemployment were found to have high correlations with health outcomes.

RECOMMENDATIONS

Policy Recommendations

1. Implement a Data Governance Policy to improve data management in the DOH.

Research Recommendations

Future researchers should explore into the following:

1. The rate of newborn screening referred/done as it was found to have significant correlations with health outcomes.
2. Health system indicators under PhilHealth with significant correlations with health outcomes, such as rate of ambulatory surgical clinics, rate of primary care benefit providers, rate of dialysis clinics, rate of maternity care package providers, and rate of TB-DOTS facilities.
3. Social determinants of health, namely, rate of labor force, employed persons, unemployed persons, rate of crimes, and patents issued as they were also significantly associated with health outcomes.
4. Environmental variables, such as rate of open dumps, rate of controlled dumps, rate of materials recovery facilities, rate of sanitary landfills, and rate of registered hazardous waste generators and their association to communicable diseases.

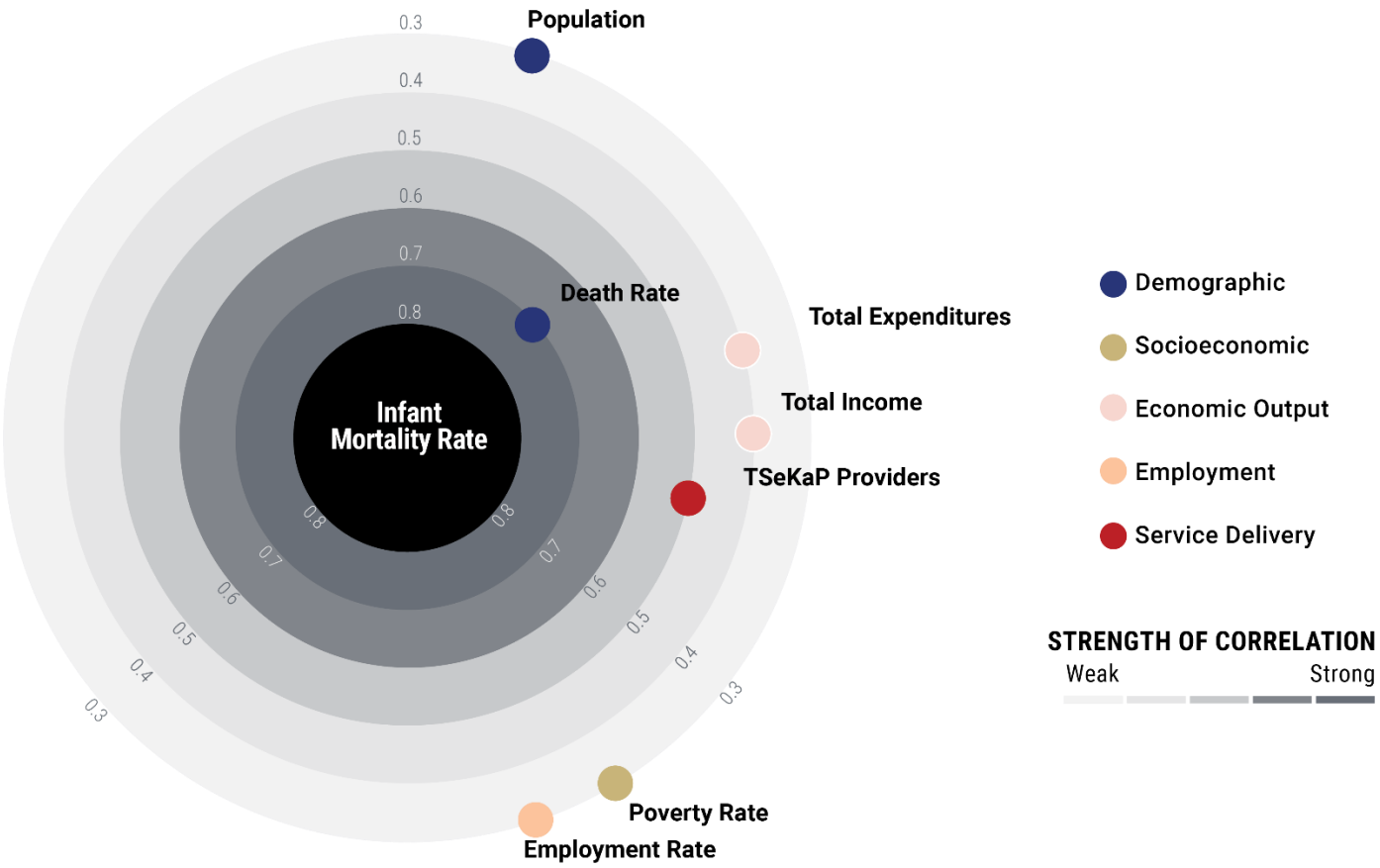

Figure 1. Significant Positively Correlated Indicators for Infant Mortality Rate

Citation:

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Original Research

Wong, J., Modina, C., and Rodriguez, R. (2018) *Three Cases for Big Data in Universal Health Care: Social Determinants of Health, Service Delivery Networks, and Fraud Detection: Case 1 An Analysis of Social Determinants of Health and Factors of Universal Health Care*. Makati City: EpiMetrics, Inc.