

# **Nigerian Government Expenditure, Economic Productivity and the Prevention of Maternal Mortality: A Call to Action.**

## **Abstract:-**

Health is wealth and in order to ensure sustainable productivity in a country, citizens must be in good health. The Government is the major contributor to the financing of health care and thus ensuring that the optimal care is provided for its populace. Nigeria presently has the second highest absolute number of maternal deaths in the world. This manuscript aims to assess the Nigerian government's expenditure on health as well as its impact on maternal mortality and economic productivity. Expenditure on health was found to be yielding fruits, this was however below expectations as the rate of decline of maternal mortality ratio was not as high as the rate of increase in the GDP. Investment of more resources in health care remains crucial for improved health indices and consequently higher productivity in Nigeria.

Keywords: Government spending, economic productivity, health, maternal mortality, maternal health

## **INTRODUCTION**

As postulated by the health-led growth hypothesis, health is considered a capital on which investments are made in order to bring about increased labour productivity, income increase and a resultant increase in the general wellbeing of the populace. This has been practically illustrated in our present-day times wherein low life expectancy and ill-health are responsible for 50% of the marked difference in economic growth between developed and developing countries worldwide (Anyanwu & Erhijakpor, 2007; Maruthappu et al, 2015; Piabuo & Tieguhong, 2017; Yaqub, Ojapinwa & Yussuff, 2012). An improved level of development of human capital results in improved health status of the populace; this results in a more healthy productive life. (Onisanwa, 2014).

27 The health of an individual is crucial, more so with respect to maternal health - the health of a  
28 woman during pregnancy, childbirth and in the weeks after childbirth. For maximum  
29 productivity and output, good health is essential as is good maternal health for good  
30 babies/offspring (Ogu, Agholor & Okonofua 2016). For there to be effective, durable  
31 economic productivity in an area or nation; the health of the individuals in that particular  
32 location must first be optimal through provision of adequate health care services.  
33 Improvement in health care is a compulsory factor to be considered in the enhancement of the  
34 Human Capital Development in every single economy. (Maruthappu et al, 2015).

35 This inadvertently results in increased levels of productivity of labour and as well, a resultant  
36 enhancement of investments in other human capital forms which ensures that more income is  
37 earned by the populace thus resulting in an increased per capita income. Thus, for there to be  
38 a vibrant, productive, skillful and excellent achievement of productivity in economic sectors  
39 in a nation (which is best measured using the Gross Domestic Product [GDP] of that nation as  
40 well as its per capita income); the health of the populace must be well taken care of through  
41 provision of effective and efficient health care services that is mostly achievable through  
42 optimal public (government) expenditure on health. Being a major source of financing health  
43 in many countries, government expenditure on health has been inter-related with either  
44 positive or negative health outcomes of the populace. This is to say that when government  
45 expenditure is high, there is a corresponding improvement of health outcomes e.g. increased  
46 survival rates, reduced mortality rates etc and vice versa (Bokhari, Gai & Gottret, 2007;  
47 Eneji, Juliana & Onabe, 2013; Kareem, Ademoyewa, Fagbohun & Arije, 2017; Maruthappu  
48 et al, 2015).

49 Government expenditures are mostly required in large, expanded and far-reaching  
50 interventions which have the ability to impact positively on the health of the populace. These  
51 include technology improvement initiatives, infrastructural development, widespread

52 immunization programs, strengthening of health insurance programs and drastically reducing  
53 out-of-pocket spending on health etc. (Eneji et al, 2013; Piabuo & Tieguhong, 2017). This  
54 notwithstanding, funding for health care services remains a major inhibitor for governments  
55 to be in good standing as responsible stewards of health systems in their countries. (Anyanwu  
56 & Erhijakpor, 2007).

## 57 **MATERNAL HEALTH AND MORTALITY**

58 The fact that women are capable of adding value to a nations' gross domestic product and  
59 using resources more efficiently in managing household budgets, loans and savings, if given  
60 the opportunity is a fact. What is more, women are the bearers, rearers and carers of the  
61 society. A basic primordial prevention strategy is economic empowerment of women and  
62 maternal mortality is the single basic measurement of a nations' care for her women. (Edgren,  
63 2010; Sede & Izilien, 2014). Allocation of public funds on health care is a fundamental task  
64 of governments yet empirical literature on the link between government expenditure and  
65 maternal mortality is sparse. The maternal mortality ratio is one of the indices used to  
66 measure the health status of a country. A maternal death is a death of a woman while  
67 pregnant or within 42 days of the termination of a pregnancy, irrespective of the site or  
68 duration of the pregnancy but from any cause aggravated from the pregnancy or its  
69 management but not from accidental or incidental causes. The maternal mortality ratio is the  
70 ratio of the number of maternal deaths per year to the number of live-births. Developing  
71 countries usually have very high maternal mortality ratios (MMR) compared to developed  
72 countries (Population Research Institute, 2014; Sede & Izilien, 2014).

## 73 **GROSS DOMESTIC PRODUCT**

74 The Gross Domestic Product (GDP) is a monetary measure of the value of all final goods and  
75 services produced in a country over a given period e.g. a year. GDP is the single most

76 commonly referenced figure to cover the entirety of a national economy. There are three  
77 main ways of calculating the GDP of a country; the income, output and the expenditure  
78 approaches. GDP is commonly calculated in United States dollars (USD). The GDP may be  
79 calculated to allow for inflation. Despite its usefulness, the GDP also has some criticism as it  
80 does not take into account the widening gap between the rich and the poor, the harm done to  
81 the environment and unpaid work. However, despite all these, it is still one of the best  
82 economic measures a country can use. Data can be sourced from various sources. An  
83 example is Quarterly National Accounts (QNA); which are integrated system of  
84 macroeconomic accounts designed to describe the entire system of production in a nation on  
85 a quarterly basis. They provide a picture of the current economic status of the economy that is  
86 more timely and frequent than that provided by Annual National Accounts (ANA). The key  
87 attribute of QNA is that they provide a reasonable level of detail of the economy that helps  
88 government to assess, analyse, and monitor economic growth on a regular basis.

89 Data for this analysis were obtained from Surveys conducted by the National Bureau of  
90 Statistics (NBS) as well as from the Budget Office of the Federal Republic of Nigeria. Major  
91 aggregates of quarterly GDP by type of economic activity at current (2010) and constant  
92 prices are shown in this write-up. The following terms also assist in understanding the  
93 concept:

94 Gross Output: Consists of government production, which is a non-market service offered  
95 without charge or at a price not economically significant, and private production, offered at  
96 the market price. Government production (non-market service):

97 Gross output Basic = Intermediate consumption (Less commodity sales and fees) +  
98 Compensation of employees + Consumption of fixed capital + other taxes less subsidies on  
99 production.

100 Private production (market service):  $\text{Gross output Basic} = \text{Total output} - \text{Intermediate}$   
101  $\text{consumption} + \text{other taxes less subsidies on production.}$

102 Intermediate consumption: Details of the cost structure of operators including transportation  
103 fees, operational expenditure, minor repairs and maintenance etc. (Nigerian Gross Domestic  
104 Product Report, 2017).

## 105 **MATERNAL HEALTH AND A NATION'S ECONOMIC PRODUCTIVITY (GDP)**

106 In different studies, reports have persistently shown that most times, there is a causal bi-  
107 directionality in the relationship between maternal health and the GDP. This is to say that  
108 when expenditure on health has been targeted to ensuring the reduction of maternal  
109 mortalities and inadvertently improving maternal health, there is usually an improvement in  
110 economic productivity (measured by the gross domestic product [GDP]) and that when GDP  
111 is improved, it has a resultant effect of bringing about improved maternal health. The causal  
112 effect of maternal health on GDP is however reported to yield greater effects in high income  
113 countries than the low and middle income countries. However, the reverse is the case in terms  
114 of the causal effects of GDP on maternal health which yields greater results in low and  
115 middle income countries than high income countries. (Amiri & Gerdtham, 2013; Eneji et al,  
116 2013; Population and Poverty Research Network, 2015).

117 In a nutshell, health investments have the capability to lead to improvement in a nation's  
118 maternal health and thus resultant improvement in human capital which is “ *the stock of*  
119 *competencies, knowledge, social and personality attributes, including creativity, embodied in*  
120 *the ability to perform labour so as to produce economic value*”. This resultant human capital  
121 in most cases brings about a commensurate increase in the GDP of that nation as well as  
122 reduces global health inequality gaps. (Amiri & Gerdtham, 2013; Onisanwa, 2014;  
123 Wilhelmson & Gerdtham, 2006).

**NIGERIA'S GROSS DOMESTIC PRODUCT, PER CAPITA INCOME,**  
**EXPENDITURE ON HEALTH AND MATERNAL MORTALITY INDICES**

Seeing that government expenditure on health shares a proportional relationship with health outcomes around the globe, it leaves little wonder why the African Union in 2005 agreed that 15% of all government expenditure should be allocated to health care in order to tackle the disease burden prevalent within the continent. (Assembly of the African Union, 2005; Piabuo & Tieguhong, 2017). This has however not exactly been the case in Nigeria and has thus inadvertently negatively affected government expenditure set aside to specifically tackle issues of maternal mortality. (Assembly of the African Union, 2005; Maruthappu et al, 2015; Oyewunmi & Oyewunmi, 2014).

Over the years, government expenditure on health (in naira) had steadily increased from 77,948.6 million in 2005; to 106,937.97 million in 2007; to 161,845.51 million in 2010 up till 262,742.35 million in 2014. The expenditure however declined to 259,751.74 million and 257,382.15 million in 2015 and 2016 respectively. Data on government spending to prevent maternal mortality or ensure maternal health became available in the public domain from 2009 and it is worthy to note that before this period, maternal mortality had been on the decline due to government and other stakeholders' interventions. From 2009, when this data was made available, maternal mortality marginally reduced till 2015. The maternal mortality ratios from 2000 to 2015 are shown in Table 1. (Yaqub et al, 2012) This marginal decline however remains unsatisfactory as Nigeria failed to achieve the targets that were set with the Millennium Development Goals (MDGs); which was to reduce the maternal mortality ratio by three quarters between 1990 and 2015.

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**TABLE 1: Maternal mortality indices in Nigeria between 2000 and 2015**

| Year                                                   | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--------------------------------------------------------|------|------|------|------|------|------|------|------|
| Maternal Mortality<br>Ratio per 100,000<br>live-births | 1170 | 1140 | 1090 | 1040 | 986  | 946  | 890  | 884  |

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| Year                                                   | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--------------------------------------------------------|------|------|------|------|------|------|------|------|
| Maternal Mortality<br>Ratio per 100,000<br>live-births | 829  | 883  | 867  | 824  | 819  | 821  | 820  | 814  |

151 As part of government expenditure on health, from 2009 till date, funds have been earmarked  
152 for activities, programmes, initiatives, targets etc.; whose main objective was to curb  
153 maternal mortality in Nigeria and thus reduce the maternal mortality ratio. These  
154 programmes/initiatives include the Maternal, Newborn and Child Health (MNCH) strategy  
155 which was put in place in 2007 to push forward a programme designed to re-energize primary  
156 health care in every local government and to a large extent extend coverage, such that  
157 maternal, newborn and under-5 mortalities are reduced in line with the country's targets for  
158 MDGs 4 and 5. Others include the National Primary Health Care Development fund required  
159 to finance the provision of a basic minimum package of health services in the nation's  
160 primary health care facilities. The Safe Motherhood Initiative put in place to improve the  
161 health and wellbeing of mothers and new-borns. (Civil Society Legislative Advocacy Centre,  
162 2011; Eto, 2016).

163 The Midwifery Service Scheme geared at increasing the training and posting of midwives (as  
164 skilled health manpower) especially to the rural areas. The Making Pregnancy Safer Initiative

as well as The Free Maternal And Child Health Care Programme (FMCHCP) which was set up to break down the financial constraint to equitably accessing and using skilled maternal and child health care. The 2012 National Health Bill which was propounded to establish minimum guarantee of basic health care services for select groups including pregnant women; as well as to ensure the improvement of community health care to poorly accessible rural communities as well as other required health reforms. (Eneji et al, 2013; Eto, 2016; Nguyen, 2013; Uneke, Ndukwe, Ezeoha, Urochukwu & Ezeonu, 2014).

Funds set aside for this ranged from 7.44 million naira in 2016 to 4,512.00 million naira in 2009. (Budget Office of the Federation, 2017). When compared with the gross domestic product per capita of Nigeria which had steadily increased between 1993 and 1997, declined in 1998 but then picked up again and increased steadily further on till 2009, when it declined. It however picked up again in 2010 and increased steadily again till 2014 after which it declined again in 2015 and 2016. It became evident that the government expenditure on health, especially in curbing the problem of maternal mortality in Nigeria and its consequent effect on GDP; was yielding fruits despite its fluctuating tendencies. This is to say that as a result of government expenditure on maternal health, there was a decline in maternal mortality which is believed to have resulted in an increase of the per capita income of the nation and indeed increased productivity. Improved maternal health attributable to optimal government expenditure on health, has been reported to be one of the important determinants of economic growth in Nigeria. (Piabuo & Tieguhong, 2017). A decline in the GDP per capita of Nigeria was however noticed in 2016 when there was a drastic decrease in maternal health expenditure from 2,533.399 million naira in 2014 to 7.438 million naira in 2016. (Nigeria Budget – HEALTH, 2010;; Nigeria Data Portal, 2017).

Table 2 shows the progression in GDP and Maternal mortality ratio from the year 2000-2015.

While there is a progressive increase in the GDP from one year to another, there is a

progressive decline in the maternal mortality ratio. However, the rate of decline in the maternal mortality ratio is not as high as the rate of increase in the GDP. In addition, slight reduction in the GDP from one year to another as witnessed in 2001 and 2015 do not coincide with a reduction in the maternal mortality rate. This seems to show that an increase in the health status of the population is not a knee-jerk response to increasing wealth and a slight decrease in wealth does not immediately cause a decrease in the health status of the population.

Table 2 below illustrates in a tabular form, the relationship between government expenditure on health, expenditure on curbing maternal mortality, maternal mortality ratio and the gross domestic product per capita of Nigeria (which is illustrative of the level of economic growth and development).

**Table 2: Government Expenditure on Health, Gross Domestic Product and Maternal Mortality Indices over time**

| Year | GDP per capita<br>(current US\$) | Total Government<br>Health Budget<br>(Naira) | Total Amount<br>earmarked to curb<br>Maternal<br>Mortality (Naira) | Maternal<br>Mortality Ratio<br>per 100,000<br>live-births |
|------|----------------------------------|----------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------|
| 1993 | 153.6                            |                                              |                                                                    | 1280                                                      |
| 1994 | 171.7                            |                                              |                                                                    | 1270                                                      |
| 1995 | 264.3                            |                                              |                                                                    | 1250                                                      |
| 1996 | 316.0                            |                                              |                                                                    | 1250                                                      |
| 1997 | 315.6                            |                                              |                                                                    | 1240                                                      |
| 1998 | 275.0                            |                                              |                                                                    | 1220                                                      |
| 1999 | 300.6                            |                                              |                                                                    | 1220                                                      |
| 2000 | 379.1                            |                                              |                                                                    | 1170                                                      |
| 2001 | 351.8                            |                                              |                                                                    | 1140                                                      |
| 2002 | 459.5                            |                                              |                                                                    | 1090                                                      |
| 2003 | 512.7                            |                                              |                                                                    | 1040                                                      |
| 2004 | 648.8                            |                                              |                                                                    | 986                                                       |
| 2005 | 807.9                            | 77,948,600,000                               |                                                                    | 946                                                       |
| 2006 | 1,019.7                          |                                              |                                                                    | 890                                                       |
| 2007 | 1,136.8                          | 106,937,970,000                              |                                                                    | 884                                                       |
| 2008 | 1,383.9                          |                                              |                                                                    | 829                                                       |
| 2009 | 1,097.7                          | 154,567,493,157                              | 4,512,000,000                                                      | 883                                                       |

|      |         |                 |               |     |
|------|---------|-----------------|---------------|-----|
| 2010 | 2,327.3 | 161,845,511,090 | 410,000,000   | 867 |
| 2011 | 2,527.9 |                 | 49,138,174    | 824 |
| 2012 | 2,755.3 |                 | 174 138 668   | 819 |
| 2013 | 2,997.0 |                 | 147,518,208   | 821 |
| 2014 | 3,221.7 | 262,742,351,874 | 2,533,399,143 | 820 |
| 2015 | 2,655.2 | 259,751,742,847 | 624,200,000   | 814 |
| 2016 | 2,178.0 | 257,382,151,746 | 7,438,016     |     |

**Sources:** Budget Office of the Federation, 2017, World Development Indicators, 2018  
Nigeria Budget – HEALTH, 2010

**TABLE 3: % Government Expenditure on Health and Maternal Mortality Ratios Comparison**

**KEY: %EH - % Expenditure on Health, MMR- Maternal Mortality Ratio**

|      | NIGERIA |      | GHANA   |     | MOROCCO |     | USA     |     | BELGIUM |     | CHINA   |     | AUSTRIALIA |     |
|------|---------|------|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|------------|-----|
| YEAR | %<br>EH | MMR  | %<br>EH | MMR | %<br>EH | MMR | %<br>EH | MMR | %<br>EH | MMR | %<br>EH | MMR | %<br>EH    | MMR |
| 2000 | 4.46    | 1170 | 9.90    | 467 | 5.50    | 221 | 17.38   | 12  | 12.02   | 9   | 12.23   | 58  | 15.49      | 9   |
| 2001 | 5.93    | 1140 | 7.85    | 449 | 4.76    | 214 | 17.84   | 13  | 12.34   | 9   | 10.82   | 56  | 16.00      | 8   |
| 2002 | 4.50    | 1090 | 9.34    | 437 | 5.32    | 207 | 18.10   | 13  | 12.73   | 8   | 9.29    | 54  | 15.70      | 8   |
| 2003 | 3.73    | 1040 | 8.45    | 420 | 4.72    | 201 | 18.45   | 13  | 12.55   | 8   | 9.26    | 52  | 16.46      | 8   |
| 2004 | 5.89    | 986  | 8.33    | 396 | 5.12    | 196 | 18.47   | 13  | 13.55   | 8   | 9.54    | 50  | 16.32      | 7   |
| 2005 | 8.82    | 946  | 12.58   | 376 | 5.15    | 190 | 19.04   | 13  | 14.50   | 8   | 9.10    | 48  | 16.95      | 7   |
| 2006 | 7.30    | 890  | 15.08   | 358 | 4.43    | 185 | 19.01   | 14  | 13.71   | 8   | 9.79    | 45  | 16.95      | 7   |
| 2007 | 8.65    | 884  | 13.98   | 345 | 5.83    | 179 | 18.92   | 14  | 14.36   | 8   | 9.94    | 43  | 17.13      | 7   |
| 2008 | 9.19    | 829  | 16.16   | 337 | 6.32    | 172 | 18.68   | 14  | 14.41   | 8   | 11.06   | 40  | 17.48      | 7   |
| 2009 | 7.63    | 883  | 13.15   | 330 | 5.94    | 164 | 18.97   | 15  | 14.85   | 8   | 10.13   | 38  | 17.21      | 7   |
| 2010 | 7.37    | 867  | 16.45   | 325 | 6.58    | 153 | 19.46   | 14  | 14.97   | 8   | 10.31   | 35  | 16.78      | 6   |
| 2011 | 5.72    | 824  | 14.93   | 320 | 6.48    | 144 | 20.08   | 14  | 15.00   | 8   | 10.24   | 33  | 17.11      | 7   |
| 2012 | 7.42    | 819  | 14.03   | 324 | 6.05    | 137 | 20.78   | 14  | 14.95   | 7   | 10.62   | 31  | 17.65      | 6   |
| 2013 | 7.43    | 821  | 9.32    | 321 | 6.05    | 131 | 21.29   | 14  | 14.85   | 7   | 10.49   | 29  | 17.31      | 6   |

|      |      |     |       |     |      |     |       |    |       |   |       |    |       |   |
|------|------|-----|-------|-----|------|-----|-------|----|-------|---|-------|----|-------|---|
| 2014 | 6.48 | 820 | 10.58 | 322 | 5.78 | 126 | 16.51 | 14 | 15.10 | 7 | 10.28 | 28 | 17.31 | 6 |
| 2015 | 8.17 | 814 | 6.82  | 319 | 6.03 | 121 | 16.79 | 14 | 15.10 | 7 | 10.43 | 27 | 17.31 | 6 |

210 Source: WHO, 2016

211 World Development Indicators, 2018

212 A comparison of the public expenditures on health from the year 2000 to 2015 between that  
213 of the Nigerian government and other nations and its effect on maternal mortality within  
214 these nations is captured in Table 3 below. All 7 countries reviewed (including Nigeria)  
215 exhibited fluctuating increasing and decreasing percentage government expenditures on  
216 health care over the years from 2000 to 2015. This also resulted in subsequent decreasing  
217 fluctuation in maternal mortality ratios (MMR) in the countries apart from that of the United  
218 States of America which saw increasing fluctuations of maternal mortality ratio. However,  
219 the maternal mortality ratio of the United States of America from 2000 to 2015 when  
220 compared with those from African countries was significantly very low with a mean MMR of  
221 13.63 as against a mean MMR of 926.44 (in Nigeria) and 171.31 (in Morocco). Belgium and  
222 China however presented with steadily decreasing MMR during this same period of time. As  
223 earlier discussed in this commentary, despite decreasing maternal mortality ratios over the  
224 years (as seen in Table 3), high income countries (e.g. Belgium, etc.) with lesser maternal  
225 mortality ratio values tend to experience the positive causal effect of maternal health on GDP  
226 (through improved human capital) in greater measure than the low and middle income  
227 countries (e.g. Nigeria etc.) whom tend to exhibit higher maternal mortality ratio values. The  
228 differing MMR values also provides a logical explanation to why the causal effects are  
229 experienced more by high income countries. (Onisanwa, 2014; Wilhelmson & Gerdtham,  
230 2006).

## 231 **CONCLUSION AND RECOMMENDATIONS**

232 This information is vital for stakeholders, budget planners and policy makers. It reveals the  
233 need for a sustained and uninterrupted funding to the health sector to improve the health of

the population. Policy makers must put in more effort to do the right thing for the nation. Health Economists and Health advocates should be unrelenting in their efforts to ensure appropriate policies are made for the nation. These policies and the laws backing them should be seriously advocated for, implemented and enforced. Adequate budgeting for health and maternal health in particular cannot be over-emphasized. It is strongly recommended that in Nigeria, more effort needs to be made to ensure the investment of more resources in health. Health care utilization for various interventions regarding maternal health is crucial including the availability of skilled birth attendants to take deliveries. Health care expenditure must be integrated into elaborate gender-sensitive strategies for the development of human capital. It is finally recommended that there should be further thrust by the Nigerian government to ensure that at least 15% of the annual budget is allocated to issues of health and health care.

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