Influence of Tourism on Income Inequality in Transitional Economies: Does Foreign Direct Investment Matter?

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Abstract: This study investigated the impact of tourism on income inequality in transitional economies using panel data analysis methods, namely fixed effects, fully modified ordinary least squares (FMOLS), dynamic generalised methods of moments (GMM), pooled ordinary least squares (OLS) with data ranging from 1999 to 2019. The influence of the complementarity between tourism and FDI on income inequality in transitional economies was also investigated. There is no agreement in the literature regarding the influence of tourism on income inequality. The available literature on the subject matter produced results which lacks conclusiveness, are divergent and mixed, hence prompting the author to undertake this study to fill in the glaring gaps in the literature. To a large extent, the study observed that tourism, foreign direct investment, the complementarity effect, employment, human capital development, infrastructural development and information and communication technology significantly reduced income inequality in transitional economies. Transitional economies should develop and implement policies that are geared at enhancing tourism, employment, infrastructural development, foreign direct investment inflows, and human capital development and information and communication technology to reduce income inequality. Further studies should estimate the minimum threshold level of tourism above which significant income inequality reduction occurs.

Keywords: Tourism; Transitional Economies; Income Inequality; Panel Data

JEL Classification: Z32

1. Introduction

The impact of tourism on economic growth is a well-researched area especially within the last two decades. Although there are few dissenting voices, majority of the most recent empirical research on the subject matter confirmed that tourism has a significant positive impact on economic growth in the tourist receiving nation (Rasool et. al. 2021; Meyer and Meyer. 2015; Manzoor et. al. 2019; Naseem. 2021). In other words, the positive influence of tourism on economic growth is conclusive, well agreed and no longer contestable. What is still not yet agreed on and conclusive is the impact of tourism on more related aspects of economic growth such as income inequality, poverty, economic development and unemployment. It is against this background that this study explored the influence of tourism on income inequality in transitional economies.

Relatively few empirical studies investigated the impact of tourism on income inequality and these include among others Alam and Paramati (2016), Mehrara and Shirmohammadi (2019), De Bruyn et al (2018), Winter (2019), Zhang (2021), Beheshti et al (2017), Kofi (2016), Amin et al (2017), Kinyondo

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and Pelizzo (2015), Reis (2021), Roslan and Noor (2008), Tan and Morimoto (2019), Odhiambo (2021), Tucki and Pylak (2021), Fang et al (2021) and Nguyen et al (2021). The methodological weaknesses of these similar empirical research done on tourism-income inequality nexus are as follows: They shied away from using transitional economies as a unit of analysis, an economic group which experienced phenomenal tourism growth in the last two decades. They ignored the endogeneity problem which normally characterises the income inequality function. The channels through which tourism influences income inequality were totally ignored. The vicious cycle of income inequality was never considered. These are the gaps the current study filled in.

This study contributed towards literature in five different ways. Firstly, this study to the author's best knowledge is the first of its kind to investigate the impact of the complementarity between tourism and foreign direct investment inflows on income inequality. Secondly, unlike similar empirical research work on a similar subject matter, this study exclusively focused on selected transitional economies as a unit of analysis. Thirdly, this study used the most recent data set (1999-2019). Fourthly, the endogeneity problem in the income inequality function was decisively dealt with using the dynamic GMM approach. Fifthly, the argument that income inequality is affected by its own lag was captured in this study.

Section 2 explains the theoretical literature on the impact of tourism on income inequality. Section 3 focuses tourism's influence on income inequality from an empirical literature point of view. Control variables used in the income inequality function were discussed in Section 4. The research methodological framework is explained in Section 5. Section 6 covers the pre-estimation diagnostics. Section 7 discusses main data analysis and research findings. Section 8 summarizes the study. The list of references is in Section 9.

2. Impact of Tourism on Income Inequality– a Theoretical Literature

According to Bartik (1991), tourism enhances local economic activities and economic growth of a country in general. The argument is that the enhanced economic growth increases the poor's chances of securing employment or success of their self-help jobs hence contributing towards reduced income inequality. Papatheodorou (2010) explained that tourism revenue helps the governments to redistribute income from the rich to the poor. The same author noted that tourism increases job opportunities and benefits to the poorest people in the society as it gets them to contribute to the production of tourism goods and services.

On the other hand, Bartik (1991) noted that an increase in economic growth linked activities makes the rich richer hence widening the income inequality gap. Papatheodorou (2010) argued that the multinational enterprises which mostly dominate the tourism industry contributes to increased income inequality gap through repatriating profits back to the mother country.

3. Influence of Tourism on Income Inequality – an Empirical Literature Discussion

Table 1. Empirical Literature on the Impact of Tourism on Income Inequality

Author	Country/Countries of study	Period	Methodology	Results
Alam and Paramati (2016)	Developing countries	1991-2012	Panel data analysis methods	Tourism was found to have had a significant positive impact on income inequality in developing countries.
Nguyen et al (2021)	97 countries -world wide	2002-2014	Panel data analysis	International and domestic tourism reduced income inequality.
Fang et al (2021)	Developed and developing countries	1995-2014	Panel data analysis	Tourism had a significant deleterious effect on income inequality in developing countries. On the other hand, tourism's impact on income inequality was observed to be positive but insignificant in developed countries.
Tan and Morimoto (2019)	Developing economies	1995-2012	Dynamic pooled ordinary least squares and fixed effects approaches	The inbound tourism was found to have had a deleterious impact on income inequality
Tucki and Pylak (2021)	108 Municipalities of Poland	2009-2018	Descriptive statistics	Tourism only managed to reduce income inequality during the period of financial crisis.
Odhiambo (2021)	Sub-Saharan African countries	2005-2014	Generalized Methods of Moments	Tourism reduced income inequality in Sub-Saharan African countries
Kinyondo and Pelizzo (2015)	Tanzania	1992-2012	Descriptive statistics	Tourism led income inequality reduction hypothesis was confirmed.
Roslan and Noor (2008)	Malaysia	1986-2004	Descriptive statistics	Income inequality was reduced by tourism inflows.
Reis (2021)	Low and middle-income countries	1995-2018	Panel data analysis	Tourism contributed to a decline in income inequality.
Beheshti et al (2017)	Iran provinces	2000-2014	Panel data analysis	Tourism had a significant negative influence on income inequality and poverty.
Amin et al (2017)	Iran	1976-2014	Autoregressive Distributive Lag	Tourists arrivals was found to have reduced the Gini-co-efficient (income inequality)
Kofi (2016)	East Cape Province of South Africa	Post 1994	Factor analysis	Tourism contributed towards income inequality reduction in the Eastern Cape Province of South Africa.

Zhang (2021)	Documents analysis	Documents analysis	Descriptive analysis	Tourism increased income inequality in a significant manner.
Mehrara and Shirmohammadi (2019)	Selected developing countries	1995-2015	Panel quantiles regression model	Tourism led to a decrease in income inequality.
Winter (2019)	Brazil	1985-2016	Quantitative value chain analysis	In the case of Brazil, tourism's impact on income inequality was found to be negative.
De Bruyn et al (2018)	South Africa	2001-2017	Multiregression analysis	Tourism enhanced economic development in South Africa

Source: Author compilation

4. Control Variables Used in the Model (Income Inequality Function)

Table 2. A Discussion of the Control Variables

Variable	Proxy used	Theory intuition	Expected sign
Trade openness (OPEN)	Total of exports and imports (% of GDP)	According to Balassa (1978), economic growth responds positively to increased trade openness thereby enabling domestic firms to effectively compete in international markets. Domestic firms get an increased ability to expand, create jobs, and pay better remuneration to its workforce thereby helping to narrow the income inequality gap.	-
Foreign direct investment (FDI)	Net FDI inflows (% of GDP)	Consistent with Boakye-Hyasi and Li (2015), foreign direct investment flows in together with skills, technical knowhow, management experience, capital and technology. All this enables enhanced economic growth, productivity enhancement, jobs creation opportunities and income inequality reduction. According to Jaumotte et al (2013), majority of the profits made by foreign investors is repatriated back to the home country and thus does not benefit the local community. This exacerbates income inequality among the people in the host country.	+/-
Financial development (FIN)	Market capitalization of listed domestic companies (% of GDP)	According to World Bank (2001), the poor's chances of accessing poverty and income inequality reduction focused financial access and products is very high in a country characterised by a developed financial system. On the contrary, Dhrifi (2013) argued that it is very difficult for the poor people to	+/-

		access credit and other financial services in a developed financial system because they do not always have the required collateral security. This worsens income inequality gap.	
Unemployment (UNEMPL)	Unemployment total (% of total labour force)	Unemployed people cannot send their children to better quality schools, they cannot acquire vocational training skills because they cannot afford to pay the required tuition fees, they do not have income enough to feed themselves. All this worsens the income inequality gap, according to Ayala et al (2001).	+
Information and Communication Technology (ICT)	Individuals using internet (% of population)	Information and communication technology increases income inequality because the poor cannot benefit from it because they do not have the financial resources to purchase the gadgets required to access and use it (Richmond and Triplett. 2017). The same study however noted that the spread of information and communication technology has enables even the poor to access information, education and job advertisements that previously would have been the preserve of the rich.	+/-
Human capital development (HCAP)	Human capital development index	High levels of human capital development mean that people are skilled, educated, trained, more productive, and more employable and have a high chance of securing a better paying job (Becker and Chiswick. 1966). However, Johansen (2014) argued that the differences in the level of human capital development in the society worsens the income inequality gap.	+/-
Infrastructural development (INFR)	Fixed telephone subscriptions (per 100 people)	Consistent with Tsaurai and Nyoka (2019), diverting the financial resources away from the provision of small loans to the poor towards pursuing infrastructural projects could increase the income inequality gap. On the contrary, enhanced infrastructural development enables the poor to easily and at low cost access roads, clinics, markets, information and be effective participants in the economy, all of which helps to reduce the income inequality gap (Jacoby. 2000).	+/-

Source: Author Compilation

E u r o E c o n o m i c a

5. Research Methodology

5.1. Data Used in the Study

This study investigated the impact of tourism on income inequality in transitional economies using panel data (1999-2019) analysis methods such as the dynamic GMM, fixed effects, pooled OLS and random effects. The panel data used was extracted from international reputable databases such as World Bank Indicators, International Financial Statistics, United Nations Development Programme, International Monetary Fund and African Development Bank. Turkey, Thailand, Peru, Mexico, China, Brazil and Argentina are the transitional economies included in this study, consistent with International Monetary Fund (2015)'s criteria.

5.2. General Model Description

The factors that influence income inequality are summarised in the form of the following general model specification (equation 1).

INEQ =f (TOURISM, FDI, OPEN, FIN, UNEMPL, HCD, INFR, ICT)   (1)

Where INEQ is an abbreviation for income inequality (proxied by the GINI co-efficient). TOURISM was proxied by international tourism (number of arrivals). The choice of the explanatory variables of the income inequality was informed by similar empirical research such as Alam and Paramati (2016), De Bruyn et al (2018), Winter (2019), Mehrara and Shirmohammadi (2019), Zhang (2021), Kofi (2016), Amin et al (2017), Beheshti et al (2017), Reis (2021), Roslan and Noor (2008), Kinyondo and Pelizzo (2015), Odhiambo (2021), Tucki and Pylak (2021), Tan and Morimoto (2019), Fang et al (2021) and Nguyen et al (2021).

5.3. Econometric Model Description

$$INEQ_{it} = \beta_0 + \beta_1 TOURISM_{it} + \beta_2 FDI_{it} + \beta_3 OPEN_{it} + \beta_4 FIN_{it} + \beta_5 UNEMPL_{it} + \beta_6 HCD_{it} + \beta_7 INFR_{it} + \beta_8 ICT_{it} + \varepsilon$$ (2)

Equation 2 is just the econometric representation of the income inequality function.

Table 3. Description of Econometric Terms in Econometric Model 2

$INEQ_{it}$	Income inequality in country i at time t
$TOURISM_{it}$	Tourism in country i at time t
FDI_{it}	Foreign direct investment in country i at time t
$OPEN_{it}$	Trade openness in country i at time t
FIN_{it}	Financial development in country i at time t
$UNEMPL_{it}$	Unemployment in country i at time t
$HCAP_{it}$	Human capital development in country i at time t
$INFR_{it}$	Infrastructural development in country i at time t
ICT_{it}	Information and communication technology in country i at time t
β_0	Intercept term
β_1 to β_8	Co-efficient of the explanatory variables
ε	Error term
i	country
t	time

Source: Author Compilation

$$INEQ_{it} = \beta_0 + \beta_1 TOURISM_{it} + \beta_2 FDI_{it} + \beta_3(TOURISM_{it} . FDI_{it}) + \beta_4 OPEN_{it} + \beta_5 FIN_{it} + \beta_6 UNEMPL_{it} + \beta_7 HCD_{it} + \beta_8 INFR_{it} + \beta_9 ICT_{it} + \epsilon \qquad (3)$$

Equation 3 introduces the complementarity variable (tourism and foreign direct investment) and its impact on income inequality, consistent with Boora and Dhankar (2017) whose study noted that tourism follows foreign direct investment. The expectation is that the complementarity variable enhances income inequality reduction because both tourism and foreign direct investment individually and separately have been found to have an income inequality reduction effect in the available literature.

$$INEQ_{it} = \beta_0 + \beta_1 INEQ_{it-1} + \beta_2 TOURISM_{it} + \beta_3 FDI_{it} + \beta_4(TOURISM_{it} . FDI_{it}) + \beta_5 OPEN_{it} + \beta_6 FIN_{it} + \beta_7 UNEMPL_{it} + \beta_8 HCD_{it} + \beta_9 INFR_{it} + \beta_{10} ICT_{it} + \epsilon \qquad (4)$$

The fact that income inequality is affected by its own lag was introduced in equation 4, consistent with Azher (1995)'s vicious cycle of poverty and income inequality.

6. Pre-estimation Diagnosstics

Table 4. Correlation Analysis

	INEQ	TOURISM	OPEN	FDI	FIN	UNEMPL	HCD	INFR	ICT
INEQ	1.00								
TOURISM	-0.27***	1.00							
OPEN	-0.48***	0.05	1.00						
FDI	0.27***	-0.04	0.01	1.00					
FIN	-0.21**	0.12	0.51***	0.11	1.00				
UNEMPL	0.38***	-0.33	-0.64***	-0.21**	-0.46***	1.00			
HCD	-0.28***	0.02	-0.03	0.02	-0.13	-0.07	1.00		
INFR	0.07	0.05	-0.48***	-0.23***	-0.31***	0.59***	-0.01	1.00	
ICT	-0.20**	0.05	-0.11	-0.22***	0.10	0.08	-0.30***	0.02	1.00

Note: ***/**/* denotes statistical significance at the 1%/5%/10% level respectively.

Source: Author Compilation from E-Views

Although Table 4 shows that there is a significant negative relationship between tourism and income inequality, the weakness of correlation analysis is that it does not indicates the direction of causality. This is the reason why correlation analysis does not answer the question on whether tourism enhances income inequality reduction in transitional economies. A significant negative relationship was also observed between (1) trade openness and income inequality, (2) financial development and income inequality, (3) human capital development and income inequality and (4) information and communication technology and income inequality. A non-significant positive relationship between infrastructural development and income inequality was also observed. Unemployment and income inequality were found to be positively correlated in a significant way. The same relationship was also observed between foreign direct investment and income inequality. The maximum correlation co-efficient was observed to be between trade openness and unemployment (64%), hence there is no multicollinearity problem between and among the variables studied, consistent with Stead (1996).

Table 5. Descriptive Statistics

	INEQ	TOURISM	OPEN	FDI	FIN	UNEMPL	HCD	INFR	ICT
Mean	45.21	39 035 924	55.37	2.83	40.31	6.15	0.82	17.04	32.27
Median	43.10	13 256 000	47.51	2.71	34.50	4.86	0.76	17.34	30.57
Maximum	59.00	162 538 000	140.44	8.46	126.15	19.59	1.74	29.45	75.12
Minimum	34.90	41 000	20.98	0.31	6.27	0.21	0.55	5.86	0.71
Std. Dev.	6.00	46 781 226	31.56	1.33	24.49	3.82	0.21	6.25	21.78
Skewness	0.47	1.04	1.45	0.71	1.24	0.74	2.73	0.03	0.30
Kurtosis	2.14	2.65	4.08	4.59	4.31	3.31	11.33	1.94	1.89
Jarque-Bera	9.85	27.16	58.40	27.75	48.03	13.85	608.18	6.87	9.74
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Observations	147	147	147	147	147	147	147	147	147

Note: ***/**/* denotes statistical significance at the 1%/5%/10% level respectively.

Source: Author compilation from E-Views

It is evident that tourism data is characterised by outliers. The reasons being that its range value is too big and its standard deviation exceeds 1 000. The data for all the variables used in this study is all skewed to the right, an indication that there is no normal distribution. The probability of the Jarque-Bera criterion is zero, which is another indication that the data for all the variables used is not normally distributed.

Table 6. Mean Income Inequality Trends in Transitional Economies (1999-2019)

	INEQ	TOURISM	OPEN	FDI	FIN	UNEMPL	HCD	INFR	ICT
Argentina	45.48	731 952	32.41	2.31	14.94	10.52	0.79	22.58	39.31
Brazil	54.93	5 432 762	25.68	3.34	48.46	9.20	0.77	20.42	36.93
China	39.79	123 173 143	46.95	3.11	49.27	4.35	0.96	18.74	28.57
Mexico	48.84	92 486 857	61.07	2.77	30.44	3.89	0.74	16.41	31.95
Peru	47.28	3 004 233	46.21	3.91	39.24	4.04	0.76	9.10	29.16
Thailand	39.52	19 745 619	125.13	2.83	73.14	1.19	0.83	9.71	25.20
Turkey	40.61	28 676 905	50.12	1.53	26.71	9.88	0.87	22.34	34.75
Overall mean	45.21	39 035 924	55.37	2.83	40.31	6.15	0.82	17.04	32.27

Source: Author's calculations based on the World Development Database

Looking at Table 6, variables such as income inequality, foreign direct investment, and human capital development and information and communication technology do not have outliers because the individual country's mean values are not far away from the overall mean values. Regarding tourism, Argentina, Brazil, Peru, Thailand and Turkey have got mean tourist arrivals which are less than the overall mean tourist arrivals of 39 035 924. Outlier countries include Argentina, China, Brazil, Peru, Mexico and Thailand because their mean tourist arrivals far much deviated from the overall mean tourist arrival figure.

Mexico (61.07% of GDP) and Thailand (125.13% of GDP) are the only two countries whose trade openness mean values exceeded the overall mean trade openness value of 55.37% of GDP. However, it appears that Argentina, Brazil and Thailand are the outliers because their mean trade openness values are far away from the overall mean trade openness value of 55.37% of GDP. Brazil (48.46% of GDP), China (49.27% of GDP) and Thailand (73.14% of GDP) are the three countries whose financial development mean values exceeded the overall mean financial development value of 40.31% of GDP.

The countries which are outliers because their mean financial development values deviated from the overall mean financial development by a wide margin include Argentina, Turkey and Thailand.

Regarding unemployment, Argentina, Brazil and Turkey had their mean unemployment values which were above the overall mean unemployment value of 6.15% of total labour force. The remaining countries such as China, Mexico, Peru and Thailand had their mean unemployment values which were less than the overall mean unemployment value of 6.15% of total labour force. Thailand (1.19% of total labour force), Argentina (10.52% of total labour force) and Mexico (3.89% of total labour force) are the outliers for the same reason enunciated earlier on. Peru and Thailand are also outliers in as far as the infrastructural development variable is concerned. Consistent with Aye and Edoja (2017), the whole data set was converted to natural logarithms before it could be used for main data analysis. This was done to decisively deal away with the impact of the outliers and the data which was not normally distributed on the quality of the results.

7. Main Data Analysis and Research Findings

7.1. Panel Unit Root Tests

Table 7. Panel Unit Root Tests –Individual Intercept

	Level				First difference			
	LLC	IPS	ADF	PP	LLC	IPS	ADF	PP
INEQ	-1.54*	0.80	9.48	6.91	-4.93***	-5.71***	58.89***	122.93***
TOURISM	-3.72***	-1.04	25.66**	43.46***	-6.25***	-4.86***	50.51***	73.68***
OPEN	-0.02	-0.24	14.33	23.07	-7.05***	-5.52***	57.00***	85.73***
FDI	-2.04**	-2.66***	34.46***	55.56***	-8.00***	-10.67***	109.34***	636.32***
FIN	-2.49***	-1.32*	18.16	31.51**	-6.94***	-7.70***	78.54***	228.43***
UNEMPL	-4.09***	-3.07***	37.09***	25.25*	-4.49***	-4.21***	43.27***	64.10***
HCD	-4.22***	-5.56***	58.79***	44.81**	-5.12***	-7.72***	78.69***	80.04***
INFR	-0.22	0.19	15.95	29.98**	-1.98**	-2.63***	32.35***	73.63***
ICT	-6.66***	-5.08***	53.62***	135.27***	-6.74***	-5.32***	59.10***	78.99***

Note: LLC, IPS, ADF and PP stands for Levin, Lin and Chu (2002); Im, Pesaran and Shin (2013); ADF Fisher Chi Square and PP Fisher Chi Square tests respectively. *, ** and *** denote 1%, 5% and 10% levels of significance, respectively.
Source: Author's compilation from E-Views

From Table 7, it was evident that all the variables under study were integrated of order 1.

7.2. Panel Co-Integration Tests

Table 8. Johansen Fisher Panel Co-Integration Test

Hypothesised No. of CE(s)	Fisher Statistic (from trace test)	Probability	Fisher Statistic (from max-eigen test)	Probability
None	9.704	0.7835	9.704	0.7835
At most 1	9.704	0.7835	9.704	0.7835
At most 2	6.931	0.9373	43.77	0.0001
At most 3	1.386	1.0000	111.9	0.0000
At most 4	0.00	1.0000	128.9	0.0000
At most 5	128.9	0.0000	128.9	0.0000
At most 6	129.2	0.0000	112.5	0.0000
At most 7	55.46	0.0000	55.46	0.0000

Source: Author's Compilation from E-Views

At most seven co-integrating relationships were observed among all the variables studied, both under the max-eigen and Fisher's trace tests. Such results indicate that the null hypothesis which says that there is no long run relationship among the variables under study is rejected.

7.3. Data Analysis, Discussion of Results and Interpretation

Table 9. Panel Data Analysis Results

	Dynamic GMM	Fixed effects	FMOLS	Pooled OLS
$INEQ_{it-1}$	0.98***	-	-	-
TOURISM	0.003	-0.03***	-0.03**	0.11***
FDI	0.01	-0.09*	-0.08***	1.76***
TOURISM.FDI	-0.001***	0.01	0.01	-0.10***
OPEN	0.01***	0.05**	0.06**	0.25***
FIN	-0.002	0.01	0.01	0.08**
UNEMPL	0.01*	0.07***	0.08***	0.22***
HCD	-0.02**	-0.15***	-0.17***	-0.30**
INFR	0.003	-0.06***	-0.06***	0.17***
ICT	-0.004	-0.03***	-0.04***	-0.05**
Adjusted R-squared	0.78	0.66	0.71	0.68
J-statistic	186	42.11	114.76	78.15
Prob(J/F-statistic)	0.00	0.00	0.00	0.00

***, ** and * denote 1%, 5% and 10% levels of significance, respectively.

Source: Author's compilation from E-Views

Income inequality as measured by the GINI co-efficient was found to have been positively and significantly affected by its own lag under the dynamic GMM. The results are consistent with the vicious cycle of poverty and income inequality advanced by Azher (1995). Tourism's impact on income inequality was found to be non-significantly positive under the dynamic GMM whilst pooled OLS shows a significant positive relationship running from tourism towards income inequality. These results generally indicate that tourism increased income inequality, consistent with Papatheodorou (2010) whose study noted that multinational enterprises which mostly dominate the tourism industry contributes to increased income inequality gap through repatriating profits back to the mother country. Fixed effects and FMOLS noted that tourism had a significant negative influence on income inequality.

These results mean that tourism reduced income inequality, in line with Bartik (1991)'s theoretical argument.

FDI's impact on income inequality was observed to be positive but non-significant under the dynamic GMM whilst the pooled OLS shows a significant positive relationship running from FDI towards income inequality. These results indicate that FDI increased income inequality, in line with Jaumotte et al (2013) whose study argued that profits made by foreign investors is repatriated back to the home country and thus does not benefit the local community.

FMOLS and fixed effects was found to have had a significant negative influence on income inequality, consistent with Boakye-Hyasi and Li (2015) whose study observed that foreign direct investment flows reduce income inequality through its ability to enhance economic growth, productivity and job creation.

The complementarity between tourism and foreign direct investment was found to have had a significant negative effect on income inequality under the pooled OLS and dynamic GMM. These results mean that the complementarity variable reduced income inequality, in line with Boora and Dhankar (2017)'s assumption that tourists follows foreign direct investment. On the contrary, fixed effects and FMOLS show that the combination of tourism and FDI had a non-significant positive influence on income inequality.

Trade openness had a significant positive effect on income inequality across all the four econometric methods used in this study. In contradiction to Balassa (1978), these results show that trade openness increased income inequality. The dynamic GMM shows that financial development had a non-significant deleterious impact on income inequality, in line with World Bank (2001)'s argument that the poor's chances of accessing poverty and income inequality reduction focused financial access and products is very high in a country characterised by a developed financial system. Fixed effects and FMOLS's impact on income inequality was observed to be positive but non-significant whilst a significant positive relationship running from financial development towards income inequality was noted under the pooled OLS. These results mean that financial development increased income inequality, consistent with Dhrifi (2013)'s theoretical argument enunciated in Section 4 of this paper.

Consistent with Ayala et al (2001) whose study support the unemployment-led income inequality hypothesis, all the four econometric estimation methods noted that unemployment had a significant positive impact on income inequality. Human capital development had a significant deleterious impact on income inequality across all the four econometric estimation techniques employed in this study. The results resonate with Becker and Chiswick (1966) whose study noted that high levels of human capital development mean that people are skilled, educated, trained, more productive, more employable and have a high chance of securing a better paying job.

The study noted that infrastructure development had a significant deleterious effect on income inequality under the fixed effects and FMOLS, results which agrees with Tsaurai and Nyoka (2019) whose study noted that diverting the financial resources away from the provision of small loans to the poor towards pursuing infrastructural projects could increase the income inequality gap. The dynamic GMM shows that infrastructural development's influence on income inequality was positive but non-significant. The pooled OLS however noted that infrastructural development had a significant positive effect on income inequality gap. The results agree with Jacoby (2000)'s theoretical argument espoused in Section 4.

Across all the four econometric methods used, information and communication technology had a significant negative influence on income inequality. The results mean that information and communication technology reduced income inequality, in line with Richmond and Triplett (2017), whose study argued that the spread of information and communication technology enables even the poor to access information, education and job advertisements that previously would have been the preserve of the rich.

8. Conclusion

This study investigated the impact of tourism on income inequality in transitional economies using panel data analysis methods (fixed effects, FMOLS, dynamic GMM, pooled OLS) with data ranging from 1999 to 2019. The influence of the complementarity between tourism and FDI on income inequality in transitional economies was also investigated. There is no agreement in the literature regarding the influence of tourism on income inequality. The available literature on the subject matter produced results which lacks conclusiveness, are divergent and mixed, hence prompting the author to undertake this study to fill in the glaring gaps in the literature. To a large extent, the study observed that tourism, foreign direct investment, the complementarity effect, employment, human capital development, infrastructural development and information and communication technology significantly reduced income inequality in transitional economies. Transitional economies should develop and implement policies that are geared at enhancing tourism, employment, infrastructural development, foreign direct investment inflows, human capital development and information and communication technology to reduce income inequality. Further studies should estimate the minimum threshold level of tourism above which significant income inequality reduction occurs.

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