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The journey towards dollarization: The role of the tourism industry

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A G D I Working Paper

WP/21/008

The Journey towards Dollarization: The Role of the Tourism Industry

Forthcoming: Current Issues in Tourism

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The Journey towards Dollarization: The Role of the Tourism Industry

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Abstract

There has been an increasing wave of globalization since the turn of the millennium. This study focuses on two by-products of globalization: dollarization and tourism. Empirical studies have ignored the possible relationship between dollarization and tourism. However, we hypothesize that a booming tourism industry will fuel increase in the usage and circulation of foreign currencies. The objective of this study is to examine the extent to which the tourism industry exacerbates the dollarization process of selected Sub-sahara African (SSA) countries. Using Tobit regression, we found that tourism positively affects dollarization. This result is robust to: (i) alternative measures of tourism; (ii) accounting for endogeneity and outlier effects.

JEL classification: Dollarization, Tourism, Sub-saharan Africa

Keywords: C11, E41 and F31

Introduction

One of the attendant consequences of the turn of the millennium is the rising influence of globalization. Globalization is a broad concept, and thus it is quite difficult to be succinctly captured (Vujakovic, 2010). However, in the international macroeconomics domain, tourism and dollarization are concepts that could be likened to as by-products of globalization. Undeniably, these two concepts have been separately and extensively studied in the literature. For the dollarization literature, studies have largely focused on its determinants (De Nicolò et al., 2003; Levy-Yeyati, 2006); implications (Kokenyne et al. 2010); benefit and cost analyses (Sahay and Vegh, 1996); and stylized facts (Kessy, 2011 and Corrales et al., 2016). Similarly, a survey of the extant literature shows economic fundamentals as being the most important determinants of dollarization (Raheem and Asongu, 2016). This stance has lent credence by how countries that are plagued by poor macroeconomic indicators and monetary policies disarray suffer from poor macroeconomic syndrome¹. Whereas tourism studies on the other hand, focused mainly on its linkage to economic growth (Akan, Arslan and Isik, 2008; Brida, Rosso and Bonapace, 2009; Ekanayake and Long, 2012); and its effect in relation to poverty alleviation (Scheyvens and Russell, 2012); job employment (Pavlic, Tolic and Svilokos, 2013); foreign exchange earnings (Belloumi, 2010; Chang and Lee, 2017), among others.

Empirical studies have ignored the possible direct link between dollarization and tourism, just as there is no clear theoretical underpinning of how the dynamics could ensue. Hypothetically, there are a number of ways in which dollarization-tourism nexus could be analyzed. Tourism could affect the dollarization episodes of the destination country. Tourists embark on journey with internationally traded currencies (say US dollars, euro, and pound sterling, to name a few major currencies) with the intention to convert these currencies to the local currencies of their destination country. Arguably, there is high likelihood of this action increasing the proportion of foreign currency in circulation in such economies, thus fuelling dollarization. Another channel of causation occurs via exchange rate. It has been argued that among the benefits of dollarization is the stable exchange rate. Tourism industry has been documented to be affected by exchange rate regime of the destination country (De vita, 2013). Hence, countries with relatively stable exchange rates have the potential to attract inflow of tourism. This channel however depends on the type of dollarization being practiced. For instance, a country that has pegged her currencies to foreign currencies (i.e. economies

¹This explains why much of the studies on dollarization have mainly focused on regions like Latin America, Sub-Saharan Africa, parts of Asia and Eastern Europe.

that practise official/full dollarization) might find it difficult attracting more tourist arrivals. This is largely due to the matching of products and services in the same pricing units as the adopting country's currencies. Hence, tourists might find the destination country somewhat expensive. Third, countries with official dollarization might be seen as an extension of the source countries². Thus, tourists would feel naturally inclined to travel more often to such countries. Lastly, Winkler et al. (2004) explain that real integration (in the face of fiscal transfer) and exposure to tourism are characteristics of countries with high level of dollarization. The paper further made claims that many dollarized economies are tourism-dependent.

Based on the foregoing, the objective of this study is to examine the extent to which the tourism industry exacerbates the dollarization process of selected Sub-sahara African (SSA) countries. This objective is achieved by focusing on the first channel mentioned above. Our inability to consider other channels is mainly due to data unavailability³. The choice of focusing on SSA region is informed by at least two reasons: (i) SSA has the most persistent dollarization feature (Raheem and Asongu, 2018); (ii) UNCTAD Economic and Development in Africa (2017) report shows Africa's tourism sector to have expanded significantly in terms of international arrivals, tourism financialization (export revenues, receipts and expenditure).

Although, attempts have been made to link dollarization with tourism, such attempts have been flawed based on the following reasons: (i) indirect linkage between dollarization and tourism (Winkler et al., 2004); (ii) country-specific analysis (Kabote et al., 2013). In light of the observed gaps in the literature, this study contributes to the literature in the following ways: (i) we use a larger sample, specifically, 25 countries in SSA in order to have a more generalizable results; (ii) we directly linked tourism to dollarization, using a Tobit-type regression estimator.

Using a sample of 25 selected SSA countries, we found that tourism to be positively related to dollarization. Furtherance to the introductory section, we arrange the rest of the study as follows. Data and methodology are discussed in section two. Section three discusses the empirical results, while section four concludes with some policy lessons.

² A country will adopt the currency of another country that: (i) is considered their ally; (ii) shares similar cultural heritage; (iii) former colonial master (Berg and Borensztein, 2000).

³ It is quite difficult to get data for the third channel.

2.0 Model Specification, Methodology and Data

2.1 Model specification

We adopt the model of Raheem and Asongu (2016) and Ajide et al. (2019) with minor modification. The comes in the form of expanding the model to account for the influence of tourism. Thus, our model is specified in the form below:

$$DOL_{it} = \alpha + RETURN_{it} + CONTROLS_{it} + TOURISM_{it} + \gamma_i + \theta_t + \varepsilon_{it} \quad (1)$$

Where DOL is the deposit dollarization measured as the foreign currency deposit as a ratio of broad money supply. RETURN is a vector of variables measuring returns on investment on both domestic and foreign currencies. The variables used are exchange rate volatility (SEXCH), Exchange rate depreciation (DEP) and inflation (INF). The CONTROL variables are GDP per capita growth (GDP), financial development (FINDEV); institution (INST), and international reserves (RES). TOURISM is a vector of variables that proxy tourism. The three measures used are tourism expenditure (EXP), tourism receipt (REC) and number of international tourist arrivals. See Appendix for a detailed description of the variables.

The scope of this study is limited to 25 countries in SSA for the period 2001-2017⁴. The selected countries and time period is based on data availability. Data are collected from the following databanks: International financial Statistics, World Development Indicators, World Governance Indicators.

2.2 Methodology

Tobit regression of Tobin (1958) is adopted for our analysis. The choice of this method is based on the nature of the data construction of dollarization. In a simple term, dollarization is described as a censored variable. The operationalization of Tobit model requires the simultaneous use of maximum likelihood estimation and Probit model. The standard Tobit model (Tobin, 1958; Asongu and Le Roux, 2017). The Tobit model is specified below:

$$y_{it}^* = \alpha + \beta X_{it} + \varepsilon_{i,t} \quad (2)$$

Where y_{it}^* is the latent variable, X_{it} is 1 x K vector of control variables and $\varepsilon_{i,t}$ is the error term. Rather than observing y_{it}^* , we observe y^{it} which is expressed as:

$$y^{it} = \begin{cases} y_{it}^* & \text{if } y_{it}^* > \gamma \\ 0 & \text{if } y_{it}^* \leq \gamma \end{cases} \quad (3)$$

⁴ The countries selected are Angola, Botswana, Burundi, Cape Verde, Comoros, Democratic Republic of Congo, Djibouti, Eritrea, Ghana, Guinea, Kenya, Liberia, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, South Africa, Tanzania, Uganda and Zambia.

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

A common problem associated with tobit regression is its inability to account for endogeneity issue such as reverse causality, data measurement problem and omitted variable bias. We account for this problem by relying on tobit instrumental variable regression.

3. Empirical Results

The descriptive statistics is presented in Table 1. An overview of the Table shows that the average level of dollarization is 30% thus confirming that the region is highly dollarized (See Asongu et al., 2018). The variable is also relatively volatile. The various measures of tourism infer that the region is not a tourist destination. This stance is based on the relatively low contribution to the GDP by the tourism and hospitality industry. There is high level of exchange rate depreciation in the region.

The baseline results are presented in Table 2. We confirm that the three measures of tourism positively impact on dollarization. In essence, increase in the inflows and/or receipts from the tourism industry enhance the degree of dollarization. Commenting on the estimated parameters, expenditure and receipts have the highest magnitude, while tourist arrival has infinitesimal effects. These results support the hypothesis of the study. The weak effects of tourist arrival could be justified on the ground that the variable is non-monetary in nature. As such, it directly have no effect on the financial and/or monetary base of an economy, hence cannot affect the degree of dollarization.

Table 1: Descriptive Statistics

	Mean	Std. Dev	Min	Max
DOL	31.064	27.895	1	92
INF	13.206	25.464	-2.548	348.59
SEXCH	2.245	2.056	-1.048	8.646
DEP	70.265	301.25	-854.26	2365.2
GDP	6.265	3.201	5.015	27.064
INST	-0.057	0.875	-1.596	1.626
RES	22.04	2.795	11.216	26.154
FINDEV	25.164	29.646	0.265	175.064
EXP	6.518	0.664	6.883	10.044
ARR	6.015	1.316	0.284	6.981
REC	7.283	0.879	5.845	10.029

Source: Authors' Computation

Note: Inf = Inflation; SEXCH = Volatility of exchange rate; DEP = Depreciation of exchange rate; INST = Aggregate/principal component of WGI; RES = International reserves; FINDEV= Domestic credit to the Private sector; EXP = Tourism Expenditure; Arrival = Tourist Arrival; and REC = Tourism Receipt

Turning to the RETURN vector, we found that exchange rate volatility and depreciation are important determinants of dollarization. The estimated coefficient of depreciation ranges between 0.002 and 0.372. These coefficients are statistically significant across the estimated model. The depreciation of the domestic currencies makes local goods and services cheaper, relative to the rest of the world. Hence, encourages tourism inflow to such economies. Ngo (2017) argues that the depreciation of the US dollars against the euro, in 2007, was accompanied by influx of European visitors to the country. Results also confirm the importance of exchange rate volatility in dollarization model. Theoretical underpinnings have suggested a positive relationship in the nexus. As such, our results confirm the Minimum Variance Portfolio (MVP) postulated by Ize and Levy-Yeyati (2003). Intriguingly, inflation does not have the hypothesized effect. It is quite difficult to infer a plausible explanation as responsible for this outcome.

Regarding the CONTROLS, results point to the fact that economic growth is a viable source to tame the incidence of dollarization. In essence, as the economy becomes more prosperous, economic agents are discouraged to hold more of foreign currencies. A strand of the literature has argued that economic growth is usually accompanied by strong productive base to support its local currency (Yinusa, 2009; Corrales et al., 2016; Ajide et al., 2019). Theoretical reasoning asserts that institutional dysfunction exacerbates the power of dollarization. The poor level of institutional development in SSA is a public knowledge. In other words, our results support the position of the literature on the subject matter. In essence, the lack of credibility of government policies will encourage foreign currencies substitutions by economic agents (Honig, 2009; Doblus-Madrid, 2009). Product innovations and improved service delivery will fuel the use of local currencies, hence reducing the level of dollarization. As such, negative relationship is expected between the variables. Our results support this stance and similar to existing studies (see Asel, 2010; Raheem, 2018).

Table 2: Result of main table

	1	2	3	4
INF	-0.004 (0.014)	-0.102 (0.056)	-0.007 (0.013)	-0.011 (0.013)
SEXCH	0.004 (0.005)	0.003** (0.001)	0.002** (0.001)	0.004* (0.002)
DEP	0.002*** (0.000)	0.372*** (0.071)	0.352*** (0.068)	0.348*** (0.068)
GDP	-2.128** (0.986)	-2.227** (0.976)	-1.994** (1.050)	-1.915* (1.032)
INST	3.689*** (1.416)	3.683** (1.457)	2.167* (0.987)	2.987** (1.930)
RES	1.153*** (0.399)	1.323*** (0.407)	0.458 (0.451)	0.635 (0.430)
FINDEV	-0.109** (0.048)	-0.150*** (0.052)	-0.055 (0.050)	-0.040 (0.051)
EXP		0.636** (0.297)		
ARR			0.00001*** (0.0000)	
REC				0.574*** (0.216)
Sigma_u	19.645*** (2.911)	19.148*** (2.982)	20.800*** (3.270)	20.673*** (3.224)
Sigma_e	4.931*** (0.217)	4.803*** (0.230)	4.664*** (0.224)	4.633*** (0.218)
rho	0.940 (0.017)	0.940 (0.018)	0.952 (0.015)	0.952 (0.014)

Source: Authors' computation

“***”, “**”, and “*” imply level of statistical significance at 1%, 5%, and 10%, respectively. The values in parenthesis are the standard error. Note: Inf = Inflation; SEXCH = Volatility of exchange rate; DEP = Depreciation of exchange rate; INST = Aggregate/principal component of WGI; RES = International reserves; FINDEV = Domestic credit to the Private sector; EXP = Tourism Expenditure; Arrival = Tourist Arrival; and REC = Tourism Receipt

We conduct two robustness checks. The first check is the use of instrumental variable Tobit model, in order to account for possible endogeneity-related problems. Results of this check are presented in Table 3 below. The second robustness check accounts for outlier effects by expunging countries that have extremely high or low level of dollarization. The following countries were removed from our dataset: Liberia, South Africa, Namibia, Democratic Republic of Congo and Comoros. Results of accounting for outlier effect are presented in Table 4. It is important to state that there is no significant difference between the results obtained in the baseline model and the robustness checks.

Table 3: IV Tobit Results

	1	2	3	4
INF	-0.140 (0.511)	0.134 (0.484)	0.110 (0.453)	0.093 (0.442)
SEXCH	0.101 (0.006)	0.127** (0.006)	0.014** (0.005)	0.015** (0.006)
DEP	-0.251** (0.085)	-0.508 (0.996)	-0.610 (0.904)	-0.288 (0.924)
GDP	-1.574** (0.752)	-1.164 (1.151)	-2.325** (0.961)	-2.110** (0.963)
INST	- 2.336*** (0.045)	2.590*** (0.581)	2.998*** (0.265)	3.212** (1.045)
RES	0.202** (0.077)	0.313*** (0.047)	0.553*** (0.283)	0.174*** (0.041)
FINDEV	-2.592** (0.520)	- 2.607*** (0.524)	- 2.144*** (0.354)	- 2.332*** (0.415)
EXP		0.151** (0.068)		
ARR			0.670* (0.210)	
REC				0.554** (0.154)
Alpha	0.419 (3.016)	0.512 (4.255)	0.125 (2.025)	0.354 (4.022)
WALD	0.541	0.221	0.324	0.221
Chi ² (PROB)	0.000	0.000	0.000	0.000

Source: Authors' computation

“***”, “**”, and “*” imply level of statistical significance at 1%, 5%, and 10%, respectively. The values in parenthesis are the standard error. Note: Inf = Inflation; SEXCH = Volatility of exchange rate; DEP = Depreciation of exchange rate; INST = Aggregate/principal component of WGI; RES = International reserves; FINDEV= Domestic credit to the Private sector; EXP = Tourism Expenditure; Arrival = Tourist Arrival; and REC = Tourism Receipt

4. Conclusion

Dollarization has received enormous interest in recent times. Hitherto, studies have mainly focused on the macro-economic determinants of dollarization. Similarly, there is a growing literature on tourism in Africa. This study brings these two interesting strands of the literature together. Essentially, the objective of the study is to examine the relationship between dollarization and tourism for selected 25 countries in the Sub-saharan Africa (SSA) region. Tourism is captured using three measures: receipt, expenditure and arrival. The censored nature of the dollarization data requires the use of Tobit regression. As far as we know, this is the first attempt to show the linkage tourism and dollarization. Among other things, results show that receipt and expenditure are prominent determinants of dollarization, while arrival has a relatively weak effect. Exchange rate volatility and depreciation were found to exacerbate the tendencies of dollarization, while GDP and financial development tend to

reduce the degree of dollarization. While tourism is unarguably advantageous to the economy, the dollarization enhancing tendencies cannot be ignored. Policymakers need to be innovative in formulating policies that seek to reduce the influence of imported dollarization by tourists, without negatively affecting the tourism industry.

Table 4: Outlier Effects

	1	2	3	4
INF	-0.036 (0.104)	-0.114 (0.254)	-0.214 (0.774)	-0.112 (0.254)
SEXCH	0.125** (0.041)	0.226** (0.103)	0.154** (0.065)	0.099** (0.024)
DEP	0.156** (0.047)	0.332** (0.085)	0.244** (0.066)	0.222** (0.098)
GDP	-1.021*** (0.044)	-1.965*** (0.011)	-2.016*** (0.027)	-2.447*** (0.042)
INST	-1.544** (0.651)	-3.057** (1.024)	-3.001** (1.008)	-2.856** (1.214)
RES	0.315** (0.079)	0.445** (0.131)	0.379** (0.099)	0.334** (0.107)
FINDEV	-0.115** (0.048)	-0.216*** (0.002)	-0.147** (0.053)	-0.135** (0.051)
EXP		0.479** (0.201)		
ARR			0.621** (0.157)	
REC				0.532** (0.146)
Sigma_u	21.0325*** (3.021)	19.034*** (2.025)	20.216*** (2.416)	20.568*** (2.325)
Sigma_e	4.694*** (0.254)	4.489*** (0.269)	4.896*** (0.248)	4.621*** (0.249)
rho	0.930 (0.015)	0.968 (0.020)	0.934 (0.021)	0.925 (0.019)

Source: Authors' computation

“***”, “**”, and “*” imply level of statistical significance at 1%, 5%, and 10%, respectively. The values in parenthesis are the standard error. Note: Inf = Inflation; SEXCH = Volatility of exchange rate; DEP = Depreciation of exchange rate; INST = Aggregate/principal component of WGI; RES = International reserves; FINDEV= Domestic credit to the Private sector; EXP = Tourism Expenditure; Arrival = Tourist Arrival; and REC = Tourism Receipt

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Appendix

Variables	Definition
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Dollarization	Ratio of Foreign Currency, in circulation, to broad money supply
Exchange rate Variability	Standard deviation of exchange rate
Depreciation	Depreciation of the local currency on an annual basis
Inflation	Log of the Consumer Price Index
GDP growth	Annual growth rate of GDP per capita
FINDEV	Ratio of private sector credit to GDP
Institution	Principal component of the World Governance Indicators
International Reserve	Ratio of international reserve to GDP
Tourism Expenditure	International tourism expenditures for passenger transport items are expenditures of international outbound visitors in other countries for all services provided during international transportation by non-resident carriers.
Tourism Receipt	International tourism receipts are expenditures by international inbound visitors, including payments to national carriers for international transport. These receipts include any other prepayment made for goods or services received in the destination country. For some countries, they do not include receipts for passenger transport items.
International Arrival	"International inbound tourists (overnight visitors) are the number of tourists who travel to a country other than that in which they usually reside, and outside their usual environment, for a period not exceeding 12 months and whose main purpose in visiting.