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ICT, Human Capital and Sustainable Development in Sub-Saharan Africa

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***Abstract*— The effects of ICT and human capital on sustainable development in sub-Saharan Africa (SSA) were examined in this study by employing a panel data set of 41 SSA countries for the period 2000-2021. The study employed several panel estimation techniques, including the pooled ordinary least squares (POLS), random effect and fixed effect estimators as baseline techniques, while the Generalised Method of Moments (GMM) was employed as the main estimation technique. Results indicated that ICT promotes sustainable development in SSA. The study also found that human capital stifles sustainable development in the region. The study, therefore, recommends that policymakers in SSA should ensure that there is sufficient access to quality education, vocational training and skill development programs to enhance human capital. The study also recommends that policymakers in SSA must address the disparities in access to education and training, otherwise human capital may not contribute to sustainable development.**

Keywords*— *ICT, Human Capital, Sustainable Development, GMM, sub-Saharan African

I. Introduction

Promoting sustainable economic growth and development is a key macroeconomic objective of governments worldwide. Unfortunately, sub-Saharan Africa (hereafter, SSA) continues to face significant challenges that may prevent the realization of Sustainable Development. In particular, as revealed by the Africa Sustainable Development Goals Index and Dashboards Reports, Africa might be the least likely region to achieve Sustainable Development targets. The recent COVID-19 pandemic has further exacerbated the situation, pushing millions of Africans into poverty [1]. More particularly, SSA is characterized by a large population and predominantly low-income countries, where a larger proportion of the population lacks access to quality education and healthcare services. These might result in underdeveloped human capital that hinders productivity and thereby contributes to the region's relative poverty [2].

Available evidence shows that human capital development is critical in promoting economic growth and development [3], [4], [5] and [6]. Sadly, in SSA, education and healthcare, which are critical to human capital development, are typically underfunded, which might lead to poorly trained and underdeveloped human capital [7].

In the economic literature, Information and Communication Technology (ICT) has also emerged as a vital catalyst that promotes sustainable development. It reduces poverty, inequality and unemployment [8]. It also serves as a channel through which human capital can be developed. Unfortunately, the adoption of ICT in SSA remains low which may be due to high costs and inadequate ICT infrastructure.

Although several studies [9-12], have been done to provide a clear understanding of the effects of ICT and human capital on sustainable development in SSA, the empirical evidence presented so far suffers a major shortcoming. Existing studies relied on either GDP or carbon emissions as measures of sustainable development. Evidence from [13], has shown that these proxies wholly considered economic growth or ecological factors and do not account for the multifaceted disposition of sustainable development. It has been recognized that economic growth, social and ecological factors are the entire characteristics of sustainable development [14]. Therefore, relying on economic growth or ecological factors alone may prevent us from correctly understanding sustainable development in SSA.