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DEBT SWAP FUNDING NEXUS EDUCATION ATTAINMENT IN THE PRESENCE OF PER CAPITA INCOME IN DEBT BURDENED ECONOMIES: AN EMPIRICAL ANALYSIS USING TWO STEP SYS-GMM

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ABSTRACT

Debt swap funding is one of the important catalysts for education attainment in debt-burdened economies. It enhances the education status by providing extra fiscal space for the government to invest resources for quality education, increasing capital inflow, and reducing the debt burden in the recipient countries. The main purpose of the study is to investigate the impact of debt swap funding on education attainment in debt-burdened economies for the period 2003-2021. The relationship between debt swap funding and education attainment is analyzed in the presence of per capita income of the respective countries by using the advanced methodology Two Step System GMM. Other variables, which are the main determinants of debt swap funding, like IMF structural adjustment program and debt service, are used as control variables. Education attainment is also dependent on per capita income included in the model, along with growth parameters of new growth theory (technological growth, population growth, and depreciation rate), which are part of the control variables. The results of the study show a positive and statistically significant relation between debt swap funding and education attainment in debt-burdened economies in the presence of per capita income. Policy recommendations are proposed in light of the results obtained regarding the debt swap funding nexus education attainment.

Keywords: Debt swap funding; Education attainment; Per capita income; Two Step SYS-GMM; Debt-burdened economies.
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INTRODUCTION

Education attainment is primarily necessary for social development and well-being. It enhances socioeconomic status and access to social resources and boost human resources and social network (Shmatko & Bordovsky, 2022). However, access to education for all individuals in society is a major challenge to the debt-burdened economies. The lack of sufficient finance hinders the provision of education attainment, thus creating a big gap in society's well-being (Tschache, 2009). Thus, there is a need for an effective mechanism that fills the financial gap of resources required for quality education. One innovative solution to fill the financial gap is bilateral debt swap funding (Ito et al., 2018). Bilateral debt swap funding is a refinancing deal where the debtor country receives debt relief (in the form of debt forgiven) by investing resources for agreed commitments like education, health, and the environment. This study focuses on the relationship between bilateral debt swap funding and education attainment in debt burdened economies (countries having high debt service and little fiscal space to invest resources for development and growth purposes) (Nasseh & Vujicic, 2017; Nguyen et al., 2021).

There are a number of factors that restrain the education attainment. One major reason is the leadership commitment to effectively implement quality education. Second is the cultural background of the society, along with the relative importance of quality and quantity of education. The last and the most important relevant to the current study is the lack of financial support in the implementation of quality education in accordance with international standards (Boeren, 2019). Bilateral debt swap addresses the last factor by providing an innovative financing mechanism for education attainment (Ohta et al., 2022).

According to UNESCO (2016), more than 1600 participants from 160 countries adopted the Incheon Declaration for Education 2030 to achieve equitable quality education for all by 2030. This is a part of SDG 4 to promote lifelong learning opportunities for all. Despite the determined efforts, the targeted goals were not achieved by many countries due to insufficient finance for education. For developing countries, almost 3 trillion US Dollars is needed to finance education from the current 1.2 trillion US Dollars. Thus, debt for education swap was implemented by several governments of high-income countries to reach the target of 2030 (UNESCO, 2019). UNESCO (2009) defines debt swap for education as the conversion of part of foreign debt servicing into investment in their education system. Debt swap funding targeting international education goals is an innovative approach rarely in education development literature. This article fills the gap in previous literature by explaining how debt swap funding became a popular financing mechanism for funding education, exploring whether debt swap funding is a feasible option for education development programs (Cassimon et al., 2011; Ito et al., 2018).

In the context of debt-burdened economies, the nexus between debt swap funding, education attainment, and per capita income represents a critical area of investigation. While previous research has explored these variables independently, there remains a notable gap in the literature regarding their interplay within the specific economic and financial challenges faced by highly indebted nations. To address this research gap, our study employs a robust econometric approach, the Two-Step system Generalized Method of Moments (SYS-GMM), to unravel the complex relationships among these factors (Azmeh, 2022). Our research contributes to the existing body of knowledge in several significant ways. Firstly, it extends the understanding of the determinants of education attainment by incorporating debt swap funding and per capita income as key variables (Azizah et al., 2018; Ifa & Guetat, 2018). By examining these factors collectively, we aim to provide a more comprehensive analysis of the intricate dynamics affecting education outcomes in debt-burdened economies. Secondly, this study offers empirical evidence and insights that can inform policymakers and stakeholders working towards improving education systems and addressing the challenges posed by high levels of indebtedness. Our findings can guide the development of targeted policies and interventions to enhance education access and quality in these economically stressed environments.

However, the novel contribution of this research study is the specific focus on debt swap funding (a kind of debt relief provided to debt-burdened economies by putting efforts into achieving global goals of quality education) and its effect on education attainment. The study uses the sophisticated econometric approach of Two Step SYS-GMM to provide empirical insight that has not been provided comprehensively before. In earlier studies, to the best of our knowledge, limited empirical studies have been conducted that give robust and accurate results, but Two Step SYS-GMM serves both.

The subsequent sections of this paper are organized as follows: section review of literature provides a review of the relevant literature, highlighting the gaps and motivating our research questions. The methodology section presents the data and methodology employed in our analysis, detailing the econometric techniques and models used. The section on results and discussion discusses the empirical results and their implications, followed by a discussion of the limitations. Finally, in the section on conclusions, we offer concluding remarks and policy recommendations based on our findings. This study

contributes to the broader discourse on education and economic development, emphasizing the importance of tailored strategies for education improvement in highly indebted economies.

REVIEW OF LITERATURE

A number of studies have been conducted that focus on debt swap and education relationships. However, these studies are subject to theoretical exploration and lack empirical analysis. Our focus in this research study is to empirically investigate the relationship between bilateral debt swap funding and quality education.

Dillenburger and Coyle (2019) and Madani (2019) stated that debt swap funding is an innovative financial instrument that contributes to education attainment under EFA (Education for All) objectives under UNESCO (2015) guidelines. Resources earmarked explicitly to education attainment denoted as debt for education swap essentially switch public sector spending for debt service to the field of education. The bilateral debt swap funding boosts education services in developing countries, a part of the debt for development swap. Debt swap funding in the form of debt for education swap increases net financial transfers to the recipient country.

Bilateral debt swap funding substitutes the recipient country's own education expenses by committing toward educational goals (Ontario Human Rights Commission, 2003). Two problems complement each other: (i) over-indebtedness and (ii) low investment in education (Cherutti & Zucchetti, 2022; Jahic & Pilav-Velic, 2021; Sequeira & Diniz, 2020). The solution to the above problem is the effective implementation of debt swap funding in the form of debt for education swap. One example to portray the debt swap funding for education purposes is the contribution of US$10 million by Spain on the construction of rural schools and the purchase of school children books in heavily indebted countries (del Carmen Meza Mejía et al., 2022; Moreira et al., 2021).

The Education 2030 agenda and SDG-4 enhance access to learning opportunities, thus putting heavy pressure on public spending on education (UNESCO,2019). However, the agenda set during the World Economic Forum (2015) (the Education 2030 Framework for Action) elaborates that shortage of funds should not endanger the effective implementation of education opportunities for all (Ghamrawi, 2023; UNESCO, 2015). There are a few hurdles in the Education 2030 goal in Sub-Saharan Africa, like macroeconomic instability and large informal sector. These hurdles are major constraints in achieving the target of education goal in debt-burdened economies, along with poor tax administration and high debt ratio (Asongu et al., 2019; Ulanova, 2021).

Debt-burdened economies face an excessive obligation to pay outstanding debt, therefore discouraging the government from spending on education infrastructure (Grinstein-Weiss et al., 2016; Nasseh & Vujicic, 2017; Ng & McGinnis Johnson, 2020). The low availability of finance to education and indebtedness go side by side, but debt swap funding for education resolves this issue and provides sufficient finance to boost education (Ito et al., 2018; Van der Meulen Rodgers, 1993). One example is the cancellation of debt worth 10 million US Dollars by Spain to El Salvador. Even though there are a number of advantages, there are notable shortcomings of debt swap funding, providing a small amount of funds to support development activities, especially education. Cassimon et al. (2011) stated that El Salvador qualifies for 600 million US Dollars for debt swap funding. Still, donor countries are unwilling to pursue such a huge amount for debt swap for low and lower-middle-income countries.

An innovative means of investment in development-related activities is C2D (Contract for Debt Relief and Development) (Alli-Momoh et al., 2022; Malini et al., 2022). Under the C2D program, France signed an agreement in 2006 of 1.17 billion Euros with Cameroon to divert outstanding debt to education. Cameroon designed a distinguished strategy of universal primary education with 100% enrollment by 2015. About

37,000 contract school teachers were appointed for the purpose with the allocation of 400 million US dollars in funds. Three-fourths of the funds were supported by the state, while the other one-fourth financing gap was filled by the C2D program (Gholipour et al., 2023; Sperduto, 2019).

METHODOLOGY

The main purpose of the study is to empirically investigate the impact of debt swap funding on education attainment in 30 debt-burdened economies. The study is based on the grounds that debt-burdened economies do not have enough budget to support their education system to reach the target of Education of All 2030 goal (Boeren, 2019; Ferguson & Roofe, 2020; Nakidien et al., 2021). Such countries are facing heavy indebtedness and, therefore, need a significant amount of funds inflows to pursue the education goals. Thus, debt swap funding is the suitable choice for these countries, which serves multidimensional functions like reduction in debt, provision of extra finance, and political will to boost education infrastructure. The data on the variables is obtained from various sources like WDI (World Bank), OECD Statistics, and Penn World Table. Detail is given in Table 1.

The Two-Step SYS-GMM is an advanced econometric approach that deals with endogeneity issues in econometric analysis. This approach is suitable for panel data analysis where data is collected over time for multiple cross sections as it accounts for unit and temporal correlation. This technique is valuable because it not only uses lagged dependent variable used in dynamic data modeling but also control unobserved heterogeneity in data. Two-Step SYS-GMM is more efficient and consistent than the simple System GMM approach because, at the same time, it addresses the problem of autocorrelation in the panel data model (Jiang & Khan, 2023; Miao et al., 2021; Yitayaw et al., 2023). This econometric approach uses instrument variables to address endogeneity, which are correlated with independent variables of interest but not with error term.

$$EA = f(DSf, X) \quad (1)$$

$$EA_{i,t} = \delta_0 + \delta_1 DSF_{i,t} + \delta_2 X_{i,t} + \delta_3 \varepsilon_{i,t} \quad (2)$$

Table 1. Description of the variables.

Variables	Definition	Sources	Expected Sign
Dependent variable			
Secondary School Enrollment	It is measured as the provision of basic education at the secondary level, which aims at lifeline learning and human development.	WDI (2022)	
Explanatory variables			
Debt swap funding	An agreement where the obligation or debt of a country is exchanged for investment in education.	OECD Statistics (2022)	+
Physical stock of capital	One of factor of production physical capital used in the process of producing output	WDI (2022)	+
Human resource	Investment in human capital in education, health, and job training.	Penn World Table (2022)	+
IMF structural adjustment program	IMF program aimed at reducing fiscal deficit, macroeconomic stability, improvement in other macro variables.	WDI (2022)	+/-
Debt service	A country's ability to pay its external obligation from government accounts.	WDI (2022)	+/-
GDP per capita	A country's total income based on per person.	WDI (2022)	+

EA is education attainment in time period *'t'* and cross-section *'i'; DSF* is bilateral debt swap funding; *X* is the set of control variables which consists of the number of explanatory variables like human capital, physical capital, IMF structural adjustment program, and debt service. Where, δ_0, is the intercept, and $\delta_1$is the coefficient of bilateral debt swap funding and δ_2 is the coefficient to control variables. Debt swap funding has been used by constructing an index using the Keyser Meyer Olkin method. A measure of accuracy in a statistical method of Principal Component Analysis (Rani et al., 2018; Ul Hadia et al., 2016).

Table 2. Descriptive statistics (Full Sample).

Variable	Observations	Mean	Std. Dev.	Min.	Max.
Education attainment	570	55.05	38.87	8.62	141.36
Debt swap funding	570	3.14	1.43	1.00	5.00
Physical stock of capital	570	26.35	8.67	9.14	60.06
Human resource	570	2.36	0.59	1.14	3.60
GDP Per capita	570	3231.68	2848.82	186.67	13890.63
New growth parameter	570	9.79	1.73	6.45	15.39
IMF Sap	570	8.71	0.58	7.17	10.38
Debt Service to export	570	7.83	7.07	0.15	44.02

Source: Author(s) calculation.

Table 2 empirically investigates the expressive overview of education attainment, debt swap funding, physical stock of capital, human resources, GDP per capita, new growth parameter, IMF structural adjustment program, and debt service; the study employs descriptive analysis. This test elaborates that the average values of education attainment (55.05), debt swap funding (3.14), physical stock of capital (26.35), human resource (2.36), GDP per capita (3231.68), new growth parameter (9.79), IMF structural adjustment program (8.71) and debt service (7.83). All these values lie between the minimum (8.62, 1.00, 9.14, 1.14, 186.67, 6.45, 7.17, and 0.15) and the maximum value (141.36, 5.00, 60.06, 3.60, 13890.63, 15.39, 10.38, 44.02 respectively). Well, the trend of the variable is presented in Figure 1.

RESULTS AND DISCUSSION

Education attainment is moderately positively correlated with human resource (0.33) and GDP per capita (0.40), while positively correlated with debt swap funding (0.26). Debt swap funding has a moderate positive correlation with human resource (0.49), new growth parameter (0.32), IMF structural adjustment program (0.27), and GDP per capita (0.24). At the same time, debt swap funding is negatively correlated with debt service (-0.07). The physical stock of capital is weak and positively correlated with debt swap funding. Human resource has a positive association with new growth parameter, IMF structural adjustment program, and GDP per capita, while it has a negative association with debt service. New growth theory has one of the strongest positive associations with the IMF structural adjustment program and GDP per capita Table 3.

Table 3. Correlation matrix (Full sample).

Matrix	Education attainment	Debt swap funding	Physical stock of capital	Human resource	New growth parameter	IMF Sap	Debt service	GDP per capita
Education attainment	1							
Debt swap funding	0.2552***	1						
Physical stock of capital	0.0046	0.1009**	1					
Human resource	0.3286***	0.4997***	0.0325	1				
New growth parameter	0.0623	0.3185***	0.1659***	0.0484	1			
IMF	0.0361	0.2672***	0.0068	0.0308	0.5609***	1		
Debt service	-0.0505	-0.0702*	-0.2119***	-0.0410	-0.0758*	0.1170**	1	
GDP per capita	0.4021***	0.2412***	0.1156*	0.4565***	0.3551***	0.3149***	0.0799*	1

Source: Author(s) calculation

Table 4. Debt swap funding impact on education attainment (Full Sample): Fixed Effects/Random Effects: Dependent Variable (education attainment).

Variables	(1)	(2)
	Fixed Effect	Random Effect
Debt swap funding	2.6682	1.7235
	(1.5666)*	(1.0203)*
Physical stock of capital	.1281	.1980
	(.1733)	(.1326)
Human resource	22.4966	.5993
	(6.5508)**	(2.4321)
New growth parameter	.6765	.3470
	(1.5424)	(.8682)
IMF Sap	4.0215	3.4646
	(3.2409)	(2.4658)
Debt Service	-.6040	.4160
	(.2334)**	(.1682)**
GDP per capita	21.6892	13.3422
	(7.3732)**	(3.7107)***
Education attainment (-1)	.4902	.6602
	(.0365)***	(.0324)***
Constant	54.2205	13.9840
	(29.5034)*	(18.4724)
Observations	540	540
R-squared	0.32	0.29
Wald Chi2	28.93	75.03
No of countries	30	30

Note: The first column indicates the values of the fixed effect model while the second column indicates the values of the random effect model. *, **, *** show the level of significance at 10%, 5%, and 1%, respectively. The robust standard error is given in parenthesis '()'.

Table 4 presents the results of both fixed effect and random effect models employed to analyze the nexus between various explanatory variables and the explained variable. There is a dataset of 540 observations and 30 debt-burdened economies. The results of the study are interpreted as follows:

Notably, the fixed effect model revealed significant findings. Debt swap funding ($\delta = 2.6682$, $p < 0.05$) exhibited a strong positive association with education attainment, suggesting that countries engaging in debt swap initiatives experienced higher education enrollment and trends in education attainment. Moreover, human resource development ($\delta = 22.4966$, $p < 0.01$) demonstrated a substantial positive impact on education attainment, highlighting the importance of investing in the education and skill development of a country's workforce, which further enhances education attainment and promotes trends in getting higher education. However, debt service ($\delta = -0.6040$, $p < 0.01$) showed a negative relationship with education attainment, indicating that higher debt servicing obligations might hinder government spending on education programs, thus lowering the rate of enrollment. In the random effect model, we observed similar trends, with debt swap funding ($\delta = 1.7235$, $p < 0.05$), human resource development ($\delta = 0.5993$, $p < 0.05$), and debt service ($\delta = 0.4160$, $p < 0.01$) influencing education attainment significantly. These results suggest that policies aimed at promoting debt swap initiatives and enhancing human capital can play a pivotal role in fostering education programs, while effective management of debt servicing is equally crucial (Giannini & Oldani, 2022; Himmer & Rod, 2022; Yang & Zheng, 2020). Our models collectively accounted for 32% (fixed effect) and 29% (random effect) of the variance in education attainment. Additionally, the Wald Chi-squared tests (28.93 for fixed effect and 75.03 for random effect)

indicated the overall significance of our models in explaining the variations in education attainment, supporting the robustness of our findings.

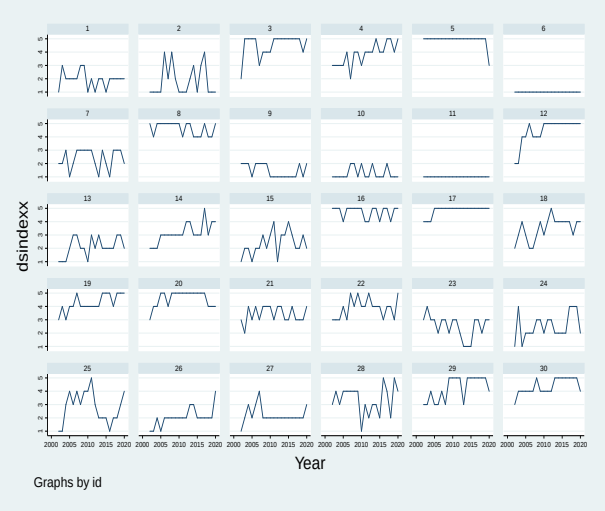
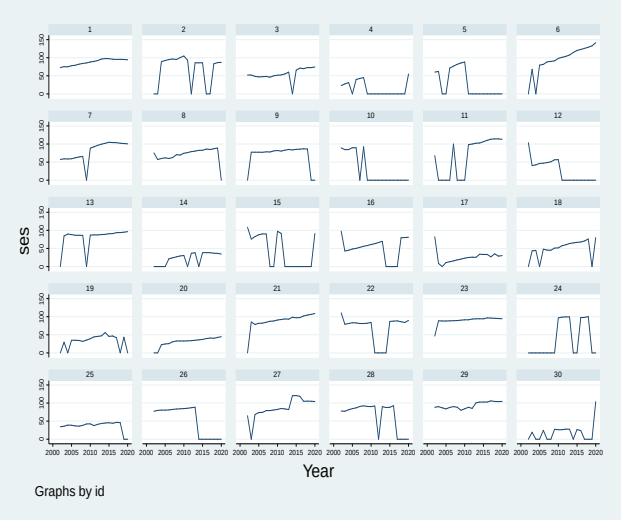


Figure 1. Panel (a): Country-wise debt swap funding trend; Sources: Author(s) calculation.



Panel (b): Country-wise secondary school enrolment; Sources: Author(s) calculation.

Table 5. Debt swap funding impact on education attainment (Full Sample): Two step SYS GMM: Dependent Variable (education attainment).

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Debt swap funding	2.9207 (1.2367)**	2.8069 (1.2762)**	1.8605 (0.9002)**	2.2871 (1.3564)	1.6089 (0.8075)*	2.2783 (1.6496)	3.1199 (1.2216)**	3.3619 (1.2355)**	2.5330 (1.3960)**	2.3209 (1.4340)	2.1488 (1.4760)
Physical stock of capital		.0135 (.2052)					.1655 (.2311)	.0651 (.2175)	.0416 (.2502)		.3480 (.2923)
Human resource			4.7863 (4.5411)		3.6344 (4.9627)	5.3010 (4.9756)					
New growth parameter								1.1872 (1.1600)	.1057 (1.4533)	.9571 (1.7908)	
IMF Sap		.5589 (2.2376)	.1509 (2.0061)	1.4301 (2.8355)							
Debt Service						.3004 (.2581)	.3887 (.2851)				.4095 (.3561)
GDP per capita				17.3163 (6.3832)**	15.0939 (7.1107)**					20.9567 (16.4334)	19.3901 (6.5091)**
(Low + Lower middle) income									18.2797 (13.3287)		
Upper middle Income										.4865 (15.5902)	
Education attainment (-1)	.7567 (.0850)***	.7630 (.0847)***	.7192 (.0915)***	.5747 (.0994)***	.5733 (.0955)***	.7008 (.0992)***	.7301 (.1043)***	.7386 (.0865)***	.6646 (.1006)***	.5617 (.0883)***	.5310 (.1044)***
Constant	23.5322 (7.8646)**	18.3793 (24.2265)	9.9132 (21.8919)	12.9026 (30.2236)	28.6765 (21.4869)	14.8622 (14.4599)	33.3007 (13.5681)**	15.9689 (13.5326)	28.0572 (19.4615)	28.2608 (38.1192)	17.9344 (24.0302)
Observations	540	540	540	540	540	540	540	540	540	540	540
Number of Groups	30	30	30	30	30	30	30	30	30	30	30
F /Wald test	78.97	42.08	40.94	28.46	23.48	44.84	57.15	36.32	22.45	55.90	24.20
Arellano-Bond test (AR1) Test	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.000
Arellano-Bond test (AR2) Test	0.619	0.613	0.637	0.745	0.738	0.646	0.622	0.593	0.669	0.765	0.752

Note: ***, **, * shows the significance at 1%, 5% and 10% respectively. While parenthesis '()' shows the robust standard errors in the model.

The application of the Two-Step System Generalized Method of Moments (GMM) holds a significant position in the analysis of determining the determinants of education attainment. This is a modern empirical approach addressing the complex econometric challenges associated with endogeneity and dynamic panel data. The results obtained from the above estimation provide valuable insights into the

factors influencing education attainment across a diverse set of 30 debt-burdened economies. While there are a few variables like debt swap funding, physical stock of capital, human resource, new growth parameter, IMF Sap, debt service, and per capita income are not statistically significant, collectively. All of these findings emphasize the complexity of the relationship between education attainment and various other economic and policy-related factors. Furthermore, the robustness checks, including F/Wald tests and Arellano-Bond tests (Türedi, 2016), validate the reliability and validity of our model, reinforcing the importance of utilizing the Two-Step System GMM methodology in addressing econometric challenges and uncovering nuanced insights that may not be apparent through traditional statistical approaches. This method serves as a powerful tool in our quest to better understand the multifaceted dynamics influencing education attainment on a global scale Table 5.

In this study, we employed a Two-Step System Generalized Method of Moments (GMM) analysis to investigate the determinants of education attainment. Our results revealed several noteworthy findings. Firstly, the coefficients for Debt Swap Funding ($\delta = 2.9207$, $p < 0.01$), Physical Stock of Capital ($\delta = 0.1655$, $p > 0.05$), Human Resource ($\delta = 4.7863$, $p > 0.05$), and New Growth Parameter ($\delta = 1.1872$, $p > 0.05$) were estimated, though they were not statistically significant. These results suggest that these variables may not have a direct and statistically significant impact on education attainment (Cassimon et al., 2011; Ito et al., 2018). Secondly, the coefficient for IMF Sap ($\delta = 0.5589$, $p > 0.05$) was also not statistically significant, indicating that IMF policies and interventions may not be significantly associated with education attainment in the studied countries. Thirdly, the coefficient for debt service ($\delta = 0.3004$, $p > 0.05$) was not statistically significant, suggesting that the level of debt servicing does not seem to have a substantial direct effect on education attainment (Fosu, 2007; Nasseh & Vujicic, 2017; Ng & McGinnis Johnson, 2020). Lastly, the variables associated with income levels—specifically 'Low + Lower Middle Income' ($\delta = 18.2797$, $p > 0.05$) and 'Upper Middle Income' ($\delta = 0.4865$, $p > 0.05$)—were also not statistically significant (Braga, 2009; Kass et al., 2019). Our models collectively indicate that the determinants of education attainment are complex and may involve a combination of other unobserved factors. Furthermore, the F/Wald tests and Arellano-Bond tests indicated the overall significance and validity of our model, reinforcing the robustness of our analysis.

Our findings suggest that several key variables, including debt swap funding, physical stock of capital, human resource, new growth parameter, IMF sap, debt service, and per capita income levels, do not exhibit statistically significant direct effects on education attainment within the studied countries.

Firstly, variables like debt swap funding, physical stock of capital, human resource, and new growth parameter were estimated but found to be statistically insignificant. This implies that, in this context, these specific economic and policy factors may not exert a direct and substantial influence on education attainment levels. Similarly, the coefficient for IMF sap was also statistically insignificant, suggesting that IMF policies and interventions may not be significantly associated with education attainment in the countries examined. Furthermore, the level of debt servicing, as represented by debt service, was not found to have a substantial direct effect on education attainment. This implies that the financial obligations related to debt servicing may not be a critical determinant of educational outcomes within the studied countries.

Additionally, variables categorizing countries into 'Low + Lower Middle Income' and 'Upper Middle Income' groups did not display statistically significant impacts on education attainment. This suggests that income levels alone may not be robust predictors of education attainment in the analyzed countries. The significance of the results is the contribution of the study to the broader discourse on education policy. In order to enhance education attainment in the diverse global context, especially in those parts of the world where countries lack the shortage of funds to support their education system, debt swap funding stands as a key determinant in

formulating policies. This implies on practical grounds that education policies should not rely on a narrow set of factors and policies but account for a multifaceted set of factors like debt swap funding.

Overall, our findings underscore the complexity of the factors influencing education attainment and highlight the need for a nuanced understanding of the multifaceted dynamics at play. While these specific variables did not demonstrate direct significance, it's crucial to consider the presence of unobserved or omitted factors that may contribute to variations in education attainment. The robustness checks, including F/Wald tests and Arellano-Bond tests, further validate the overall significance and reliability of our model. This study contributes to the broader discourse on education policy and underscores the importance of considering a broader set of determinants when formulating policies aimed at enhancing education attainment in diverse global contexts.

CONCLUSIONS

Debt swap funding, as the results show, has positively contributed much to the education attainment in debt-burdened economies for the time period 2003-2021 in the presence of per capita income. Debt swap funding plays a smaller role in education attainment as compared to per capita income; therefore, it is imperative for the government to make an effective policy for implementing debt swap funding along with per capita income. However, debt service comes as retarding variable, which puts pressure on the fiscal budget and is negatively associated with education attainment. A more effective debt swap policy is needed in a large term that can improve the education attainment of the debt-burdened economies as well as the strongest argument for reducing debt burden stimulates economic activity for the recipient countries. Debt swap funding is believed to increase capital inflow, promote macroeconomic stability, and be aligned with global goals like SDGs and innovative financing mechanisms (Garcia, 2010; Leff & Hughes, 2015). For all this to hold in a given economy, several prerequisites (political will, creditworthiness, technical capacity, proper monitoring and evaluation, and especially clear objectives for which debt swap funding is being exercised) are required. For debt swap funding to be a more effective contributor to education attainment, debt-burdened economies would do better by focusing on improving fiscal infrastructure and human resources and developing efficient resource allocation conducive to productive outcomes of education attainment to speed up the process of education attainment and growth.

The policy implication of the above study stated that an integrated policy approach that combines debt swap funding and per capita income to reach education attainment needs to be addressed at most. The government of debt-burdened economies should prioritize the agenda of education attainment while managing the debt service of the country. Therefore, a long-term strategy should be developed to maximize the impact of debt swap funding on economic growth. A more comprehensive approach that addresses the negative influence of debt service on education attainment through fiscal reforms.

Future Direction

There are a number of future directions in the field of debt swap funding. Aligning the debt swap funding with specific SDGs and its impact on broader development objectives. The effectiveness of debt swap funding can be identified by comparing the best practices and common challenges in debt-burdened economies.

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