



THE IMPACT OF NON-TRADITIONAL VARIABLES ON HEALTH CARE RISK ADJUSTMENT

DR. ADAMU K. DANIEL.

Faculty of Management Sciences, Actuarial Science Department,
University of Jos, Plateau State, Nigeria.

ABSTRACT

This study examined the impact of non-traditional variables on health care risk adjustment in Nigeria. Specifically, the study determines the extent at which non-traditional variable can effect health care risk adjustment in Nigeria. It is a fact that non-traditional variable such as, Demographic variable, economic variable, Lifestyle variable, physical self assessment variable and psychological self-assessment variables have great relationship with health, this means that they effect greatly, health and also health risk adjustment .The study employed primary method of data collection where, information was collected-through the questionnaire administered to respondents .The population size consists of 600 medical personnel out of which 100 were found usable. Descriptive statistic in form of tables, frequencies and simple percentage were used for the analysis. The analysis was carried out using statistical package for the social sciences (SPSS). This study found that there is great relationship between non-traditional variable and Health care risk adjustment in Nigerian. Also, non-Traditional variable significant impact on health care risk adjustment in Nigeria. It was discovered that there is no method of risk adjustment currently used in health care risk adjustment, prediction of cost and utilization in Nigeria. The study recommends that government should pay closer attention to the health care sector of the country, They should ensure that adequate modalities are put in place to enhance the health sector of the country.

Keywords: Variables, Risk, Health care, Risk adjustment, Deveopment, Infrastructure

Introduction

Due to the actual fact that risk is inevitable in every sector of life, there is a need to study risk properly so as to be able to have an understanding of all that is inherent of the word risk. A very good comprehension of risk would be able to bring about

satisfactory solution(s) to whatever kind of risk. Although one cannot fully say that total solutions to various risks is very much possible since risk cannot be completely mitigated but proper adjustments could be made which can go a long way in bringing about a positive effect or impact in the mitigation, control or reduction of risk.

The health sector is one of the sectors that should be given utmost attention in terms of risks and risk adjustment. This study therefore is basically concerned with health risk, health risk adjustment and most importantly, finding the impact of non-traditional variables in health risk adjustment.

One of the basic conflicts or problems that come with risk adjustment arises as a result of some little inaccuracies of the information obtained which is used to calculate the expected health care expenditures of individual consumers and also the changes that occurs within intervals of time which can make an information somewhat not very useful at a particular time.

Over the years, the world general was and to some extent, is still faced with imbalance in the aspect of health risk adjustment. Right before the coming of ACA (Affordable Care Act), the American health insurers tried so much to avoid individuals who are likely to incur high cost in the individual health insurance market due to their kind of ailments which would require so much for treatment and therefore so much cost. Thus, individuals with series of serious health conditions were denied coverage and then the opposite is what happens to individuals with less serious health conditions and that was a clear case of imbalance. Eventually, all that was changed in January 1, 2014 with the ACA; where all insurers responsible for offering new policies are expected not to deny individuals the right to health security provided He or She is able or capable of remitting the required premium. Even with the occurrence of the change stated above, one cannot fully say that the denial of individuals with high cost was completely put to a stop. The only answer that came, that resulted in controlling or reducing to the lowest the refusal of individuals who are most likely to use more care and therefore more cost is: risk adjustment. The three Rs which is a part of the risk adjustment were then introduced with time. In order to increase the likelihood of the ACA's success, three premium stabilization programs were embedded in the law and they are known as the "three Rs" which means; Reinsurance, Risk corridors and Risk adjustment.

According to ACA, the main purpose of risk adjustment is to lessen or eliminate the influence of risk selection on the premiums that plans charge and the incentive for plans to avoid sicker enrollees.

Effective risk adjustment is an aspect that is more and more given weight on the background of competitive health insurance system and vital health care systems.

The main purpose of this review is to obtain a general overview of existing models of risk adjustment as well as on crucial matters in risk adjustment. Moreover, the predictions of the performance of selected methods in international health care system should be analyzed. A comprehensive systematic literature review on methods of risk adjustment was conducted in terms of embraced interdisciplinary examinations of the related disciplines.

In general, several distinctions can be made in terms of risk factors or in terms of the combination of the indicators and variables included. Therefore, within all these differentiations by three levels seems very much reasonable: methods based on morbidity risk, methods based on mortality risk and methods based on information on health status.

There has also being an experience of inequalities in the allocation of financial and human resources in Africa during the apartheid years (1948-1994). The inequalities were established based on race. A strong commitment to reduce those inequalities came with the passing of democracy in 1994. In the attempt to reduce the inequalities, there came a limitation as the inequality worsened in 1994 and the inequality in health care are increasingly related to socio-economic class rather than race. A lot of changes kept on occurring until 2000 when the research work on risk equalization mechanism and risk factors was initiated by the Actuarial science department of the university of Cape Town. A decision was taken to publish a formula in form of a contribution table which indicates the amount to be received by the fund for each person in each risk group as well as the expected industry community rate for the minimum benefit package. The final report on a variable risk equalization formula was delivered to the government in January, 2004.

Nigeria as a country has one of the most inefficient health care systems in the world. A study conducted in 2010 by the world health organization (WHO) labelled Nigeria's health care as one of the worst in the world due to shortages of medical supplies, poor hygiene conditions, detrimental diseases and health care schemes that is not very much good. The first public health care system that was officially established in 1999 was the National Health Insurance System (NHIS) in Nigeria. But there has always been a problem of cost as it is only available to those who can afford it. With all that said, it is also worth noting that the Nigerian government is taking steps to improve the health care system for its citizens.

Today, plateau state is operating under the NHIS and it already has a number of health care centers across the 17 Local Government in the state. These health care centers are also created with the aim of giving a completion to the quality insurance process and to also pave way for access to care under the basic health care provision fund initiative which is all directed towards achieving universal health care risk coverage.

Methodology

The researcher used descriptive research survey design in carrying out this project work. It is a scientific method which involves observing and describing the behavior of a subject.

The Population of a study is a group of persons or aggregate items; things the researcher is interested in getting information needed for the research work. This study considered the total number of 600 staff who are involved in the health care and medical line in Jos University Teaching Hospital (JUTH). Due to large size of the target population, the researcher used the purposive sampling method to determine number of respondents to be used in the survey. This method involves researchers relying on their own judgment when choosing members of the population to participate in the research work. In this research work, researcher decides to use a total number of 100. The use of frequency charts like the pie chart, bar graphs was employed and Chi square was used as test statistic.

Statement of the Problem

The problem of inappropriate funding has been the major problem of health care policies in the world today. Individuals with more wealth get to have good health care services because they have adequate funds. This problem has been a bottle neck over the years. Therefore, there has to be a balance. In the sense that, every individual should be able to partake of the health care insurance scheme regardless of the differences in the level of wealth or social status. This balance can then come about when some relevant factors are used as basis for calculating the funds to be paid by various patients.

As study after study has pointed out, Africa pay little or very little attention to the aspect of health care in terms of creating educative awareness on the importance of health care insurance and also in terms of rendering the health care service to individuals who need it. The study can then be a source of awareness and will also create possible ways to strike a balance in the aspect of funding and to also create a

relatively good health insurance system by a way of health care risk adjustment by the use of some variables (Non-traditional variables).

In Nigeria today, the health care sector generally has become a thing of concern. The health care sector has a problem of imbalance and inadequacy and to some level, incompetence in the aspect of the health care such as; health care system as a whole which includes the major problem of funding. This research intends to look critically at this problem and so as to suggest possible ways on how to address those issues by using some variables associated to health care.

Plateau state for example, which is one of the states in Nigeria is also faced with difficulties in the aspect of health care. The problem of inappropriate funding and imbalance in the health care sector faced in plateau state is not quite different from those problems faced in the country Nigeria as a whole. Those aforementioned problems have led to an increase in mortality over the years. It has also reduced the confidence of citizens within the state thereby causing only few individuals to partake in the health care insurance services. This means there's social and financial risk particularly for the poor and vulnerable populations is going to be a source of major development and policy issue in every health care institution across the globe.

Theoretical Review

Ryan m (2016) "The affordable health care Act"

This theory states; proper financing strategy creates room for a good and affordable health care service.

The writer of this article intended to incorporate ideas and concepts from the knowledge of economic and business to create cross overs between the theoretical concepts and current real world event to create an outcome that would not only be a personal writing sample but also be an informative tool for health care adjustment the study is directed at in which the affordable health care act can provide health care for individuals adequately and at a more affordable rate. This article used 3 different approach to provide ways for more affordable rate for health care services. They are;

- a. Funding: the hospital insurance pay-roll tax- the aspect of the law that provides the largest source of revenue should be one of the most straight forward and should have a straight forward and fixed tax on employees for the Medicare program. But that the tax should be higher for high income earners so that there can be a subsidization for low income earners, which will bring about a clear effect of redistribution of wealth.

- b. Funding: the individual mandate penalty- this is a way of funding through the implementation of a flat fee for individuals who deliberately refuse to partake in the purchase of health insurance.
- c. Funding: the cuts of Medicare- even with the above funding it is likely that there would not be adequate funding for the Medicare program. Therefore, another solution is that Medicare beneficiaries can simply pay more into the system for the same care. This means that seniors will see increased cost through co-payments deductibles and others out of pocket expenses for the same services. Through this method, seniors are directly paying for the funds that have been lost under the Affordable Care Act.

Emamverdi, P Ahmadi (2021)

“Adverse selection and moral hazards in supplementary health insurance”

The theory states; the supplementary health insurance and its proper coordination cannot be without considering the moral hazard.

The main reason for this study was to find out the existence of two phenomena of adverse selection and moral hazard in the supplementary health insurance market.

First a demand model for the use of complementary health care services was defined under the least assumptions about how the insurance companies repay the policy, the distribution of the hidden health status of hospital clients and also the type of their supplementary insurance, despite the two phenomena of unfavorable choice of moral hazards.

The main model was estimated from GMM method and existence of those two phenomena was tested using the non-parametric statistical methods. The data used in this study were collected through questionnaire and randomly from clients of two hospitals in the two groups of supplementary and uninsured treatment.

The result showed that risk aversion for the consumption of composite goods and this amount is more for the insured than the uninsured, which indicates the low level health status of the insured compared to other people. The Kolmogorov-Smirnov test also confirmed the different health distributions of the two groups. In addition, according to the results, there are small moral hazard in the insurance market. Moral hazards are lower for people with higher incomes and the more insurance is demanded from people with higher incomes, the lower the moral hazards will be, and the lower the health of person the greater the moral hazards.

In conclusion, there is always a problem in the health care insurance in the aspect of equity and the distribution of Medicare services.

Pham. D. Simmons (May, 2017) “Randomization and health care”

This theory states; it is important to control for differences in known risk factors before comparing groups so that the outcomes demonstrated represent the true impact of an intervention between population

The writer of the journal above wrote with the main objective of determining the effects of various health care intervention which also include different variables on clinical, economic and humanistic outcome in patient population so as to provide a guide to many stakeholders including health care providers, patients, policy makers, for decision making.

This research focused on studying and observing the difference which are to a lack of randomization. These difference which are also known as variables are: age, sex, previous illness, prior treatment, biological differences which all categories under non-traditional variables. The study used the technique of the direct and indirect standardization. This technique is of the opinion that, "it is important to control for differences in known risk factors before comparing groups so that the outcomes demonstrated represent the true impact of an intervention between population." Therefore, in conducting outcomes research, especially studies that involves comparing populations, differences in risk factors for an outcome can distort the results. Multiple techniques are made available to adjust risk factors and even though each has its benefits and drawbacks, the adjustment of health care funding is nondependent on how to settle the health care funding but it is much more dependent on the risk factors or variables and creating a balance of those factors among population of patients.

Conclusion and Recommendation

Conclusion

The research work adequately achieves the aim and objectives of the research work. It was found that there is relationship between non-traditional variables and health care risk adjustment in Nigeria. Also, it was found that Non-traditional variables significantly impacts on health care risk adjustment in Nigeria. It was discovered that there are no methods of risk adjustment currently used in health care risk adjustment, prediction of cost and utilization in Nigeria.

Recommendation

Following the success of this research work, it is recommended that government should pay closer attention to health sector of the country, they should ensure that adequate modalities are put into place to ensure a proper enhancement. The government should also create more awareness among the citizens in adopting the systems of health risk adjustment.

REFERENCES

- Adhikari, B., Kahende, J., Malarcher, A., Pechacek, T., & Tong, V. (2008, November 14). *Smoking Attributable Mortality, Years of Potential Life Lost, and Productivity Losses -United States, 2000--2004*. Retrieved October 20, 2012, from CDC's Website: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5745a3.htm>
- AHRQ. (2012). *MEPS HC-138 2010 Full Year Consolidated Data File*. Agency for Healthcare Research and Quality.

- American Psychological Association. (2013). *Disability and socioeconomic status*. <http://www.apa.org/pi/ses/resources/publications/factsheet-disability.aspx>.
- Association, A.P. (2013). *Disability and socioeconomic status*. <http://www.apa.org/pi/ses/resources/publications/factsheet-disability.aspx>.
- CDC. (2012, August 21). *National Center for Chronic Disease Prevention and Health Promotion-Fast Facts*. Retrieved October 20, 2012, from CDC's Website: http://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/
- Dreyfus, T., & Davidson, E. (2012). *Improving Risk Adjustment in Health Insurance Exchanges to Ensure Fair Payment*. Association for Community Affiliated Plans.
- Finkelstein, A. e. (2011). *The Oregon Health Insurance Experiment: Evidence from the First Year*. Retrieved October 26, 2012, from NBER's Website: http://www.nber.org/papers/w17190.pdf?new_window=1
- Gregory C., P., John, K., Melvin J., I., Sara, F., Rishi, S., & Cordon, N. (2011). *Evaluation of the CMS-HCC Risk Adjustment Model*
- HHS, U. D. (2012). *Notice of Benefit and Payment Parameters, 2014*. Department of Health & Human Services.
- Huynh, P. T., Schoen, C., Osborn, R., & Holmgren, A. L. (2006, April 4). *The U.S. Health Care Divide: Disparities in Primary Care Experiences by Income*. Retrieved October 26, 2012, from The Commonwealth Fund's Website: <http://www.commonwealthfund.org/Publications/FundReports/2006/Apr/The-U-S--Health-Care-Divide--Disparities-in-Primary-Care-Experiences-byIncome.aspx>
- Leif Associates, I. (2012). *Report: The Business Case for Coverage of Tobacco Cessation*. Retrieved October 20, 2012, from UW - CTRI's Website: <http://www.ctri.wisc.edu/Employers/ActuarialAnalysis.pdf>
- Liu, H., & Umberson, D. J. (2011, August 4). *The Times They Are a Changin': Marital Status and Health Differentials from 1972 to 2003*. Retrieved October 26, 2012, from The National Center for Biotechnology Information's Website: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3150568/pdf/nihms300160.pdf>
- Mrela, C. K., Bender, B., & Torres, C. (2008, May). *Marital Status and Health*. Retrieved October 26, 2012, from Arizona Department of Health Services' Website: <http://www.azdhs.gov/plan/brfs/other/maritalstatus2006.pdf>
- Olin, G. L., & Rhoades, J. A. (2005, May). *The Five Most Costly Medical Conditions, 1997 and 2002: Estimates for the U.S. Civilian Noninstitutionalized Population*. Retrieved October 30, 2012, from Medical Expenditure Panel Survey's Website: http://meps.ahrq.gov/mepsweb/data_files/publications/st80/stat80.pdf
- Plummer, B., & Elsner, N. (2012, February). *The Costs of Untreated Mental Illness in Greater Kansas City*. Retrieved October 30, 2012, from Health Care Foundation of Greater Kansas City's Website: <http://hcfkcc.org/sites/default/files/overview-cost-untreated-illness-greater-kansas-city.pdf>
- Rosenblatt, A., Bertko, J., Bowen, B., Crocker, N., Hammond, A., Helwig, D., et al. (1993). *Health Risk Assessment and Health Risk Adjustment - Crucial Elements in Effective Health Care Reform*. American Academy of Actuaries.
- Sawhney, T. G. (2012). *Controlling Indirect Selection under Healthcare Reform*. Chicago.
- The Alliance for Excellent Education. (2006, November). *Healthier and Wealthier: Decreasing Health Care Costs by Increasing Educational Attainment*. Retrieved October 25, 2012, from The Alliance for Excellent Education's Website: <http://www.all4ed.org/files/HandW.pdf>
- Viscusi, W. K. (1994, October). *Cigarette Taxation and the Social Consequences of Smoking*. Retrieved October 20, 2012, from NBER's Website: http://www.nber.org/papers/w4891.pdf?new_window=1
- Winkelman, R., & Mehmud, S. (2007). *A Comparative Analysis of Claims-Based Tools for Health Risk Assessment*. Society of Actuaries.
- Yu, S. B. (2012, January). *The Concentration and Persistence in the Level of Health Expenditures over Time: Estimates for the U.S. Population, 2008-2009*. Retrieved October 26, 2012, from Medical Expenditure Panel Survey's Website: http://meps.ahrq.gov/mepsweb/data_files/publications/st354/stat354.shtml
- Zuvekas, S. H., & Olin, G. L. (2009). *Validating Household Reports of Health Care Use in the Medical Expenditure Panel Survey*. Health Services Research.