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Social Media and Inclusive Human Development in Africa [1]

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Social Media and Inclusive Human Development in Africa

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Abstract

This study investigates the relationship between social media and inclusive human development in 49 African countries for the year 2012. Social media is measured with Facebook penetration whereas inclusive human development is proxied by the inequality-adjusted human development index. The empirical evidence is based on Ordinary Least Squares, Tobit and Quantile regressions. Ordinary Least Squares provided baseline results, Tobit regressions account for the limited range in the outcome variable while Quantile regressions are engaged to control for initial levels of inequality-adjusted human development. From Ordinary Least Squares and Tobit results, Facebook penetration is positively associated with inclusive human development. Quantile regressions confirm this positive nexus and further establish that the positive association is slightly higher in magnitude in the above-median sub-sample. From a comparative assessment, it is apparent that with the exception of the resource-wealth sub-samples, higher levels of Facebook penetration are associated with comparatively higher levels of inclusive human development. Accordingly, the positive association between Facebook penetration and inclusive human development is: (i) a positive function of income levels and (ii) more apparent in Middle East and North African countries (compared to Sub-Saharan African countries), English common law countries (compared to their French civil law counterparts), and coastal countries (in relation to landlocked countries).

JEL Classification: D83; O30; D74; D83
Keywords: Social Media; Inclusive development; Income levels; Regions

1. Introduction

Over the past two decades, the liberalization of the information and communication technology (ICT) sector in Africa has been accompanied by a multitude of positive economic development consequences (Asongu, le Roux, Nwachukwu & Pyke, 2019a; Bongomin, Ntayi, Munene & Malinga, 2018; Murphy & Carmody, 2015; Gosavi, 2018). Inclusive development has been documented as one of these positive development outcomes because the corresponding benefits are more rewarding to the population in the low-income strata who are offered new opportunities that are relevant for their economic prosperity and human development when compared with the population in the higher income strata (Asongu & Asongu, 2018). Moreover, ICT provides more avenues to underserved factions of the population because it mitigates informational rents enjoyed by wealthy factions of the population (Uduji & Okolo-Obasi, 2018; Asongu, Batuo, Nwachukwu & Tchamyou, 2018; Tchamyou & Asongu, 2017).

Against the above background, this research is motivated by three main strands in policy and scholarly circles, namely: recent evidence of exclusive growth in sub-Saharan Africa (SSA), the importance of ICT in contemporary development, and gaps in the extant literature. The points are expanded in the same order as they are highlighted. First, the importance of inclusive development builds on three main fundamentals. (i) In spite of over two decades of growth resurgence, the rich have grown richer while the poor have become even poorer (Asongu & Kodila-Tedika, 2017; Kuada, 2015). This indicates that the fruits accruing from the over two decades of revived economic growth have not been equitably distributed across the population. (ii) A 2015 report by the World Bank on the achievement of the Millennium Development Goal (MDG) extreme poverty target revealed that close to half of countries in SSA were considerably off-course from reaching the target (Tchamyou, 2020; Asongu & le Roux, 2019). In the light of the report, the number of people living in extreme poverty in the sub-region has been consistently growing (Tchamyou, 2019). (iii) Inclusive human development is a key theme in the Sustainable Development Goals (SDGs) agenda because many of the goals are related to inequality in human development[2].

[2] In line with Asongu, le Roux and Biekpe (2017), in this study, the conception, definition and measurement of inclusive human development (which is used as outcome variable) is in accordance with at least six of the seventeen SDGs, namely: "Goal 1('end poverty in all its forms everywhere'), Goal 2 ('end hunger, achieve food security and improved nutrition and promote sustainable agriculture'); Goal 3 ('ensure healthy lives and promote well-being for all ages'); Goal 4 ('ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'); Goal 8 ('promote sustained, inclusive and sustainable economic growth,full and

Second, ICT is particularly relevant in contemporary African development because it represents a potential that policy makers can leverage upon to address policy syndromes, including the glaring exclusive development discussed in the previous strand. The relevance of Africa is particularly significant because compared to other regions of the world which have almost reached saturation levels in ICT penetration, the penetration level in SSA is still low (Penard, Poussing, Yebe & Ella., 2012; Tchamyou, Erreygers & Cassimon, 2019; Asongu, 2018; Tchamyou, Asongu & Odhiambo, 2019). This tendency has motivated an evolving stream of literature on the use of ICT to address exclusive development challenges in Africa (Asongu, 2013; Tchamyou, 2017; Uduji, Okolo-Obasi & Asongu, 2018, 2019a, 2019b; Abor, Amidu, & Issahaku, 2018; Afutu-Kotey, Gough & Owusu, 2017; Hubani & Wiese, 2018; Asongu & Boateng, 2018; Muthinja & Chipeta, 2018; Karakara & Osabuohien, 2019; Ejemeyovwi & Osabuohien, 2020; Asongu & Kuada, 2020). Unfortunately, this evolving literature has failed to engage the dimension of social media partly because of data availability constraints.

Third, the extant ICT literature on the importance of social media in development outcomes in Africa is scant. To the best of our knowledge, only seven studies have explored a recent dataset on Facebook penetration, which is a proxy for social media. Kodila-Tedika (2018) has examined how social media affects the governance of natural resources, Jha and Kodila-Tedika (2019) have assessed if social media promote democracy while Jha and Sarangi (2017) have examined whether social media influence corruption. Asongu and Odhiambo (2019a, 2019b) have examined the relationships between social media, tourism and governance, Asongu, Orim and Nting (2019) have assessed the nexus between social media and terrorism while Asongu, Uduji and Okolo-Obasi (2019) have investigated linkages between social media and homicide in the world. This research extends the underlying stream of literature on the importance of Facebook penetration in development outcomes by investigating the role of social media in inclusive human development in Africa. Hence, by leveraging on a new data set on Facebook penetration in order to contribute to the scholarship, the research also responds to a recent World Bank report on the need for more studies on the importance of social media in economic development outcomes in developing countries (World Bank, 2016).

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productive employment and decent work for all') and Goal 10 (reduce inequality within and among countries). The interested reader can refer to Michel (2016) for a full list of SDGs".

The research is relevant to policy makers because it aims to improve insights into the understanding of how innovation systems in Africa are serving to address the most basic conditions of human and socio-economic developments. It is important to emphasize that to the best of our knowledge, the sharing economy by means of social media is an innovation that can address socio-economic issues in the continent such as exclusive development discussed in the second paragraph. The outcome variable (i.e. inequality-adjusted human development) used in the study is a composite socio-economic development indicator because it encompasses education, health (or long life) and income (or living standards). Hence, the research is also positioned as a scholarly piece that aims to provide policy makers with insights into mechanisms by which the policy syndrome of exclusive development can be addressed in the post-2015 sustainable development agenda.

The rest of the research is organized as follows. Theoretical underpinnings are covered in section 2. The data and methodology are discussed in section 3 while the empirical results are provided in section 4. Section 5 concludes with implications and future research directions.

2. Theoretical underpinnings and nexus between social media and inclusive development

2.1 Theoretical underpinnings

This section discusses the theoretical framework underlying social media as a digital social innovation ecosystem through which inclusive human development in Africa can be improved in the light of SDGs. In accordance with neoclassical theories of inclusive development, technology and innovation in the delivery of public commodities (essential for human development) are fundamental for economic development. These economic development models are based on the two main views of economic prosperity, notably: the neo-Schumpeterian and endogenous views (Howells, 2005; Asongu & Nwachukwu, 2018). Concerning the new models of economic development, improvements in technology are also the outcome of citizenry engagements via substantial mobilization of essential resources that are imperative for economic and human developments (Romer, 1990). The conception of social media as a new technology of communication on the one hand, and interactions of users of social media (that enable users to continually innovate mechanisms of exchanging information), on the other hand, are consistent with these theoretical underpinnings.

In the light of the above, a fundamental dimension of innovation is the capacity of corporations and individuals to build on existing technologies in order to enhance human and

economic development. Within this framework, Coleman (1998) advocates that a fundamental dimension in the diffusion of information for development is the capacity of individuals using the technology to innovate. Human capital, with respect to Coleman (1998), is understood as the individual's (i.e. a social media user in our context) ability, skills, expertise and knowledge that contribute to development purposes by means of innovations. According to Rosenberg (1972), such human interactions are critical in adopting and using the underlying new technologies. Hence, people in society are constantly adapting to new technologies and innovating their capacities to employ these technologies for development purposes (Dakhi & de Clereq, 2007; Anyanwu, 2012; Chavula, 2010; Kwan & Chiu, 2015; Asongu & Tchamyou, 2019; Lashitew, van Tulder & Liasse, 2019; Uduji, Okolo-Obasi & Asongu, 2019c, 2020). The capacity of users to innovate is contingent on a number of factors, *inter alia*: the complexity of the technologies and training required by users to be able to innovate with the technologies (Asongu & Nwachukwu, 2018). As far as social media is concerned, little training is required, and users can easily adopt and use the technology within the context of a digital social innovation ecosystem (i.e. of people, businesses and things).

With the above background, the social media user within the digital social innovation system expects a plethora of human development rewards which can be linked to benefits in education, health and income. These three conveniences embody the human development index which is employed in this research as the dependent variable. Furthermore, a user in the lower income strata can use social media because he/she expects his/her interactions with things, business and people (i.e. in a social innovation system) to improve his/her income status or reduce income inequality. Therefore, the motivation of the underlying user to adopt a social media as a communication technology is underpinned by three dominant technology acceptance theories, namely: the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM).

In accordance with contemporary literature on information technology (Yousafzai, Foxall & Pallister, 2010; Lee & Lowry, 2015; Nikiforova, 2013; Cusick, 2014; Asongu, Nwachukwu & Aziz, 2018; Asongu, Amavilah & Andrés, 2020), the TRA, TPB and TAM are the three main theories used in the literature to theoretically justify the decision by users to select, adopt and use a particular type of ICT. Looking at the TRA, users are rational because they acknowledge the actions they take (Ajzen & Fishbein, 1980; Bagozzi, 1982; Fishbein & Ajzen, 1975). Note should be taken of the fact that the TRA is extended by the TPB and within the framework of Ajzen (1991), emphasis in the TPB is put on the absence of

variations between individuals who display a conscious influence that is linked to their actions from individuals who are not characterized by such an influence. According to the TAM, the assumption underlying the desire of an individual to adopt a specific technology can be elucidated by the voluntary consideration of the individual to accept a specific technological innovation (Davis, 1989). However, two common denominators are apparent from the three theories, namely: (i) the formation of belief in an individual and (ii) composite factors such as personal, behavioral, utilitarian and psychological features. These characteristics are contextualized in what follows.

Within the framework of this study, (i) the utilitarian perspective is apparent when an individual adopts a social media platform because he/she anticipates that it will be useful in improving his/her wellbeing and living standard; (ii) from the behavioral perspective, even in the absence of personal motivation, a user can decide to use social media if the user is already aware that doing so is part of the social norm; (iii) personal and psychological drives are also vital in the decision to adopt a social media platform if the user is motivated by potential gains that are uncommon; (iv) the relevance of the belief formation of a user rests in the perspective that it is an accepted norm in society that using social media can potentially increase living standards.

In view of the above information, a user's decision to adopt a social media platform can be motivated by both systematic and idiosyncratic factors on the potential conveniences of such usages in the improvement of his/her human development circumstances. In summary, social media can improve: (i) income levels if the user employs the platform to create an income generating activity; (ii) education, if an individual uses the platform to educate himself/herself and (iii) health, if user leverages on the platform in order to prevent health risks and improve health treatment. These underlying three elements (i.e. of income, education, and health) are components of the inequality-adjusted human development used in this study. It is important to substantiate the theoretical underpinnings with some empirical framework in order to assess if the theoretical postulations motivating this study withstand empirical scrutiny.

2.2 Nexus between social media and inclusive development

2.2.1 Risks of social media on human development

Consistent with Tisone (2012), social media has been associated with various forms of addiction. For instance, in the light of Morozov (2010), a case study at the University of

Maryland surveyed 200 students on what they experienced giving-up all social media for twenty-four hours. According to the results, reports of students' responses included the following statements, *inter alia*: "*I noticed physically, that I began to fidget, as if I was addicted to my iPod*"; "*I felt phantom vibrations all throughout the day…*" and "*I reached into my pocket at least 30 times to pull out a vibrating phone that wasn't there…*".

Research also suggests that there is an evolving culture of user-created content and dependency on communication that is instantaneous which, breeds narcissistic tendencies (Morozov, 2010). For instance, as substantiated in Morozov (2012), a research was carried out at San Diego State University in 2009 where over 1,000 students were interviewed, and it was found that 40% agreed to the perspective that being narcissistic, self-promoting, attention-seeking and overconfidence are fundamental in succeeding in a capitalistic world while 57% were of the opinion that social media is used for attention-seeking and self-promotion purposes.

There is also growing contemporary evidence that is owing to the interest of increasing the number of followers on social media, users are often concerned with recording more "likes" and constantly reinventing their identities and narcissism in order to achieve the golden objective of getting more and more "likes" on Facebook (Zell & Moeller, 2018). This tendency alternatively implies that users that are characterised by narcissism can be severely depressed if they do not have the much needed "likes" with which to consolidate their sense of worthiness. Moreover, in the light of evidence that identity formation is a fundamental development task among the youth (Yang, Holden & Carter, 2018), those that are likely to be victim of the underlying depression and addiction to low self worth pertaining to less "likes" from Facebook are the youth (Gerrard, 2008; Zell & Moeller, 2018).

Social media can also represent environmental and behavioral risks such as sexual predation, gaming and bullying. For instance, a survey by Lenhart (2007) has established that *inter alia*: (i) among teenagers aged between 12 and 17, at least a third have been a victim of online harassment; (ii) 26% of boys versus 38% of girls have experienced harassment online. The narrative maintains that these patterns of intimidation are more worrying because the information that is posted online can be permanently available. Wolak, Finkelhor and Ybarra (2008) broadly support the perspective by establishing that boys who are questioning their sexual orientation are more vulnerable to sexual offences. According to the authors, more than 27% of incidents involve the request for sexual photographs. A survey by Lenhart (2009) indicates that 4% and 15% of teens between the ages of 12 and 17 have respectively sent and received sexually suggestive nude or quasi nude pictures.

As documented in Tisone (2012) and a stream of more contemporary studies (Yang, Holden & Carter, 2018), social media can unfavourably affect learning behaviour in that the use of new skills from internet usage is at the price of losing other skills. For instance, multitasking associated with social media can distract from engaging in more attentive thinking avenues. According to the Kaiser Family Foundation (2010), teens between the ages of 8 and 18 spend averagely about 7 hours every day on social media. This tendency becomes even more apparent when regular visits are linked to the fear of missing something quite relevant on social media. Hence, given that it is difficult to effectively process multiple tasks simultaneously; continuous partial attention to many events and issues can substantially distract concentration over more relevant concerns.

2.2.2 Benefits of social media for human development

Tisone (2012) maintains that social media from the perspective neuroscience has positive elements from which learning outcomes can be improved. Accordingly, findings in the discipline of neuroscience are supportive of the view that learning outcomes are deeply influenced by sleep, responsible behaviour, decision-making patterns and emotional regulation (Kahn, 2009; Dahl, 2004). In this contemporary era, as argued by the attendant scholarship (Champeau, 2008; Carr, 2010), social media has substantially changed educational systems and lives which also implies that such changes have also been apparent in the brains of users. This is mainly because, *inter alia*: (i) distinctive pathways such as neural pathways are created and (ii) complicated activities that involve the brain are engaged during internet searching, which could contribute towards improvements in the functioning of the brain.

In accordance with Tisone (2012), improved teaching mechanisms have emerged as a result of social media. The author uses YouTube as an example of a medium through which lectures can be consumed free of charge. Moreover, the youths are increasingly being given voice owing to online discussions that are engaging more students and encouraging their timid counterparts to also build confidence. Students can also engage in extra-curricular activities via social media in areas of interest that border around improving their knowledge and skills. The attendant literature is supportive of the view that social media has enabled the building of a "community of learners" which not only improves teacher-student interactions but also creates other opportunities that are relevant for users' livelihood and sustainable development (Carter & Evans, 2008; Nicholson, Nugroho & Rangaswamy, 2016; Antoci, Bonelli, Paglieri, Reggiani & Sabatini, 2019).

Tisone (2012) argues that technology affects the core aspect of human development by improving relationships, communication and connections especially in this contemporary area where families and friends can be spread across the globe. According to Bronfenbrenner and Morris (2006), networks of interpersonal nature are currently no longer limited in space and time, especially in terms of positive externalities on human development. In what follows, the discussed positive rewards of social media on human development are substantiated with more case studies.

Consistent with contemporary social media literature (Nemer, 2016; Nicholson et al., 2016), "Online Favela" or the use of social media in the marginalized fractions of Brazilian society, is a good case study with which to illustrate the nexus between social media and economic development. In the light of Nemer (2016), Brazilian Fevala is a good case study because it improves contemporary understanding of how social media can be reflected within the framework of Sen's capability approach. Personal stories from the case study are articulated to inform readers on the relevance of social media in human development and empowerment.

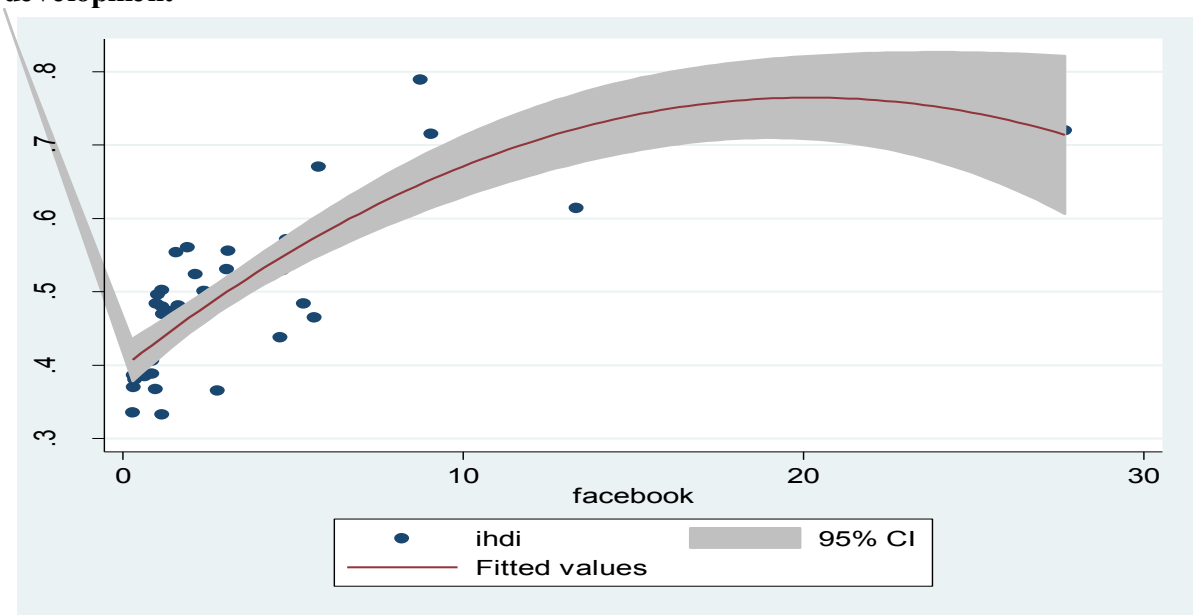
In the light of Parkyn (2017) pertaining to a World Bank study, social media can be employed to dampen apparent social tensions by clarifying hearsay and fabrications. For instance, El Kul (For Everyone) in Libya is a Facebook-only service that aims to bring people that are trusted and impartial to an environment in which the practice of journalism is politically motivated and substantially polarised. In Sierra Leone during efforts at curbing the spread of the Ebola virus, the WhatsApp social media was used to trace and address circulating rumours about the Ebola spread (Parkyn, 2017). Parkyn (2017) further maintains that social media is being used in Cambodia and Bangladesh to ignite discussions from and engagements among urban audiences that are worthwhile to improvements of living conditions and standards in communities.

2.3 Graphical insights into the nexus between social media and inclusive human development

Figure 1 below illustrates a graphical relationship between social media and inclusive human development. It is apparent from the graph that the nexus is largely consistent with the intuition and theoretical underpinnings on the positive relationship between facebook penetration and inclusive human development in the sampled countries. Whether the positive graphical nexus withstands empirical scrutiny is an issue that will be explored in Section 4.

It is also important to note that the Kuznets or inverted U-shaped nexus is largely treacable to an outlier in both inclusive human development and facebook penetration which is Mauritius. In order to establish if this outlier affects the investigated nexus, baseline estimation strategies are complemented with an empirical strategy that accounts for outliers. The baseline estimation strategies are ordinary least squares and Tobit regressions whereas the estimation technique that is used to account for the outlier is the quantile regressions approach.

Figure 1: Linkage between Facebook penetration and inclusive human development development



Notes: The values used in plotting the graph are defined in Appendix 1 and summarised in Appendix 2. Facebook penetration is in the X-axis while the ihdi (inequality-adjusted human development index) is in the Y-axis.

3. Data and methodology

3.1Data

The study investigates a cross-section of 49 African countries with data for the year 2012. The temporal and geographical dimensions of the study are based on data availability constraints. The data is from the United Nations Development Programme (UNDP), the World Development Indicators (WDI) of the World Bank, the World Governance Indicators (WGI)

of the World Bank, the Organisation for Economic Co-operation and Development (OECD) and Quintly (which is a social media benchmarking and analytics Solution Company)[3].

Consistent with recent inclusive human development literature (Asongu, Efobi & Beecroft, 2015; Asongu & Odhiambo, 2019c), inclusive human development from the UNDP is measured in terms of the inequality-adjusted human development index (IHDI). The IHDI is the human development index (HDI) that is adjusted for inequality. The HDI entails a national average of achievements within three categories, notably: (i) health and long life; (ii) decent living standards, and (iii) knowledge. The IHDI, however, stretches beyond accounting for a national average of the underlying achievements by controlling for the manner in which the three national achievements are distributed across the population.

Social media is proxied by Facebook penetration, and the corresponding data is from Quintly. This data on Facebook penetration has recently been used to assess the relationship between social media and institutional development (Jha & Sarangi, 2017; Jha & Kodila-Tedika, 2019; Kodila-Tedika, 2018; Asongu & Odhiambo, 2019a, 2019b). While internet penetration is not used in the study, there is an underlying assumption that facebook penetration is contingent on internet penetration. Since, facebook penetration used in the study is an independent variable (i.e. not a dependent variable), the analysis does not control for determinants of facebook penetration such as internet diffusion.

The adopted control variables include: government effectiveness, primary school enrolment, Gross Domestic Product (GDP) per capita and aid to the productive sector. These control variables, which are all expected to positively affect human development, have been used in the attendant inclusive human development literature (Asongu & Odhiambo, 2019c, 2019d; Asongu & Nwachukwu, 2017a, 2017b). First, government effectiveness should logically be associated with inclusive human development because it is the formulation and implementation of policies that deliver public commodities. These public commodities consist of *inter alia*: components of the inclusive-human development index used as outcome variables, notably: education, health and socio-economic facilities. Second, compared to other educational levels, primary school enrolment has been documented to be more associated with socio-economic benefits when economies are at the early stages of industrialisation (Petrakis & Stamakis, 2002; Asiedu, 2014; Asongu & le Roux, 2017). Third, as recently established by

[3] The data was accessed from its website (http://www.quintly.com/facebook-countrystatistics?period=1year).

Asongu and Nwachukwu (2017b), "aid to the productive sector" increases inclusive human development. Fourth, GDP per capita should logically be positively linked to the outcome variable because it is highly associated with the income component of the IHDI. The definitions and sources of variables are provided in Appendix 1 while the summary statistics and sampled countries are disclosed in Appendix 2.

3.2Methodology

3.2.1 Ordinary Least Squares

An ordinary least squares (OLS) empirical strategy is adopted given the cross-sectional nature of the dataset. The adoption of the empirical approach is consistent with the literature on this type of data structure, notably: financial development (Kodila-Tedika & Asongu, 2015), inclusive development (Andrés, 2006; Asongu & Odhiambo, 2019e) and mobile phone penetration (Asongu, 2013a).

Equation 1 below examines the correlation between social media and inclusive human development:

$$HD_i = \alpha_1 + \alpha_2 SM_i + \alpha_3 X_i + \varepsilon_i \ , \qquad (1)$$

where H_i represents inclusive human development while SM_i is the social media indicator for country i, α_1 is a constant, X is the vector of control variables, and ε_i the error term. X contains: government effectiveness, primary school enrolment, GDP per capita and aid to the productive sector.

3.2.2 Tobit regressions

The inclusive human development outcome variable is situated within a specific interval of 0 to 1 (i.e. from 0.332 to 0.788). Given this theoretical range, consistent with recent literature (Asongu & Nwachukwu, 2016), a double-censored Tobit model is used to substantiate the OLS estimation strategy. Accordingly, a double-censored Tobit estimation strategy has been documented to be consistent with dependent variables that have a restricted range (Kumbhakar & Lovell, 2000; Koetter *et al.*, 2008; Ariss, 2010). Moreover, when the two likelihood functions converge, the Tobit model is similar to estimation by a model of linear regression (Coccorese & Pellecchia, 2010).

The standard Tobit model (Tobin, 1958; Carsun & Sun, 2007) is as follows:

$$y_{i,t}^{*} = \alpha_0 + \beta X_{i,t} + \varepsilon_{i,t} , \qquad (2)$$

where $y_{i,t}^{*}$ is a latent response variable, $X_{i,t}$ is an observed $1 \times k$ vector of explanatory variables and $\varepsilon_{i,t} \approx$ i.i.d. $N(0, \sigma^2)$ and is independent of $X_{i,t}$. Instead of observing $y_{i,t}^{*}$, we observe $y_{i,t}$:

$$y_{i,t} = \begin{cases} y_{i,t,}^{*} \; if \; y_{i,t}^{*} > \gamma \\ 0, \; if \; y_{i,t}^{*} \leq \gamma, \end{cases} \qquad (3)$$

where γ is a non-stochastic constant. In other words, the value of $y_{i,t}^{*}$ is missing when it is less than or equal to γ.

3.2.3 Quantile Regressions

The OLS and Tobit regressions covered in the previous two sections disclose estimated parameters at the mean of inclusive human development. While such mean relationships are important, it is relevant to complement them with conditional relationships. The policy relevance of conditional nexuses builds on the shortcoming that estimates based on mean values of the outcome reflect blanket policies which cannot be effective unless such interactions articulate initial levels of inclusive human development such that emphasis is placed on countries with low, intermediate and high initial levels of inclusive human development.

In the light of existing literature (Koenker & Bassett, 1978; Tchamyou & Asongu, 2018), the quantile regression (QR) approach is a good fit to articulate the initial levels of inclusive human development. When compared with estimation based on mean values, the QR technique has been documented in contemporary literature to increase room for policy implications, notably, in corruption (Billger & Goel, 2009; Okada & Samreth, 2012; Asongu, 2013b), finance (Asongu, 2014a) and health (Asongu, 2014b) studies.

The θ^{th} quantile estimator of inclusive human development is obtained by solving for the following optimization problem, which is presented without subscripts in Eq. (4) for the purpose of simplicity and readability.

$$\min_{\beta \in R^k} \left[\sum_{i \in \{i: y_i \geq x_{i'}\beta \}} \theta \left| y_i - x_{i'}\beta \right| + \sum_{i \in \{i: y_i < x_{i'}\beta \}} (1-\theta) \left| y_i - x_{i'}\beta \right| \right] , \qquad (4)$$

where $\theta \in (0,1)$, where, $y_i - x_i\beta$ yields the residuals $\varepsilon_{i,t}$ .The absolute values of positive residuals are weighted by θ, while the absolute values of negative residuals are weighted by $1-\theta$. Contrary to OLS which is fundamentally based on minimizing the sum of squared residuals, with QR, the weighted sum of absolute deviations is minimized. For example, the 10th or 25th quantiles (with θ=0.10 or 0.25 respectively) are estimated by approximately weighing the residuals. The conditional quantile of inclusive human development or y_i given x_i is:

$$Q_y(\theta / x_i) = x_{i'}\beta_\theta \,, \tag{5}$$

where unique slope parameters are modelled for each θ^{th} specific quantile. This formulation is analogous to $E(y / x) = x_{i'}\beta$ in the OLS slope where parameters are assessed only at the mean of the conditional distribution of inclusive human development. For Eq. (5), the dependent variable y_i is the inclusive human development variable while x_i contains: a constant term, government effectiveness, primary school enrolment, GDP per capita and aid to the productive sector.

The above estimation techniques substantially depart from the extant literature on social media which has mainly been based on qualitative and exploratory research (Wolak *et al*., 2008; Ameripour *et al*., 2010; Nicholson *et al*., 2016; Antoci *et al*., 2019; Yang *et al*., 2018 ; Zell *et al*., 2018). Hence, a quantitative dimension or focus is relevant in order to put some empirical quantitative structure to the nexus between social media and human development. The adopted quantitative empirical strategies in this study are consistent with another strand of social media literature which has focused on the relationship between Facebook and *inter alia*: corruption (Jha & Sarangi, 2017); democracy (Jha & Kodila-Tedika, 2019); natural resources governance (Kodila-Tedika, 2018); overall government quality in terms of political governance, economic governance and institutional governance (Asongu & Odhiambo, 2019a); tourism (Asongu & Odhiambo, 2019b); crime (Asongu, Nwachukwu, Orim & Pyke, 2019b).

It is important to emphasize that the main limitation of the three estimation techniques adopted for this study is that, they cannot enable the study to establish causality. This is essentially because, *inter alia*: (i) the dataset is cross sectional and (ii) in the light of the nature of the dataset, estimation approaches that enable the establishment of causality cannot be feasibly adopted.

4. Empirical results

4.1 Presentation of results

The empirical findings are discussed in this section. Whereas findings on Tobit and OLS regressions are presented in Table 1, those on QR are disclosed in Table 2. In the first table, OLS and Tobit regressions are presented respectively on the left-hand and right-hand sides. Both univariate and multivariate regressions are disclosed for each estimation technique. It is apparent from the univariate regressions that Facebook penetration has a positive relationship with inclusive human development. The relationship is robust to the inclusion of more variables in the conditioning information set. The fact that the magnitude of the relationship decreases with the inclusion of more variables can be understood from the corresponding increase in the explanatory power of the specification which is assessed with the adjusted coefficient of determination (i.e. adjusted R^2). Accordingly, the fourth specification in each estimation approach is more close to reality because, in the real world, Facebook penetration does not interact in isolation with inclusive human development. Hence, as more variables are included to explain the outcome variable, the explanatory power of the model increases with a corresponding decrease in the magnitude of the Facebook coefficient. All the control variables are significant with the expected signs.

Table 1: Ordinary Least Squares and Tobit regressions

	Dependent variable: Inclusive Human Development							
	Ordinary Least Squares				**Tobit Regressions**			
Constant	**0.440*** **	**0.462*** **	-0.056	-0.129	**0.439*** **	**0.461*** **	-0.049	-0.117
	(0.000)	**(0.000)**	(0.453)	(0.120)	**(0.000)**	**(0.000)**	(0.557)	(0.198)
Facebook Penetration	**0.015*** **	**0.014*** **	**0.005*** **	**0.006*** **	**0.015*** **	**0.014*** **	**0.006*** **	**0.006*** **
	(0.000)	**(0.001)**	**(0.002)**	**(0.001)**	**(0.000)**	**(0.000)**	**(0.001)**	**(0.001)**
Government Effectiveness	---	0.024	**0.038** **	0.026	---	0.024	**0.044*** **	**0.032* **
		(0.480)	**(0.018)**	(0.103)		(0.341)	**(0.008)**	**(0.057)**
Primary School Enrolment	---	---	**0.001*** **	**0.001*** **	---	---	**0.001*** **	**0.001*** **
			(0.000)	**(0.000)**			**(0.001)**	**(0.000)**
GDP per capita (log)	---	---	**0.134*** **	**0.147*** **	---	---	**0.133*** **	**0.145*** **
			(0.000)	**(0.000)**			**(0.000)**	**(0.000)**
Aid to the production sector	---	---	---	**0.0002** **	---	---	---	**0.0002* **
				(0.015)				**(0.095)**
Fisher	**29.07*** **	**20.71*** **	**81.47*** **	**69.07*** **				
Adjusted R^2	0.590	0.603	0.869	0.882				
LR Chi-Square					**36.18*** **	**36.59*** **	**73.35*** **	**76.17*** **
Pseudo R^2					-0.734	-0.779	-1.771	-1.839
Log Likelihood					42.710	41.763	57.382	58.792
Observations	43	42	36	36	43	42	36	36

***,**,*: significance levels at 1%, 5% and 10% respectively. GDP: Gross Domestic Product.

In order to assess whether initial levels of inclusive human development affect the established linkages, results of the QR approach in Table 2 provide estimations on the

investigated nexuses throughout the conditional distribution of inclusive human development. It is apparent from the results that Facebook penetration consistently has a positive relationship with inclusive human development throughout the conditional distribution of the outcome variable. Moreover, the magnitude of the relationship is slightly higher in the above-median distribution compared to the below-median distribution. All the control variables are significant with the expected signs.

Table 2: Quantile Regressions

	Dependent variable: Inclusive Human Development								
	Q.10	**Q.20**	**Q.30**	**Q.40**	**Q.50**	**Q.60**	**Q.70**	**Q.80**	**Q.90**
Constant	-0.059	-0.053	-0.056	-0.097	-0.080	-0.142	-0.104	-0.191	**-0.334*** **
	(0.146)	(0.175)	(0.225)	(0.180)	(0.415)	(0.473)	(0.630)	(0.412)	**(0.000)**
Facebook Penetration	**0.005*** **	**0.005*** **	**0.005*** **	**0.005*** **	**0.005*** **	**0.006***	**0.005***	**0.007***	**0.006*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.001)**	**(0.004)**	**(0.095)**	**(0.082)**	**(0.056)**	**(0.004)**
Government Effectiveness	**0.046*** **	**0.045*** **	**0.046*** **	**0.041*** **	**0.036****	0.019	0.013	-0.012	-0.001
	(0.000)	**(0.000)**	**(0.000)**	**(0.008)**	**(0.037)**	(0.572)	(0.680)	(0.733)	(0.943)
Primary School Enrolment	**0.0006****	**0.0009*** **	**0.001*** **	**0.001*** **	**0.001*** **	**0.001****	**0.001***	**0.001****	**0.002*** **
	(0.049)	**(0.000)**	**(0.001)**	**(0.000)**	**(0.001)**	**(0.049)**	**(0.097)**	**(0.028)**	**(0.000)**
GDP per capita (log)	**0.149*** **	**0.141*** **	**0.142*** **	**0.135*** **	**0.133*** **	**0.141*** **	**0.144*** **	**0.154*** **	**0.215*** **
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**	**(0.004)**	**(0.002)**	**(0.000)**
Aid to the production sector	0.00006	0.00001	0.000006	**0.0002***	**0.0003****	0.0003	0.0003	0.0003	**0.0003*** **
	(0.361)	(0.856)	(0.980)	**(0.075)**	**(0.022)**	(0.365)	(0.301)	(0.354)	**(0.000)**
Pseudo R^2	0.688	0.681	0.677	0.676	0.677	0.683	0.697	0.718	0.720
Observations	36	36	36	36	36	36	36	36	36

*, **, ***: significance levels of 10%, 5% and 1% respectively. OLS: Ordinary Least Squares. R^2 for OLS and Pseudo R^2 for quantile regression. Lower quantiles (e.g., Q.10) signify nations where Inclusive human development is least.

4.2 Comparative relevance with fundamental characteristics

Following recent inclusive human development literature (Mlachila et al., 2017; Asongu & Nwachukwu, 2018), and in order to increase room for policy implications, the previous findings are extended with a comparative analysis based on income levels, regional proximity, legal origins, resource wealth and landlockedness. Given the cross-sectional nature of the dataset, it is not feasible to replicate the analysis across sub-samples because some estimation would be associated with less than 30 observations, which affects the efficiency and consistency of the results. Hence, in order to avoid this concern, we proceed with a comparative average approach which first consists of computing averages in all sub-samples for the two variables of interest, namely: Facebook penetration and inclusive human development. Then these averages are compared to assess tendencies in the relationships.

Before discussing the findings, it is important to briefly discuss the criteria used in selecting the sub-samples presented in Appendix 3.

First, classification by income levels is from with Asongu (2014c, p. 364)[4] in the light of the World Bank publications (Beegle, Christiaensen, Dabalen& Gaddis, 2016). Second, regions are apparent from an African map. Third, the segmentation by legal origins is from La Porta et al. (2008, p. 289). Fourth, the selection of resource-wealthy countries is exclusively contingent on exports that are oil-dominated on the one hand, and reflect a considerable portion of the GDP, on the other hand. Fifth, landlocked countries are apparent from an African map. The justifications for these fundamental characteristics are consistent with recent African development literature (Asongu, 2014d, p. 339; Asongu, 2017).

Table 3: Comparative evidence on social media and inclusive human development

	Income levels			Regions		Legal origins		Resource wealth		Openness to Sea		Africa
	UMI	LMI	LI	MENA	SSA	Eng.	Frch	Oil	NOil	LL	Coastal	
Facebook Penetration	10.546	7.254	1.380	12.859	3.001	4.800	4.000	3.971	4.442	2.047	5.310	4.346
IHDI	0.700	0.537	0.434	0.664	0.480	0.535	0.479	0.566	0.487	0.462	0.520	0.503

IHDI: Inequality-adjusted Human Development Index. UMI: Upper Middle Income. LMI: Lower Middle Income. LI: Low Income. MENA: Middle East & North Africa. SSA: sub-Saharan Africa. Eng: English Common Law. Frch: French Civil law. Oil: Oil-exporting countries. NOil: Non-oil exporting countries. LL: Landlocked countries. Coastal: Coastal countries.

In Table 3, it is apparent that except for the resource-wealth sub-samples, higher levels of Facebook penetration are associated with comparatively higher levels of inclusive human development. Accordingly, the positive association between Facebook penetration and inclusive human development is: (i) a positive function of income levels and (ii) more apparent in MENA (compared to SSA countries), English common law countries (compared to their French civil law counterparts) and coastal countries (in relation to landlocked countries). Conversely, the paradox in the oil sub-sample is reflected by the evidence that oil-rich countries have a higher level of inclusive human development despite a low Facebook penetration when compared with their oil-poor counterparts. In what follows, we provide explanations to the established tendencies.

First of all, it important to note that the overwhelming tendencies of higher levels of Facebook penetration being associated with higher levels of inclusive human development are

[4] There are four main World Bank income groups: (i) high income, $12,276 or more; (ii)upper middle income,$3,976-$12,275; (iii) lower middle income, $1,006-$3,975 and (iv) low income, $1,005 or less.

consistent with the previous quantile regressions results which have shown a slightly higher magnitude in the relationship for the above-median sub-sample compared to the below-median sub-sample.

Second, the fact that the positive nexus between Facebook penetration and inclusive human development consistently increases with income levels can be explained by the fact that higher income countries are equally associated with a better quality of governance that facilitate the equitable distribution of fruits from economic prosperity (Asongu & Nwachukwu, 2017a). By extension, given the established positive relationship between Facebook penetration and governance (Jha & Sarangi, 2017; Jha & Kodila-Tedika, 2019; Kodila-Tedika, 2018; Asongu & Odhiambo, 2019a), there is logically a connection between governance, Facebook penetration and income levels. Moreover, in the light of evidence that countries with high-income levels are linked with more avenues of social mobility and employment (Asongu & Nwachukwu, 2018), the established positive facebook-development nexus as a positive function of income levels is also logical, given that Facebook is a social media platform via which employment opportunities are advertised.

Second, North African countries (i.e. in the MENA category) are comparatively more developed than countries that are south of the Sahara. Hence, the logical explanation underpinning income levels also applies to the elucidation of the difference between average Facebook penetration and inclusive human development indicators in SSA vis-à-vis North African countries in the MENA.

Third, the fact that English common law countries are comparatively wealthier than their French civil law counterparts in Africa implies that the previous explanations also hold in the comparative explorative results on legal origins. Moreover, English common law countries through political and adaptability mechanisms (see Beck, Demirgüç-Kunt & Levine, 2003), provide better institutions (La Porta, Lopez-de-Silanes, Shleifer & Vishny, 1998, 1999; Agbor, 2015) and by extension more enabling conditions for the enhancement of social mobility and "enabling conditions" for the mitigation of economic vulnerability by means of social media. Landlockedness has been established to be associated with an institutional cost (see Arvis, Marteau & Raballand, 2007), which explains the comparative advantage of coastal countries in the light of the explanations provided above.

The established positive nexus between social media and governance is broadly consistent with information technology, social media and human empowerment literature

(Kleine, 2010; Heeks, 2010; Nemer, 2016; Parkyn, 2017). The attendant literature supports the view that social media improves digital literacy and income generation, which are constituents of the inclusive human development indicator used in this study. The positive human development externalities can also be indirectly traceable to other documented benefits of social media which include: (i) giving voice to the people through a platform of direct participation (Parkyn, 2017); (ii) improving civility and trust (Antoci et al., 2019); boosting corruption-control, democracy and overall governance standards (Jha & Sarangi, 2017; Kodila-Tedika, 2018; Jha & Kodila-Tedika, 2019; Asongu & Odhiambo, 2019a).

Conversely, given that education is a component of the inclusive human development index used in this study as the outcome variable, it can also be inferred that the findings in this study run counter to those of Habes et al. (2018) who have established that when a large number of students at the university are engaged with social media, especially Facebook, their academic results are negatively affected. This inference should be balanced by noting that the education variable under consideration in this study is the enrolment rate and not academic performance at school or even at the university level. In summary, the findings of this research are also not in accordance with the strand of literature on the perils of social media discussed in Section 2 (Gerrard, 2008; Morozov, 2010, 2012; Zell & Moeller, 2018; Yang *et al.*, 2018).

The two contending views from the extant literature on the connection between social media and development outcomes yet articulate the debates that have centred on the influence of information technology on contemporary development (Sein &Harindranath, 2004). However, what is particularly relevant for this research is the discourse on ways through which social media can be employed to enhance human development or improve the livelihoods of people beyond the established positive nexus on the role of social media in improving advocacy, political rights and governance (Jha & Sarangi, 2017; Kodila-Tedika, 2018; Jha & Kodila-Tedika, 2019; Asongu & Odhiambo, 2019a). As African countries urbanize and globalize, populations in the continent will be increasingly aligned to contributing to and consuming digital content which include social media. The fact that the study has confirmed a positive correlation between Facebook penetration and inclusive human development is indicative of the fact that in the post-2015 development agenda, policy makers should consolidate policies that are aimed at increasing useful social media platforms that have been established to improve inclusive development.

5. Concluding implications and future research directions

5.1 Methodological contribution

In this study, we have investigated the nexus between social media and inclusive human development in 49 African countries for the year 2012. Social media is measured with Facebook penetration whereas inclusive human development is proxied by the inequality-adjusted human development index. The empirical evidence is based on Ordinary Least Squares (OLS), Tobit and Quantile regressions. The OLS is a baseline empirical approach whereas Tobit and Quantile regressions are respectively used to account for the limited range in the outcome variable and initial levels of the dependent variable. In order to increase room for policy implications, the dataset is further disaggregated into fundamental characteristics of regional proximity, landlockedness, income levels and legal origins. From OLS and Tobit results, Facebook penetration is positively associated with inclusive human development. Quantile regressions confirm this positive nexus and further establish that the positive association is slightly higher in magnitude in the above-median sub-sample. From a comparative assessment, it is apparent that except for the resource-wealth sub-samples, higher levels of Facebook penetration are associated with comparatively higher levels of inclusive human development. Accordingly, the positive association between Facebook penetration and inclusive human development is: (i) a positive function of income levels and (ii) more apparent in MENA (compared to SSA countries), English common law countries (in relation to their French civil law counterparts) and coastal countries (compared to landlocked countries).

Disaggregating the sample into fundamental characteristics (and initial levels of inclusive human) accounts for heterogeneities which are needed for conducive policy implications. This is mainly because blanket policies based on the full sample may be ineffective unless they are contingent on existing fundamental characteristics (and initial human development levels) and tailored differently across countries.

5.2 Practical contribution, caveats and future research directions

The findings above provide policy makers with insights into the relevance of social media in inclusive development on the one hand, and how some fundamentals in human development affect the investigated nexus, on the other hand. Hence, the corresponding implications are straightforward in informing policy of heterogeneities that are relevant in decision-making processes on how to leverage on social media (and by extension, the sharing economy) in the achievement of inequality-related SDGs. For instance, the findings inform

policy that in order to leverage on the established relationship, in allocating funds for development purposes, more financial resources are needed in: (i) low income countries (compared to their higher income counterparts) and (ii) countries with lower initial levels of inclusive human development (relative to countries with above-median levels of inclusive human development).

The main caveat of this study is that it is technically unfeasible to interrogate the findings within country-specific frameworks. This is mainly because we have limited data points to explore. As more data become available, exploring country-specific cases within a causality-oriented empirical framework will provide more policy insights, country-specific implications and lessons that backward countries (in the established nexus) can learn from their frontier counterparts in order to move the SDGs agenda forward. Moreover, it is also relevant to note that Facebook may not be representative of social media. However, owing to data availability constraints, other social media variables which should be considered in future studies, could not be taken on board.

Compliance with Ethical Standards

The authors are self-funded and have received no funding for this manuscript.

The authors also have no conflict of interest. This article does not contain any studies with human participants or animals performed by the authors.

No informed consent was obtained from individual participants because humans are not involved in the research.

Appendices

Appendix 1: Definitions and sources of variables

Variables	Definition and sources of variables
Inclusive Human Development	Inequality- Adjusted Human Development Index, UNDP
Facebook Penetration	"Facebook penetration (2012), defined as the percentage of the total population that uses Facebook. From Quintly".
Government Effectiveness	"Government effectiveness (estimate): measures the quality of public services, the quality and degree of independence from political pressures of the civil service, the quality of policy formulation and implementation, and the credibility of governments' commitments to such policies". WGI
Primary School Enrolment	School enrolment, primary (% gross), WDI
GDP per capita	Gross Domestic Product per capita (log), WDI
Aid to the Public sector	Foreign aid directed at the productive sector like agriculture, industry, mining, construction, trade and tourism(log)/OECD.

"UNDP: United Nations Development Programme. WGI: World Governance Indicators of the World Bank. WDI: World Development Indicators of the World Bank. GDP: Gross Domestic Product. OECD: Organisation for Economic Co-operation and Development".

Appendix 2: Summary Statistics and presentation of countries

Panel A: Summary Statistics

Variables	Mean	Standard dev.	Minimum	Maximum	Obsers
Inclusive Human Development	0.503	0.116	0.332	0.788	48
Facebook Penetration	4.345	5.828	0.286	27.693	44
Government Effectiveness	-0.794	0.615	-2.225	0.951	48
Primary School Enrolment	106.315	18.799	69.538	145.186	39
GDP per capita	2.953	0.485	2.185	4.074	48
Aid to the Public sector	43.444	61.624	0.04	281.21	49

Panel B: Sampled countries (49)

"Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Cote d' Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Republic of the Congo, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, The Gambia, Togo, Tunisia, Uganda, Zambia and Zimbabwe"

Standard dev: standard deviation. Obsers: Observations.

Appendix 3: Categorization of countries by fundamental characteristics

Categories	Sub-categories	Countries in the sub-sample	Num.
Income levels	Upper middle income	"Algeria, Botswana, Gabon, Libya, Mauritius, Namibia and South Africa"	7
	Lower middle income	"Angola, Cameroon, Côte d'Ivoire, Djibouti, Egypt, Lesotho, Morocco, Nigeria, Republic of Congo, Senegal, Sudan, Swaziland and Tunisia".	13
	Low income	"Benin, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of the Congo, Eritrea, Ethiopia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sierra Leone, Somalia, Tanzania, The Gambia, Togo, Uganda, Zambia and Zimbabwe".	28
Regions	MENA	"Algeria, Djibouti, Egypt, Libya, Morocco and Tunisia"	6
	SSA	"Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Cote d' Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Republic of the Congo, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, The Gambia, Togo, Uganda, Zambia and Zimbabwe".	43
Legal origins	English	"Angola, Botswana, Ghana, Kenya, Lesotho, Liberia, Libya, Malawi, Mauritania, Mauritius, Namibia, Nigeria, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, The Gambia, Uganda, Zambia and Zimbabwe".	22
	French	"Algeria, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Cote d' Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Guinea, Guinea-Bissau, Madagascar, Mali, Morocco, Mozambique, Niger, Republic of the Congo, Rwanda, Senegal, Togo and Tunisia".	27
Resource-wealth	Oil-exporting	"Algeria, Angola, Cameroon, Chad, Equatorial Guinea, Gabon, Libya, Nigeria, Republic of the Congo and Sudan".	10
	Nonoil exporting	"Benin, Botswana, Burkina Faso, Burundi, Central African Republic, Cote d' Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Eritrea, Ethiopia, Ghana, Guinea,Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Swaziland, Tanzania, The Gambia, Togo, Tunisia, Uganda, Zambia and Zimbabwe".	39
Openness to sea	Landlocked	"Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Ethiopia, Lesotho, Malawi, Mali, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe".	14
	Coastal	"Algeria, Angola, Benin, Cameroon, Cote d' Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Gabon, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Libya, Madagascar, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Republic of the Congo, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, The Gambia, Togo and Tunisia".	35

MENA: Middle East & North Africa. Num: Number.

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