HEALTH QUALITY, LABOUR PRODUCTIVITY AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICAN COUNTRIES (1990 – 2012)

By

ADEDAYO OLUSEUN ADEDEJI

B.Sc. Ed. (Econs) O.A.U., M.Sc. (Econs) O.A.U. Ile-Ife.

BEING A THESIS SUBMITTED TO THE DEPARTMENT OF ECONOMICS, FACULTY OF SOCIAL SCIENCES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF **DOCTOR OF PHILOSOPHY (PhD) IN ECONOMICS** OF OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE, NIGERIA

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DEDICATION

This thesis is dedicated to the Holy Spirit; my Christ sent companion, for protection, provision, inspiration, guidance and progressive life. Thanks to the three – in – one God, I return all the Glory to the Trinity.

AUTHORIZATION

AUTHOR: ADEDEJI Adedayo Oluseun

TITLE: Health Quality, Labour Productivity and Economic Growth in Sub-Saharan African Countries (1990 – 2012)

DEGREE: Doctor of Philosophy (Economics)

YEAR: 2014

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Signature Date

CERTIFICATION

I certify that this work was carried out by Adedayo Oluseun Adedeji, under my supervision in the Department of Economics, Obafemi Awolowo University, Ile-Ife, Nigeria.

…… ……..

Professor A.E. Akinlo
(Supervisor)
Department of Economics
Obafemi Awolowo University,
Ile –Ife, Nigeria.

Date

…… ……..

Professor P. A. Olomola
(Head)
Department of Economics
Obafemi Awolowo University,
Ile –Ife, Nigeria.

Date

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ABSTRACT

This study examined the trends of health quality (longevity and disease), labour productivity and economic growth in Sub-Saharan African countries. It also investigated the causal relationships and threshold effects among longevity, labour productivity and economic growth, and determined the effects of HIV and TB on longevity of Sub-Saharan Africans. The study further analyzed the effect of health quality on labour productivity and economic growth between 1990 and 2012. This was with a view to examining how health quality (longevity and disease) affects the nature of relationship between labour productivity and economic growth in Sub-Saharan Africa (SSA).

Secondary data were employed in this study. Data on life expectancy at birth, incidence of tuberculosis (TB), prevalence of Human Immunodeficiency Virus (HIV), real Gross Domestic Product (GDP) per capita, urban population, access to improved water sources and sanitation facilities, for the period 1990 to 2012 were sourced from World Development Indicators (WDI) published by World Bank. The study covered 38 of the 48 countries in SSA due to data availability. The study used descriptive statistics, Hansen (1999) panel threshold test, vector autoregressive (VAR) multivariate Granger causality test and 2-step System Generalized Method of Moments (system – GMM) in analyzing the data.

The results showed that the upsurge in the prevalence rate of HIV and TB diseases between 1990 and 2000 was the main challenge to health quality in SSA countries, thereby forcing longevity into downward trend. Also, between 1990 and 2012, 34% of the SSA countries had downward trend in labour productivity, while 39% had downward trend in economic growth. The results further showed that a unidirectional causality running from longevity to labour productivity ($F=32.83$, $p<0.05$), a unidirectional causality running from longevity to economic growth ($F=30.16$, $p<0.05$) and bidirectional causality running between labour productivity

and economic growth ($F=27.51$; 57.62, $p<0.05$). Also, the threshold point estimate in the relationship between longevity and labour productivity was 46.7 years ($F=82.20$, $p<0.05$) and between longevity and economic growth was 67.5 years ($F=33.39$, $p<0.05$). HIV disease had negative effect on longevity ($t=-3.09$, $p<0.05$), TB disease had negative effect on labour productivity ($t=-2.29$, $p<0.05$); thus forming disease-trap for longevity and labour productivity in SSA. Also, longevity had a positive effect on labour productivity ($t=2.04$, $p<0.05$) and economic growth in non-linear model specification ($t=3.37$, $p<0.05$).

The study concluded that HIV disease had significant damaging effect on health quality and tuberculosis disease had a significant impeding effect on labour productivity, while longevity was an increasing function of labour productivity and economic growth with the significant threshold effects at ages 46.7 years on labour productivity and 67.5 years on economic growth.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Health is a multifaceted concept which has defied simple definition especially at the aggregate level (Arora, 2001). However, for this study 'health quality' is the representation of the extent[1] to which human body, mind and emotional conditions are stabilized for productive efforts in an economy. The quality of health of the population of a country reflects in the degree of longevity[2] and resilience to diseases and premature death. The interplay among longevity, disease and death to describe the health quality (good or poor health) of a population seems to be simple and logical. Low level of longevity is an indication of high rate of death (Lorentzen *et al*, 2005), while death occurs basically from diseases[3]. Therefore, a persistent increase in the disease prevalence and death is an attack on the health quality of a country's population and thereby enforcing low level of longevity (Arora, 2001). Thus, health quality envelopes longevity and disease prevalence

Ordinarily, at household study level, health quality has consequential implications for the quality and quantity of efforts that can be rendered for income earning. An individual with poor health is likely to be susceptible to further health challenges, while someone in good health is expected to

[1] 'Extent' in this definition denotes the quality and quantity of hours, days, months or years for which the body, mind and emotion of an individual is relatively made sound for productive service(s).

[2] Longevity in this study is the life expectancy at birth. Life expectancy at birth is the number of years a newborn infant can expect to live under the year mortality level (Population Reference Bureau, 2002). Although, life expectancy itself is not health, it is a consequence of health quality. According to Arora (2001), it is positively and strongly correlated with other health-related variables like stature and human life span, and it gives a reasonable measure of long-term population health.

[3] Beside diseases, there are other possible causes of death like motor accident, plane crash, shipwrecking, armed robbery attacks, stray bullets and some other similar events. For the purpose of this study and for simplicity sake, only death by diseases is reckoned with.

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be more productive, *ceteris paribus*. At the macro-level, the quality of health varies across countries, regions and continents due to the extent of nutrition/food availability (Fogel, 2004; Fayissa and Gutema, 2005; and Halicioglu, 2010), access to clean water and sanitation (Gulis, 2000; and Cultler and Miller, 2005), geographical location; urban/rural area (Kabir, 2008), education (Fayissa and Gutema, 2005; and Riscci and Zachariadis, 2007) and gross domestic product per capita (Easterly, 1999; and Canning, 2010).

The health quality of persons in a country will determine the extent of their participation and contribution to the domestic and international economies of the world, consequently determining their income from both levels. Thus, poor health can lead to low income and vice versa implying that health improvement benefits apply mainly to poor countries (Bhargava *et al*, 2001). The increasing health quality of the people in a country could result in the growth of the economy through a good number of channels. Such medium include increase in labour participation rate, reduction in the rate of absenteeism from work, increase in school enrolment rate and rise in labour productivity. In addition, Bloom *et al* (2002) found higher saving rate as another channel and this can transform to economic growth through increase in investment.

However, there are mixed results about the effect of improvement in health quality on labour productivity and economic growth. These suggest that the inter-relationship between health quality, labour productivity and the growth of the economy is not often straight forward as been expected. For instance, to Hassan *et al* (2011) and Arora (2001), improvement in health led to economic gains, but Acemoglu and Johnson (2007) concluded that there was no empirical evidence of such. Also, Aghion *et al* (2010) stated that reduction in mortality below age 40 years is what can generate productivity, while Knapp (2007) asserted that it was health in the first 20

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years of people that had significant and positive impact on productivity. The macroeconomic evidence of the effect of health remained mixed (Bloom and Canning, 2008).

The health quality in Sub-Saharan Africa (SSA) region compares unfavourably low with most of other regions of the world as indicated by longevity. In East Asia and Pacific, longevity measured in years was 73 in 2004, and 74 in both 2008 and 2010, while in Europe and Central Asia, longevity was 74, 75 and 76 years in 2004, 2008 and 2010 respectively. Also, in Latin America and Caribbean, longevity in years was 73 in 2004, and 74 in 2008 and 2010, while in the Middle East and North Africa; regions in the same continent with sub-Sahara Africa, the longevity was 71 years in 2004 and 2008, and 73 years in 2010. All these are much higher than that of SSA region. A new child born in SSA countries in 2004 was expected to live for 52 years, while those born in 2008 and 2010 were of 54 and 55 life-years respectively (WDI[4], 2013). Whereas, if the same child was born in any of the other regions cited, he/she would have an average of additional 20 years to live.

Similarly, the productivity of labour and real gross domestic product (GDP) per capita in SSA compares low with other regions of the world. In East Asia and Pacific, labour productivity and real GDP per capita, both measured in U.S. dollars, were $13,862 and $5,287 in 2008 and $15,428 and $5,602 in 2010 respectively, while in Europe and Central Asia, they were $32,287 and $19,765 in 2008 and $32,074 and $19,151 in 2010 respectively. Also, in Latin America and Caribbean, labour productivity and real GDP per capita were $17,524 and $5,578 in 2008 and $17,566 and $5,646 in 2010 respectively, while in the Middle East and North Africa, they were $16,598 and $4,746 in 2008 and $16,913 and $4,870 in 2010 respectively. In SSA, labour

[4] WDI (2013) represents the World Development Indicator; online database of World Bank Organization accessed in 2013.

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