TOURISM AND HUMAN DEVELOPMENT

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Abstract: This study investigates the link between tourism and human development, and claims that tourism has a double effect on human development. The investigation is anchored in two theoretical frameworks, the tourism led growth (TLG) and Sen's capability approach. Based on a production process, the study employs a case study approach applied to Ecuador, and uses cointegration and Granger causality analyses to assess the connectedness between the two constructs. The explored interconnectedness in the case of Ecuador reveals that it is human development that promotes tourism, and not the other way around as was expected. The direct implication is that Ecuador reveals a lopsided human development situation with clear capacity constraints in the tourist sector and the overall economy. The larger implication is that rising incomes will not necessarily prompt enhanced human development performances.

Keywords: Tourism. Human development. Economic growth. Cointegration. Granger causality.

TURISMO E DESENVOLVIMENTO HUMANO

Resumo: Este estudo investiga a relação entre o turismo e desenvolvimento humano, e afirma que o turismo tem um duplo efeito sobre o mesmo. A investigação está ancorada em dois quadros teóricos: 1) o turismo impulsionando o crescimento (TLG) e 2) abordagem das capacidades de Sen. Com base em um processo de produção, o estudo emprega um estudo de caso aplicado ao Equador, e usa as análises de cointegração e causalidade de Granger para avaliar a conexão entre as duas construções. A interconectividade explorada, tomando como elemento empírico o caso do Equador, revela que é o desenvolvimento humano que promove o turismo, e não o contrário, como era esperado. A implicação direta é que o Equador revela uma situação de desenvolvimento humano desequilibrada com restrições de capacidade claras no setor do turismo e para a economia em geral. A implicação maior é que o aumento da renda não vai necessariamente, de forma linear, promover o desenvolvimento humano, e consequentemente d turismo, mas é uma condição necessária para ambos.

Palavras-chave: Turismo. Desenvolvimento humano. Crescimento Econômico. Co-integração. Causalidade de Granger.

TURISMO Y DESARROLLO HUMANO

Resumen: Este estudio investiga la relación entre el turismo y el desarrollo humano y afirma que el turismo tiene un doble efecto sobre el mismo. La investigación está anclada en dos marcos teóricos: 1) el turismo que llevó al crecimiento (TLG) y 2) el enfoque de capacidades de Sen. Sobre la base de un proceso de producción, el estudio emplea un enfoque de estudio de caso aplicado a Ecuador y utiliza el análisis de cointegración y de causalidad de Granger para evaluar la conexión entre las dos construcciones. La interconexión explorada en el caso de Ecuador revela que es el desarrollo humano que promueve el turismo, y no al revés, como se esperaba. La consecuencia directa es que Ecuador revela una situación de desarrollo humano desigual con claras limitaciones de capacidad en el sector del turismo en la economía en general. La principal implicación es que el aumento de los ingresos no necesariamente, de manera linear, promueve el desarrollo, y consecuentemente, el turismo. Pero el aumento del nivel de ingresos es la condición necesaria para ambos.

Palavras-chave: Turismo. Desarrollo humano. Crecimiento Económico. Cointegración. Causalidad de Granger.

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1 INTRODUCTION

The purpose of this study is to examine the relationship between tourism and human development. Human development is defined as "...a process of enlarging g people's choices." (UNDP, 1990, p. 10). This definition includes material and non-material aspects, such as the many dimensions of political, economic, cultural, and social freedoms. Considering the construct of human development from a multi-dimensional perspective reveals a shift in the more traditional unidirectional perspective, which defines human development only from a material aspect. The latter view of human development is grounded in an instrumental perspective with income as its most important hallmark (CROES, 2012; STIGLITZ, SEN; FITOUSSI, 2009). Surely, income is important in supporting life conditions. However, this perspective is narrow in accurately gauging living standards and in providing evidence of progress in human conditions, enlarging choices, and in staging access to opportunities that enable individuals to achieve their life aspirations (SEN, 1999; STIGLITZ, SEN; FITOUSSI, 2009).

This study claims that tourism has a double effect on human development: tourism directly provides resources to sustain human development, as well as indirectly through economic growth. However, how resources spawned by tourism affect human development is not clear. Tourism may directly propel resources to households through jobs, alternative sources of revenue, and business opportunities. Alternatively, tourism may spur economic growth while at the same time having a negative effect on human development. For example, Mak (2003) has asserted that tourism may positively affect economic efficiency while enhancing the welfare of some more than others. If those who benefit from the economic efficiency generated by tourism are the most affluent in society, then improved efficiency might be entirely consistent with more inequality. This would be unacceptable in light of the growing loss of opportunities and choices for millions of people and, thus, human development could suffer as prompted by that inequality.

There are other possible interdependence outcomes between tourism and human development. That is, tourism could have an indirect influence on human development by way of economic growth. Correspondingly, the parameters of that economic growth might also affect tourism.

Again, the disseminated outcomes may be direct or indirect in their manifestation on human development. Similarly, there may be feedback effects between human development and tourism, as well as between human development and economic growth. These possible relationships have been examined separately as part of the tourism led growth (BRIDA; PULINA, 2010) and tourism capabilities approach (CROES, 2012), but they have seldom been addressed within one dynamic analytical framework.

This study provides a comprehensive approach by conceptually linking and testing the relationship between tourism and human development. Understanding this complex web of interdependence is crucial in order to construct deeper insights into the full implications of this web of relationships for both analysis and policy. For example, expanding tourism may affect human development by providing private incomes to households, which in turn may impact the education and health conditions of those individuals in those households. Or, tourism can prompt more government income through taxes, which in turn may spur services that support human development through better education and health care. Thus, focusing on expanding private incomes or supplying more public services shapes the development debate and defines the configuration of policy actions.

The study explores the relationship between tourism and human development from Sen's perspective revealed in his capability approach (SEN, 1999). In his book, *Development as Freedom,* Sen shifts the unit of analysis from economic growth as the ultimate goal of development to human beings as the ultimate goal of development. Consequently, human development is conceived as the process of expanding choices and seizing opportunities through the notion of capabilities. Capabilities is defined as people's conditions and skills, to exist, to do things, and to act on the things they value. This conceptualization of human development implies that individuals should have (1) a range of choices: (2) freedom to choose according to their aspirations and awareness: and (3) the resources to realize their aspirations.

The study examines the connectedness between tourism and human development by using a production process model where resources are generated from tourism expansion, as well as from economic growth. Resources viewed as inputs rely on

capabilities, which are the skills and qualities of a person to make choices and to seize opportunities in order to reveal the achievements that define that person's well-being. To gauge a person's well-being, achievements are measured objectively through the individual's literacy rate, life expectancy, and the attained level of income as determined by standard economics. These objective conditions are captured through the Human Development Index (HDI) developed by the United Nations (HAZELL et al., 2012). The decision to embrace an objective approach is important since people tend to adapt to their daily situation, thereby eschewing their real life conditions (SEN, 1997).

For example, Kwaramba et el. (2012) reported that poor women in South Africa tended to adapt to opportunities spawned by local development programs to improve their living conditions (food, shelter, health), because either they didn't believe that those programs could change their life conditions, or they could not adequately estimate the benefits of those programs for themselves or for those for whom they were responsible. They simply adapted to their material situation and thereby engaged in self-denial in terms of the deprivation. This active or sobering response is Sen's main concern with subjective well-being. Thus, without objectivity, the very individuality of each person's circumstance could impede the discovery of the (theoretical) connectedness that may exist between tourism and human development.

The connectedness between tourism and human development is examined by answering four interrelated questions; (1) can tourism drive human development; (2) can human development drive tourism; (3) can tourism drive economic growth; and (4) can economic growth drive tourism? The research answers these questions by employing a number of techniques such as unit root analysis, Granger two step cointegration test, autoregressive distributed lag model (ADLM) analysis, and Granger causality test.

The study uses a case study approach and is applied to Ecuador. A case study approach does not portend to engage in statistical generalizations; rather, the study is interested in generalizing the findings into theoretical propositions, i.e., analytical propositions (Yin, 2009). Building theory from case studies requires at least one case (EISENHARDT; GRAEBNER, 2007). The case selected is Ecuador. Ecuador is one of the smallest countries in Latin America and ranks ninth in terms of GDP adjusted PPP per capita in South America. The United Nations' Development Program considers Ecuador a country with high human development with an HDI of 0.724, which ranks it eighth and 89th in South America and the world, respectively. International arrivals have steadily increased in the first decade of the twenty-first century, reaching almost 1.4 million.

While impressive by its growth numbers, Ecuador represents less than 1% of the South American market. Similarly, international tourism receipts have also grown significantly. For example, these receipts increased by 21% from 2011 to 2012, reaching US$1.25 billion. However, Ecuador's total tourism receipts are equivalent to only 0.5% of the South American market.

The remainder of this article is organized as follows. Section two presents the analytical framework and develops the hypotheses pertaining to the topic of concern. Section three discusses the data, the case study, and the methods employed. Section four presents the empirical results, while section five concludes and offers policy implications.

2 ANALYTICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The study is anchored in three theoretical frameworks. The first framework is the instrumental welfarist framework, which posits that economic growth would lead to improving human development (SEN, 1999; STIGLITZ et all, 2009). Alternatively, the non-welfarist framework ascertains that measuring resources (income) has not been an adequate metrics with which to assess human development (Sen, 1999). And finally, the tourism led growth (TLG) framework that asserts that tourism expansion leads to economic growth (BALAGUER; CANTAVELLA-JORDÁ (2002); DURBARRY, 2004; CROES, 2011). The instrumental welfarist framework or the traditional utilitarian approach was criticized, especially by Sen. According to Sen, this approach only considers the subjective aspects of people's lives (e.g., feelings) neglecting information regarding their needs and life conditions: including physical health and actual interests, or their urgent needs and what Sen calls, 'adaptive preferences'.

Following these arguments, this study only considers Sen's capabilities and the TLG frameworks. Therefore, this research considers a model that is built on the supposition that a person's achievements

(functionings) hinge upon available resources and the capacity to utilize those resources. To be successful, the model requires the properties of achievement and resources. The resources serve as inputs, which will later result in increased economic growth. For many, the only resource input they possess is labor power. However, gaining employment and earning livable wages is still necessary to complete the model. Without the opportunity to procure gainful employment, they may be limited in their ability to buy food, find shelter, and participate in their communities. In the absence of input, the lack of resources and the ability to benefit from those resources diminishes the individual's achievements. The result is deprivation, which includes reduced opportunity, political voice, or dignity.

Resources are critical in expanding opportunities. Tourism can impact those resources through economic growth. Economic growth has a strong foundation with two interrelated theories: neoclassical growth theory and endogenous growth theory. The former adheres to promoting free markets, exports, trade liberalization, and foreign investment in an attempt to spur efficiency and development (NAFZIGER, 1997). The latter supports an active role of the state for promoting economic development through direct and indirect investment in human capital. A common feature is the focus on individual achievements through income and consumption, which are considered as the proper "space" for distributional assessments. Within the context of growth, tourism is viewed as a valuable export, and its effects on development, as supported by the tourism-led growth (TLG) hypothesis, occur when tourism stimulates the economy in the form of spillovers and externalities (BALAGUER; CANTAVELLA-JORDA, 2002; GUNDUZ; HATEMI, 2005).

However, expanding resources, like income, will depend on capabilities. The production process model describes achievements as outputs. The conversion of input into output is not, however, a direct and observable relationship. Qualities of a person (capabilities) cannot be observed directly. Therefore, capabilities are considered the mediating force to move toward achievements (functionings). Achievements, or functionings, are revealed choices and are considered the outcome of a person's qualities and life conditions, such as "being happy," "being nourished," being well educated," "being sheltered," "being able to move freely," and "being able to avoid premature mortality." These achievements are depicted as aggregate measures of benefits and are directly related to a person's behavior.

The other framework considered in this research is the TLG. The TLG framework asserts that tourism creates jobs and income, leads to a positive balance of payments, prompts business opportunities, and results in increased economic activity. Studies entertaining the TLG assume that the economic benefits from tourism will automatically spread to the poor (trickle down). However, the topic of interest here is mainly efficiency, economic growth, and how tourism can generate the necessary income that could contribute to an individual's achievements, and thus to their human development. Rather, studies tend to consider only the linear aspects of the relationship between tourism and economic growth. Indeed, there is strong empirical evidence in the tourism literature that tourism growth leads to economic growth. The issue is whether the tourism and economic growth also bears an objective and measureable relationship to human development and vice versa.

For example, Pablo-Romero and Molina (2013) examined a sample of 87 studies covering several countries (developed and developing), regions, time periods, and methods and found that only four in the sample did not identify any relationship between tourism growth and economic growth. The sample of studies examined is anchored in the TLG hypothesis (TLGH), which claims that the channel through which tourism can spawn economic growth is a comparative advantage (ZHANG; JENSEN, 2007). Holzner (2010) also found strong positive effects of tourism on economic growth. Comparatively, Mitchell and Ashley (2010) have claimed that there are three channels through which tourism may impact human development. The first one is the direct channel which includes jobs and improved infrastructure and amenities; the second channel refers to secondary effects through which tourism spawns positive externalities to other economic sectors and households; and the third channel reveals the dynamic effects that tourism may have on the economic structure and markets by either enhancing or undermining other sectors in the long run.

Alternatively, some studies found a bi-directional relationship between tourism and economic growth. For example, Dritsakis (2004), Kim et al. (2006) and Lee and Chien (2008) found a bi-

directional causal relationship in Greece and in Taiwan, respectively. Ongan and Demiroz (2005) suggested bidirectional causality between international tourism and economic growth in Turkey for the period of 1980Q1–2004Q2 using Granger causality test results. On the other hand, Lee and Chang (2008) examined the link between tourism development and economic growth for OECD and non-OECD countries (including those in Asia, Latin America, and Sub-Sahara Africa) over the 1990–2002 period. Their study found mixed results including a unidirectional causality relationship in OECD countries, while in non-OECD countries they found a bidirectional relationship. Similarly, Chou (2013) found mixed results in a panel causality analysis examining the relationship between tourism spending and economic growth in 10 transition countries for the period 1988–2011.
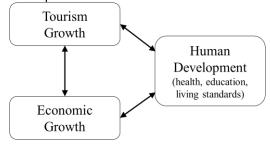
These mixed results may be triggered by tourism's rising costs which lowers both labor employment and welfare due to rising costs, thereby revealing a Dutch type disease. For example, Chao et al. (2006) have shown that in the short-term tourism is welfare inducing due to an increase in the price of nontradables, but welfare is declining in the long-term. Other studies found a negative or no significant relationship between tourism and economic growth (FIGINI; VICI, 2010). In addition, some studies found that the relationship between tourism and economic growth varied over time, and the value of the elasticity was not constant. These studies have implied that the relationship between tourism and economic growth has been non-linear. In other words, although tourism development may trigger positive returns under certain conditions, tourism development may also contain aspects of diminishing returns. For example, in the cases of Cyprus and Aruba, the studies of Adamou and Clerides (2010) and Ridderstaat, Croes and Nijkamp (2012) have suggested that tourism may not sustain a linear relationship, but after some time the relationship may become nonlinear in nature, potentially impacting economic growth.

While these studies have provided interesting insights into the relationship between tourism and economic growth, they have not examined a direct link between tourism and human development. Croes (2012) developed the first study to examine this direct link in Nicaragua and Costa Rica. The study found a link in the case of Nicaragua, but not in Costa Rica. The study suggested that the link was not automatic but depended on the stable relationship between those two constructs. The stable relationship may be shaped by economic growth, therefore suggesting an indirect channel between tourism and human development. However, Croes only considered this stable relationship as linear in shape. The potential non-linearity of the nature of the relationship between tourism and human development was left unattended.

Based on the previous analytical information, the relationship between tourism and human development is revealed in Figure 1.

Figure 1: Relationship between tourism and human development.

Source: prepared by authors.

Tourism growth may cause economic growth while economic growth may trigger tourism growth. The latter may be the result of allocating more money for marketing and promotion, providing more market offerings, and physical and human capital improvements. On the other hand, tourism growth and economic growth may cause human development; as well as human development may drive tourism growth and economic growth.

The study therefore poses the following hypotheses:

H0: Tourism growth does not influence economic growth.
H1: Tourism growth does influence economic growth.

H0: Economic growth does not influence tourism growth.
H1: Economic growth does influence tourism growth.

H0: Tourism growth does not influence human development.
H1: Human development does influence tourism growth.

H0: Economic growth does not influence human development.
H1: Human development does influence economic growth.

3 CASE STUDY, DATA, AND METHODS

Ecuador is a small country in South America, which reveals challenging economic and social contradictions. The country has a relatively high GDP per capita of US$8,510, as well as a high HDI score of 0.724. Ecuador ranks ninth and eighth in Latin America based on GDP and HDI values.

However, despite making strides in its efforts to curb poverty, a large portion of its population remains poor – coexisting with a very affluent, small elite. Indeed, about half of the population lives in poverty.

The country suffers from a chronic malnutrition rate with reported stunting outcomes among children below 5 years of age, similar to the Sub-Saharan countries. The poorest quintile received only 5.1% of total income, while the richest quintile received 48.8% in 2002; in 2012, it was 6.4% and 43%, respectively.
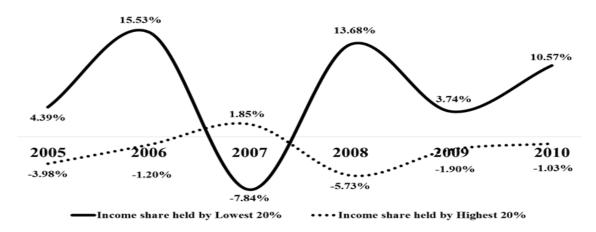
Ecuador remains one of the most unequal countries in South America with a Gini coefficient of nearly 50%. The poverty and inequality incidence are more pronounced in the country's rural areas. Table 1 reveals the socio-economic conditions of the country.

Table 1 Selected Socioeconomic Characteristics for Ecuador (2009–2012).

Socioeconomic Indicator	2009	2010	2011	2012
GDP per capita (constant 2005 US$)	3,210	3,251	3,449	3,568
GINI index	49.43%	49.26%	NA	NA
Human Development Index (HDI)	0.716	0.719	0.722	0.724
International tourism number of arrivals ('000)	968	1,047	1,141	1,272
International tourism receipts (% exports in M)	4.28	4.01	3.44	3.93
International tourism receipts (current US$ in M)	674	786	849	1,039
Internet users (per 100 people)	24.60	29.03	31.40	35.13
Poverty headcount ratio at national poverty line	36.0	32.8	28.6	27.3
Poverty headcount ratio at rural poverty line	57.5	53.0	50.9	49.1
Poverty headcount ratio at urban poverty line	25.0	22.5	17.4	16.1

Source: World Bank and United Nations Development Program.

Figure 2 Percentage Change of Incomes by Quintile from 2005 to 2010 in Ecuador.

Source: Prepared by authors based on data from the Central Bank of Ecuador

Tourism has become an important activity in Ecuador. International arrivals have steadily increased in the first decade of the twenty-first century, reaching almost 1.4 million. Similarly, international tourism receipts have also grown significantly, increasing by 21% from 2011 to 2012, reaching US$1.25 billion. Tourism has become the third largest foreign exchange source after agriculture and fisheries, having comprised 4.3% of total export in 2013. The tourism sector has supported 337,500 direct and indirect jobs, representing 4.8% of the total employment in the country in 2013 (WTTC, 2014). Nevertheless, the tourism industry in Ecuador pales in comparison to the aggregate tourism numbers in South America. For example, international arrivals and receipts represent a little less than one percent and half a percent, respectively, in the total South American market. Table 2 reveals Ecuador's tourism performance from 2000 to 2012.

Table 2 Tourism Performance in Ecuador During 2000 to 2012.

Year	International arrivals	International receipts (current US$)	Tourism receipts per arrival
2000	627,000	$451,000,000	$719
2001	641,000	$438,000,000	$683
2002	683,000	$449,000,000	$657
2003	761,000	$408,000,000	$536
2004	819,000	$464,000,000	$567
2005	860,000	$488,000,000	$567
2006	841,000	$492,000,000	$585
2007	937,000	$626,000,000	$668
2008	1,005,000	$745,000,000	$741
2009	968,000	$674,000,000	$696
2010	1,047,000	$786,000,000	$751
2011	1,141,000	$849,000,000	$744
2012	1,272,000	$1,039,000,000	$817

Source: INEC Ecuador and authors' own estimation.

The study employs annual time series from Ecuador for human development, tourism, and economic growth. The data are from 1990 to 2005 and are from the United Nations Development Program (UNDP), the World Bank Development Indicators, the Central Bank of Ecuador, and the Instituto Nacional de Estadisticas y Censos (INEC) de Ecuador. The data pertaining to tourist arrivals and the gross domestic product (GDP) are transformed in natural logarithm; the data regarding HDI will remain in percentage and do not require to be transformed in natural log form. Dummies are also employed to take external shocks into account, such as the dollarization of Ecuador currency.

The Human Development Index series for Ecuador are from 1990 to 2005. The HDI is a measure that combines three crucial human capabilities: health, education, and a decent standard of living. Health is captured through longevity and is measured by life expectancy. Education is captured through knowledge and is measured by a combination of adult literacy (two-thirds weight) and mean years of schooling (one-third weight). Finally, standard of living is measured by purchasing power (PPP) based on Real GDP per capita adjusted for the cost of living, thereby eliminating differences in national price levels (UNDP, 1990). The HDI computes an average value over different dimensions, then aggregates these values for the different dimensions in one overall index for each country, and ranks the countries according to a score of the overall index. The United Nations has endorsed the Human Development Index (HDI) as the metric to measure the promotion of human development. The HDI metric is calculated as follows:

$$HDI_i = (H\text{-Index } i + E\text{-Index } i + Y\text{-Index } i)/3$$

Overall, a review of Ecuador's progress in each of the HDI indicators since 1980 indicate life expectancy at birth increased by 12.9 years, mean years of schooling increased by 2.2 years, expected years of schooling increased by 1.9 years, and GNI per capita increased almost 13% (see Table 3).

The functional form of the relationship between the variables employed in the analysis is as follows:

(1) $LGDP = f(LTour, errors, D)$
(2) $LTour = f(LGDP, errors, D)$
(3) $HDI = f(LTour, errors, D)$
(4) $HDI = f(LGDP, errors, D)$
(5) $LTour = f(HDI, errors, D)$
(6) $LGDP = f(HDI, errors, D)$

Table 3 Human Development Indicators in Ecuador.

Year	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (2005 PPP$)
1980	62.9	11.8	5.4	5,487
1985	66.1	12.3	6	4,855
1990	68.9	11.5	6.6	4,777
1995	71.3	11.4	6.9	5,310
2000	73.4	11.4	7	4,903
2005	74.7	11.4	7.3	6,190
2010	75	NA	NA	7,880

Source: INEC Ecuador.

The analysis consists of three main steps. The first step entails the application of unit root testing in order to determine the stationarity of the variables. Time series stationarity is revealed through a constant mean, variance, and covariance over time (Song, Witt, and Li, 2009). This study employs the Augmented Dickey-Fuller test (ADF) and the Phillips-Perron test to assess stationarity (DICKEY; FULLER, 1979; DICKEY; FULLER, 1981). The test for stationarity is applied in both level and first difference forms. The second step consists of testing for the existence of a long run equilibrium relationship (cointegration) between the variables. The cointegration procedure implemented in this study will determine if any pair of variables forms a long-term equilibrium combination. The Engle and Granger two-stage approach is used to test for cointegration (Engle and Granger, 1987; Granger, 1969). If the results from the cointegration test indicate the existence of at least one cointegrating relationship, then long-term equilibrium exists among variables and the effects of hypothesized relationships can be tested.

The final test is the application of the Granger causality test. This test is applied only if cointegration between any set of two variables exists, which indicates that causality must then run in at least one direction. According to the Granger representation theorem, in a bivariate context, causality boils down to the significance of the lagged residuals in the regression model (Mukherjee, White and Wuyts, 1998). The study makes an a priori assumption that tourism expansion has an effect on economic growth and human development. Therefore, the importance for establishing the causal relationship in a Granger sense is to validate such claims.

This dynamic methodology captures short-term as well as long-term effects of variables interacting with each other, and answers four specific questions. The first question relates to the nature of the time series in order to discern patterns. The importance of the unit root testing is to determine the growth characteristics of aggregate economic behaviors (i.e., tourism arrivals, gross domestic product, and human development) in order to identify if they grow in a secular way over long periods, or if they wander without a fixed mean. The second question pertains to the time variant component when variables interact and establish long run relationships. Only if we can determine that, at some point in time, tourism, economic growth, and human development are pulled together by way of reaching a point of being stationary will we know that they impact each other. The cointegration method will determine the time path of the impact of the variables among each other.

Once a cointegration relationship has been established, the third step, the error correction model, answers our third question, which is related to how quick the variables move together. For example, how much time does it take for economic growth and tourism to impact human development in the long run while simultaneously capturing the short run effects? The last question we will address is the causality of the relationship. For example, are tourism and economic growth causing an improvement in human development, or is it the other way around?

The error correction model is particularly powerful since it allows an analyst to estimate both short-term and long run effects of explanatory time series variables. The following ADL error correction model is thus applied in order to examine the bivariate single-equation:

$$\Delta Y_t = \alpha_0 - \alpha_1(Y_{t-1} - \beta_1 X_{t-1}) + \beta_0 \Delta X_t + \varepsilon_t$$

The above equation reveals that current changes in Y are a function of current changes in X (the first difference of X) and the degree to which the two series are outside of their equilibrium in the previous time period. Specifically, β_0 captures any immediate effect that X has on Y, described as a contemporaneous effect or short-term effect. The coefficient, β_1, reflects the equilibrium effect of X on Y. It is the causal effect that occurs over future time periods, often referred to as the long-term effect that X has on Y. Finally, the long-term effect occurs at a rate dictated by the value of α_1.

The study makes the following claims:

(1) Tourism can drive economic growth in Ecuador.
(2) Economic growth can drive tourism in Ecuador.
(3) Tourism can drive human development in Ecuador.
(4) Human development can drive tourism in Ecuador.

4 EMPIRICAL RESULTS

All the estimates were obtained from STATA 11. The first step was to test for stationarity of the data. The step consists in first determining the best lag length by employing the AIC, SBIC, and HQIC criteria at the level and first difference stage. The model type, which could be one of the following three types, was selected next: random walk without a drift, random walk with a drift, and random walk with a deterministic trend. Tables 4 and 5 reveal the results: the three variables are stationary at the first difference suggesting integration of order of one I(1).

Table 4 Augmented Dickey–Fuller (ADF) Unit Root Tests.

ADF Test	Variables		
	$X_{growth\,gdp}$	$X_{tour-arrivals}$	Y_{hdi}
With a Drift and Constant/Levels	0.698(3)	0.318(3)	-3.300(4)*
With a Trend and Constant/Levels	-1.544(3)	-1.034(3)	-3.074(4)
With a Drift and Constant/1st Difference	-2.729(3)*	-1.534(3)***	-2.429(4)*
With a Trend and Constant/1st Difference	-2.848(3)	-1.663(3)	-1.352(4)

Source: Authors' own estimations.
Notes: * and *** denote the rejection of the unit root hypothesis based on MacKinnon (1991) critical values at 1% and 10%, respectively. The optimal lag length is presented in parentheses and is based on the SBIC and AIC criteria. The critical values are obtained from STATA version 9 and correspond to 18 observations.

Table 5 Phillips-Perron Unit Root Tests.

Phillips-Perron Test	Variables		
	$X_{growth\,gdp}$	$X_{tour-arrivals}$	Y_{hdi}
Constant without Trend\Levels	1.064(3)	0.393(3)	-3.676(4)*
Constant with Trend\Levels	1.163(3)	0.991(3)	-3.936(4)**
Constant without Trend\1st Difference	-3.066(3)**	-5.554(3)*	-8.177(4)*
Constant with Trend\1st Difference	-3.154(3)**	-5.402(3)*	-8.878(4)**

Source: Authors' own estimations.
Notes: * and ** denote the rejection of the unit root hypothesis critical values at 1% and 5% based on the Newey-West method. The optimal lag length is presented in parentheses and is based on the SBIC and AIC criteria. The critical values are obtained from STATA version 9 and correspond to 18 observations.

The second step is to test for cointegration. The study proceeds to apply the Granger two step cointegration. The first step is to estimate the levels equation (the cointegration regression) and to estimate the residuals. The second step is to test for stationarity of the residuals. The results from the cointegration regression and the unit root test for the residuals are revealed in Tables 6, 7, and 8. The results confirm that the residuals from the cointegration regressions between economic growth and human development, between tourism and human development, and between tourism and economic growth are stationary, and both series are cointegrated.

Table 7 Augmented Dickey–Fuller (ADF) unit root tests for residuals of economic growth and human development.

Variable	Test Statistic (ADF)	Test Statistic (PP)
Residuals(4)	-4.24*	-4.25*
Residuals, Constant, Lags(4)	-1.09(4)	-4.23(4)*
Residuals, Trend, Lags(4)	-3.707(4)**	-4.12(4)*

Source: Authors' own estimations.
Notes: * and **denotes the rejection of the unit root hypothesis based on MacKinnon (1991) critical values at 1% and 5%. The optimal lag length for the unit root test is presented in parentheses and is based on the AIC and SBIC criteria.

Table 8 Augmented Dickey–Fuller (ADF) unit root test for residuals of tourism and economic growth.

Variable	Test Statistic (ADF)	Test Statistic (PP)
Residuals(4)	-3.18(4)**	-3.05(4)**
Residuals, Constant, Lags(4)	-3.11(4)**	-2.99(4)**
Residuals, Trend, Lags(4)	-2.79(4)	-2.80(4)

Source: Authors' own estimations.
Notes: **denotes the rejection of the unit root hypothesis based on MacKinnon (1991) critical values at 5%. The optimal lag length for the unit root test is presented in parentheses and is based on the AIC and SBIC criteria.

Based on the existence of a cointegration relationship among the three variables, the study proceeds to apply an Autoregressive Distributed Lag Model (ADLM) in order to test the long- and short-term effects among the three variables (tourism, economic growth, and human development). The ADLM equation is:

$$\Delta Y_{hdi_t} = \alpha_t + \Delta\beta_0 X_{growth\ gdp_t} + \beta_2 X_{growth\ gdp_{t-1}} + \gamma Y_{hdi_{t-1}} + \omega_t$$

The short-term effects, long-term effects, and the adjustment coefficient are revealed in the error correction model below and is written as:

$$\Delta Y_{hdi_t} = \alpha_t + \beta_0 \Delta X_{growth\ gdp_t} + \gamma [Y_{hdi_{t-1}} - \beta_3 X_{growth\ gdp_{t-1}}] + \Phi_{dummy} + \omega_t$$

where $\beta_0 \Delta X_{growth\ gdp_{t-1}}$ is a first difference operator that represents the short-term impact of economic growth on human development, $\beta_3 X_{growth\ gdp_{t-1}} = \frac{\beta_2 X_{growht\ gdp_{t-1}}}{\gamma Y_{hdi_{t-1}}}$ and captures the long-term effect of economic growth on human development, γ captures the rate at which the model moves towards equilibrium, and Φ_{dummy} is a dummy used to capture the effects of dollarization. This equation provides the long- and short-term elasticities for economic growth and the adjustment speed at which the system is restored to equilibrium.

The results from the ADL error correction model for economic growth and human development is:

$$\Delta Y_{hdi_t} = -6.91\alpha - 0.314 \Delta X_{growth\ gdp_t} - 1.22\gamma [Y_{hdi_{t-1}} - .27 X_{growth\ gdp_{t-1}}] - 0.05\Phi_{dummy} + \omega_t$$

where the short-term effects are equal to $.314 \Delta X_{growth\ g_{t-1}}$; the long-term effects are $-.27 X_{growth\ gdp_{t-1}} = \frac{.33 X_{growth\ gdp_{t-1}}}{-1.22 Y_{hdi_{t-1}}}$; and the rate of adjustment γ is equal to -1.22.

The results confirm the existence of a long run relationship between economic growth and human development and they have the correct sign. This means that a 1% increase in economic growth improves human development by .27% in the long-term for the case of Ecuador. However, the results indicate the lack of a significant short-term of economic growth for human development. Finally, the error correction term is significant and greater than 1, thus implying that in the long run the long-term effect of economic growth on human development increases over unity (overshooting). This means that progress in human development is outstripping the capacity of the economy to grow at a faster pace, implying an unsustainable situation over time.

The study also conducted a similar ADLM application to tourism and human development. The ADL equation for testing the effects of tourism arrivals on human development is:

$$\Delta Y_{hdi_t} = \alpha_t + \Delta\beta_0 X_{tour_t} + \beta_2 X_{tour_{t-1}} + \gamma Y_{hdi_{t-1}} + \omega_t$$

The short-term effects, long-term effects, and the adjustment coefficient are revealed in the error correction model below and are written as:

$$\Delta Y_{hdi_t} = \alpha_t + \beta_0 \Delta X_{tour_t} + \gamma [Y_{hdi_{t-1}} - \beta_3 X_{tour_{t-1}}] + \Phi_{dummy} + \omega_t$$

where $\beta_0 \Delta X_{tour_{t-1}}$ is a first difference operator that represents the short-term impact of tourism on human development, $\beta_3 X_{tour_{t-1}} = \frac{\beta_2 X_{tour_{t-1}}}{\gamma Y_{hdi_{t-1}}}$ and captures the long-term effect of tourism arrivals on human development, γ captures the rate at which the model moves towards equilibrium, and Φ_{dummy} is a dummy used to capture the effects of dollarization. With this equation, we can estimate the long- and short-term elasticities for tourism and the adjustment speed towards equilibrium.

The results from the ADL error correction model for tourism and human development are:

$$\Delta Y_{hdi_t} = -2.11\alpha_t + .316 \Delta X_{tour_t} + .23 X_{tour_{t-1}} - 1.3\gamma_{hdi_{t-1}} - 0.11\Phi_{dummy} + \omega_t$$

To obtain the long-term effects and adjustment coefficient, the error correction model can be simplified and written as:

$$\Delta Y_{hdi_t} = -2.11\alpha_t + .316 \Delta X_{tour_t} - .1.30\gamma [Y_{sen_{t-1}} - .18 X_{tour_{t-1}}] - 0.11\Phi_{dummy} + \omega_t$$

where the short-term effect is equal to $.316\Delta X_{tour\ t-1}$; the long-term effect is $-.18X_{tour\ t-1} = \frac{.23X_{tour_{t-1}}}{-1.3Y_{sen_{t-1}}}$; and the rate of adjustment γ is equal to -1.30.

The results also demonstrate the long run relationship between tourism and human development and both variables have the correct sign. This means that a 1% increase in tourism arrivals improves human development by .18% in the long-term for the case of Ecuador.[1] It is important to note that the short-term coefficient of tourism is also significant and a 1% increase in $\Delta X_{tour\ t-1}$ improves human development by .316%. Interestingly, the error correction term is also significant but greater than 1, thus again implying that in the long run the long-term effect of tourism on human development increases over unity (overshooting).
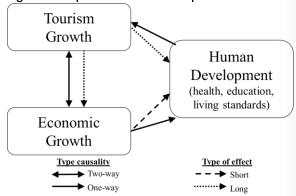
The evidence of a cointegrating relationship indicates that economic growth and human development move together over time; however, whether economic growth actually drives human development or human development drives economic growth needs to be established. The results of the Granger tests indicate that the null hypothesis "economic growth does not Granger cause poverty" can be rejected at the 10% level, evidencing that economic growth "Granger causes" human development. The results also indicate that the null hypothesis that human development does not Granger cause economic growth cannot be rejected at the 1% level, thus concluding that a one-way relationship exists running from economic growth to human development and not the other way around.

Similarly, we have investigated the causality between tourism development and human development. We have found that the null hypothesis "tourism does not Granger cause human development" cannot be rejected at any acceptable level of significance. On the other hand, the null hypothesis "human development does not Granger cause tourism" can be rejected at the 1% level, evidencing that human development "Granger causes" tourism. We can therefore conclude that a one-way relationship exists running from human development towards tourism, and not the other way around as expected.

5 CONCLUSION

This study explored the relationship between economic growth and tourism growth with human development in the case of Ecuador. The findings contradict the initial tenet of this study, which argued that the expansion of tourism promotes human development and could be considered a determining factor in improving the quality of life and capabilities of the people in Ecuador. The interconnectedness between tourism and human development in the case of Ecuador reveals that it is human development that promotes tourism. A similar finding was revealed in the case of Turkey in the study of Tosun et al., (2003). That study found that Turkish regions with a higher incidence of HDI also revealed higher tourism figures compared to other regions in the country with lower HDI values. Figure 3 displays the complex relationship between these two constructs in the case of Ecuador.

Figure 3 A Lopsided Human Development.

Source: prepared by authors.

As for economic growth, this relationship was not significant, and the magnitude of a 1% increase in economic growth results in .27 % improvement in human development in the long run. The error correction term was also significant and larger than one, suggesting that the system is restored back to equilibrium immediately. However, in the short-term, economic growth does not improve human development. The latter might be due to the fact that any improvement in human development is a prolonged transition. The results from the Granger causality tests indicate that a lopsided HD relationship exists in Ecuador.

The lopsided HD situation in Ecuador reveals capacity constraints in the economy, as well as in the

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[1] The diagnostic tests for the ADL model are: Durbin Watson test (DW=2.21) and the Breusch-Godfrey test (BG=1.957 p>.01) indicate that the null hypothesis of no serial correlation can be rejected. In addition, the results of the Breusch-Pagan test for heteroskedasticity indicate that the null hypothesis of no heteroskedasticity is accepted (BP=.30, p<.001).

tourist sector. The economic sector is growing too slowly to integrate the progress in human development, and tourism arrivals are hampered by capacity constraints in the tourism sector. Any lopsided HD relationship may hamper sustained development in the future, according to Ranis et al., (2000), suggesting that the current tourism development in Ecuador may not be sustainable in the long run if the tourism supply components are not increased significantly.

The findings suggest that there is room for growth, and that the country is at a crossroads in terms of aligning tourism supply and demand more effectively. This need is corroborated by the recent announcement of the Minister of Tourism to spend US$660 million over the next four years to boost tourism promotion and to expand and upgrade the tourism infrastructure.

The larger implication from the evidence of this study is that rising incomes will not necessarily translate into human development performances; thereby rendering support to Sen's contention that well-being should not be measured by its instrumental antecedents (such as income) alone. While higher tourism incomes lead to HD improvements, over time these effects tend to diminish. This evidence does not imply, however, that tourism growth is unimportant in broadening human development; rather, it is suggesting that the importance of tourism growth is merited in the distribution of its benefits, and the extent that tourism receipts are allocated to support human development (public health, education, safety, etc.).

The limitations of this study are twofold. First, the study is based only on a limited number of observations and is grounded in a bivariate model specification. More observations and a multivariate approach might reveal a more comprehensive view of the relationship among the three variables under review. Second, while an objective approach may provide interesting insights about the real life conditions of individuals, feelings and emotions may be masked, which undermines a comprehensive understanding of the nature and configuration among these three variables.

Different impacts on the life experience of each individual may enhance or curb the impact of tourism on human development. Future research should include a subjective well- being analysis, as well as expand the study to include more countries in order to confirm or disconfirm the results of this study.

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