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Economic policy, tourism trade and productive diversification

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ECONOMIC POLICY, TOURISM TRADE AND PRODUCTIVE DIVERSIFICATION

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NON-TECHNICAL SUMMARY

Many developing countries have tried to turn to the tourism industry as a means to shift resources away from goods that have lost competitiveness in world markets and diversify their economies. Yet, the outcome of tourism-led development in terms of broader economic and social advancement of countries depends on the extent to which linkages can be established between tourism activities and the broader local economy, notably by providing employment opportunities for unskilled workers and business for small and medium-scale enterprises. This paper contributes to the literature on the economy-wide effects of tourism by analyzing the determinants of tourism linkages. In particular, we assess the factors that lead to varying tourism multiplier-strength across countries using a large cross-section data set.

The analysis is based on data for 151 countries. It draws on the Tourism Satellite Accounts research of the World Travel and Tourism Council, which provides information on the indirect and direct effects on tourism spending in the host economies. The degree of tourism linkages is measured as the ratio of indirect to direct effects, that is, how much of a unit of tourist spending in the tourism economy (that is, hotels, tour operators, souvenir shops, etc.) reverberates to non-tourism sectors of the economy. The higher the linkages, the greater are the demand and supply chains that exist between the tourism industry and the other domestic sectors of the general economy.

The results from our econometric analysis indicate that a number of significant determinants of tourism linkages exist. These determining factors fall into five domains, notably resource endowments, level of development, institutional maturity, business environment, and trade regulations. We find that determinants representing the business environment, such as corporate tax rates, labor market regulations, and internet usage, as well as trade regulations, such as tariff and non-tariff measures, have the most pronounced impact on the formation of tourism linkages. The other domains also influence the formation of linkages, but to a lesser extent.

These findings are potentially important in providing decision makers in developing countries with guidance on complementary policies that are needed to maximize the benefits from tourism-centered diversification strategies. In particular, policy makers should focus their reform efforts on improvements of the business environment and on streamlining trade regulations. Luckily, these are areas that are amenable to change over the short to medium term, so that policy action will tend to generate near-term results, which, in turn, will incentivize policy makers to adopt a pro-reform stance. Other policy areas, such as enhancing the capital stock or advancing the general level of development, are less relevant for linkage formation according to our study, and can also only be influenced over the longer term.

ABSTRACT

Over the past two decades, tourism exports have been a major driver of economic growth in many emerging and developing countries. Yet, increased tourism revenues do not automatically translate into structural transformation and broad-based economic development. Drawing on cross-sectional data, this paper gauges the extent to which tourism has contributed to economic diversification in a large sample of developing countries. An econometric model is used to assess the relative importance of a country's natural endowments, level of development, institutional maturity, business environment, and trade regulations in explaining cross-country differences in linkages between tourism and the general economy. The central findings contain encouraging lessons for developing countries: domains that are more amenable to policy interventions in the short term, such as the business environment or trade regulations, matter most in fostering productive linkages between tourism and the general economy. In contrast, fixed factors, such as land availability, or longer-terms goals, such as advances in the level of development, have less influence.

POLITIQUE ECONOMIQUE, TOURISME, ET DIVERSIFICATION DE LA PRODUCTION

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RESUME NON TECHNIQUE

De nombreux pays en développement ont tenté de diversifier leurs économies en s'orientant vers le tourisme. Les résultats de cette stratégie dépendent des liens qui peuvent s'établir entre les activités touristiques et l'ensemble de l'économie locale. Le tourisme va-t-il offrir des possibilités d'emploi aux travailleurs non qualifiés ? Va-t-il générer un volant d'affaires important pour les petites et moyennes entreprises ? Cet article contribue à la littérature sur les effets de l'économie du tourisme en analysant les déterminants des liens entre tourisme et reste de l'économie.

Nous évaluons les facteurs qui expliquent les multiplicateurs du tourisme à partir des informations disponibles sur 151 pays. Les comptes satellites du tourisme du World Travel and Tourism Council fournissent des informations sur les effets directs et indirects des dépenses touristiques dans les pays d'accueil. Les liens entre le tourisme et l'ensemble de l'activité sont mesurés par le ratio des effets indirects des dépenses touristiques à leurs effets directs : à quelle hauteur une unité de dépenses dans l'économie du tourisme (hôtels, voyagistes, boutiques de souvenirs, etc.) se répercute-t-elle à d'autres secteurs de l'économie ? Nous classons les facteurs susceptibles d'influencer l'intensité de ces liens en cinq domaines : dotations en ressources, niveau de développement, maturité institutionnelle, environnement des affaires et réglementations commerciales. Les résultats de notre analyse économétrique indiquent que le milieu des affaires (taux d'imposition des sociétés, réglementation du marché

du travail, utilisation d'Internet), et les réglementations commerciales (droits de douane, mesures non tarifaires) ont l'impact le plus marqué sur les liens entre tourisme et reste de l'activité. L'influence des autres domaines est moindre.

Les décideurs des pays en développement peuvent trouver dans ces résultats des pistes pour orienter les politiques accompagnant la diversification vers le tourisme. Les efforts devraient être concentrés sur l'amélioration de l'environnement des affaires et sur la rationalisation de la réglementation commerciale. Il se trouve que dans ces deux domaines, les réformes produisent des résultats à court et à moyen terme, ce qui peut encourager les décideurs à les entreprendre. Dans d'autres domaines, tels que l'augmentation du stock de capital ou la progression du niveau général de développement, les effets des réformes n'interviennent que dans le long terme ; mais ce sont des domaines moins déterminants pour le lien entre le tourisme et le reste de l'activité.

RESUME COURT

Au cours des deux dernières décennies, le tourisme a été un moteur important de la croissance dans de nombreux pays émergents et en développement. Pourtant, l'augmentation des recettes touristiques n'a pas toujours conduit à une transformation structurelle et au développement économique. S'appuyant sur des données transversales, ce papier examine dans quelle mesure le tourisme a contribué à la diversification économique. Un modèle économétrique est utilisé pour évaluer l'importance respective des différents facteurs – richesses naturelles, niveau de développement, maturité institutionnelle, environnement des affaires, réglementations commerciales – expliquant l'intensité des liens entre le tourisme et l'économie en général. Les principales conclusions sont encourageantes pour les pays en développement. En effet, les domaines qui réagissent rapidement aux interventions politiques, tels que l'environnement des affaires ou la règlementation commerciale, sont ceux qui ont l'impact le plus important sur l'intensité des liens entre le tourisme et l'économie en général. En revanche, les facteurs fixes, tels que la disponibilité des ressources, ou les objectifs à plus long terme, tels que les progrès dans le niveau de développement, ont moins d'influence.

ECONOMIC POLICY, TOURISM TRADE AND PRODUCTIVE DIVERSIFICATION

Iza Lejárraga *

Peter Walkenhorst **

INTRODUCTION

The economics literature has uncovered the notion that productive diversification goes hand-in-hand with the process of economic growth and development. Imbs and Wacziarg (2003) show that a U-shaped empirical relationship exists between diversification and per capita income. At early stages of development, countries tend to be highly specialized in a few economic sectors. Subsequently, they diversify their productive capabilities as they get richer, before specializing again after a certain threshold of GDP per capita is reached. This finding suggests that low income countries might want to pursue policies that facilitate the shift towards a broader range of economic activities in order to achieve their development objectives.

Tourism appears to be particularly well suited to be part of developing countries' diversification strategies, because many low income countries have favorable natural endowments and a large workforce willing to work in personal service jobs at modest wages. Also, tourism consists of a cluster of inter-related activities that encompasses economic undertakings spanning the agricultural, manufacturing, and services sectors—including food and beverages, furniture and textiles, jewelry and handicraft, and transportation and communication services. Hence, expanding tourism does not add just one commodity to the production and export basket, but a broad mix of activities that could potentially bring equally broad benefits to the economy. As a result of this appeal, many developing countries have tried to turn to the tourism industry as a means to shift resources away from goods that have lost competitiveness in world markets and diversify their economies.

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Yet, the relationship between tourism and economic growth is ambiguous. In a respective survey of the economics literature, Sinclair (1998) lists a number of studies that report a positive impact of tourism on economic development, while also pointing to a range of findings that reveal adverse environmental and social consequences and do not suggest any conclusive evidence on the tourism and growth nexus. More recently, Eugenio-Martin and others (2004), Sequeira and Nunes (2008a) and Adamou and Clerides (2010) each analyze large panel data sets and reach the conclusion that tourism development in low income countries does contribute to economic growth, while, on the contrary, Sequeira and Campos (2007) and Figini and Vici (2010) in their cross-country, time-series analysis do not find robust evidence linking tourism specialization and higher growth rates.

In parallel, the literature on pro-poor tourism has stressed that the cluster of activities that constitutes tourism can be very different across countries, and the outcome of tourism development in terms of broader economic and social advancement of countries depends on the extent to which linkages can be established between tourism activities and the broader local economy, notably by providing employment opportunities for unskilled workers and business for small and medium-scale enterprises (Ashley and Roe, 2002; Meyer, 2006). Recent improvements in input-output data and tourism satellite accounts make it possible to better quantify these interactions of tourism-related sectors with other parts of the economy. For example, Beynon and others (2009) use measures of linkages to identify key sectors for regional tourism development in Wales, and Rossouw and Saayman (2011) integrate information from a tourism satellite account into an applied general equilibrium model to simulate the impacts of changes in tourism demand in South Africa.

This paper contributes to the literature on the economy-wide effects of tourism activities by analyzing the determinants of tourism linkages. In particular, we assess the factors that lead to varying tourism multiplier-strength across countries using a large cross-section data set. To our knowledge, this is indeed the first study that rigorously examines the drivers of cross-country differences in tourism linkages and the extent to which public policy can play a role in enlarging and spreading the benefits from tourism receipts throughout the general economy. The findings from our analysis are potentially important in providing decision makers in developing countries with guidance on complementary policies that are needed to maximize the benefits from tourism-centered diversification strategies.

The results from our econometric analysis indicate that a number of significant determinants of tourism linkages exist. These determining factors fall into five domains, notably resource endowments, level of development, institutional maturity, business environment, and trade regulations. We find that determinants representing the business environment, such as corporate tax rate, labor market regulations, and internet usage, as well as trade regulations, such as tariff and non-tariff measures, have the most pronounced impact on the formation of tourism linkages. These findings hold encouraging implications for policy makers, as policy measures relating to the business environment or to trade regulations can be amended over the short to medium term, while other domains, such as resource endowments or the level of

development, which according to our study are less relevant for linkage formation, can only be influenced over the longer term.

The remainder of the analysis is structured in four parts. The next section offers an overview of the literature on factors that affect the growth of the tourism economy. Section 3 then describes the econometric model, estimation approach, and cross-sectional data set used. Section 4 discusses the results of the analysis concerning the determinants of tourism linkages and assesses the policy implications. Finally, section 5 provides concluding remarks, as well as suggestions for further research.

1. **LITERATURE REVIEW**

The available evidence from case studies and regression analyses points to a considerable number of potential factors that can influence the extent to which tourism receipts benefit developing economies and help their diversification process. Naturally, the various investigations employ different analytical approaches and rely on differing data sources, so that the findings are not always consistent and, at times, conclusions can even appear contradictory. Moreover, it has to be noted that the economics literature on the determinants of tourism linkages is very shallow, so that the subsequent review also covers determinants of tourism development more generally.

The endowment of a country with natural and man-made resources is evidently a major factor for tourism development. In pioneering cross-country analysis, Lanza and Pigliaru (2000) show that countries with a relative abundance of natural resources have a higher propensity to specialize in tourism and can hope to embark on faster economic growth. Country size might or might not be another determinant. When analyzing a panel data set of 143 countries, Brau and others (2007) find that countries with a population of less than one million inhabitants that had been specializing in tourism grew significantly faster than all the other country-groups considered. This result has, however, been disputed by Sequeira and Nunes (2008b), who in their panel data analysis do not find any above-average, tourism-led growth in countries with less than five million inhabitants.

The level of socio-economic and infrastructure development of a country is another determinant of tourism success. Singh and Kaur (2005) analyze a cross-country data set of 53 countries and find that the major underlying factors causing growth from tourism are infrastructure quality and technological sophistication. Similarly, Chang and Lei (2011) report a significant impact of infrastructure development in their assessment of tourism service trade between the European, Asian and North American markets. More generally, the level of development as proxied by per-capita income influences the extent to which tourism development can boost growth. For example, Eugenio-Martin and others (2008) investigate the role of economic development as a driver of tourism over time. They find that across high-income countries, differences in the level of economic development are not significant for attracting tourists, whereas across developing countries they are.

Institutions can also play a crucial role in determining how well a tourism-centered diversification and growth strategy succeeds. In particular, a high incidence of crime and violence is detrimental to tourism development (Goel and Budak, 2010), as is high political risk (Eilat and Einav, 2004; Sequeira and Nunes, 2008b). Moreover, using a broader set of institutional variables that cover corruption, governmental accountability, governmental effectiveness, political stability, and rule of law, Brau and others (2011) show that good institutions enhance growth in tourism economies.

Further, a favorable business environment that facilitates entrepreneurship and interactions between different parts of the tourism cluster can make a big difference in the extent to which tourism receipts benefit the wider economy. Case study research on Mauritius, for example, stresses the important role that well defined land-tenure rights and a stable and secure business environment can have for successful tourism development (Cattaneo, 2009). In survey work on tourism linkages conducted across six Caribbean States, local small and medium-sized enterprises (SMEs) identified high tax rates, inadequately trained workers, macroeconomic instability, and business licensing as major obstacles to doing more business with hotels and hospitality operators. Conversely, the issue of access to finance, often a prime grievance of SMEs, did not rank particularly high among the survey responses (World Bank, 2008). Moreover, a favorable investment climate is key to attracting physical capital, notably in the form of foreign direct investment, into the tourism sector (Demeritte, 1998; Barrowclough, 2007; Than and others, 2007), while alternative forms of taxation of tourism revenues can have very different welfare implications for the host country (Benar and Jenkins, 2008). The role of tax incentives for tourism investors is controversially debated in the economics literature. Some analysts argue that there is little reason to provide special incentives for investment in the tourist industry (Bird, 1992), while others see a crucial role for tourism promotion policies in fostering growth (Kunst, 2011).

Last but not least, trade regulations can hinder or enhance the benefits that come from exporting tourism services. For example, Chen and Devereux (1999) find that tourism can reduce welfare for trade regimes dominated by export taxes or import subsidies. Also, any transport charges or fees levied on inbound or outbound travelers can be highly detrimental to tourism development, as several studies report a significant relation between transport costs and tourism demand (Algieri, 2006; Vera-Rebollo and Ivars-Baidal, 2007; Seetanah and others, 2010). Concerning services trade, Geloso-Grosso and others (2007) stress the importance of opening and liberalizing services sectors beyond travel and tourism in order to allow linkages between tourism and the general economy to develop and flourish.

As noted earlier, only a subset of the reviewed studies explicitly considers the determinants of linkages between tourism and the general economy. Yet, factors that drive tourism development more generally might similarly bear relevance for explaining the strength of tourism linkages. In some cases, the determinants might even express their impact on general tourism development and economic growth through their effects on linkage-formation.

2. MODEL AND DATA

The determining factors that emanate from the literature review can be broadly grouped into five different domains according to their amenability to policy interventions (Figure 1): (a) resource endowment; (b) level of socio-economic development; (c) institutional maturity; (d) business environment; and (e) trade regulations. All of these domains will potentially have an impact on the extent to which linkages between tourism activities and the general economy are formed, but which of these factors matter most?

Figure 1: Amenability of Country Determinants of Tourism Linkages
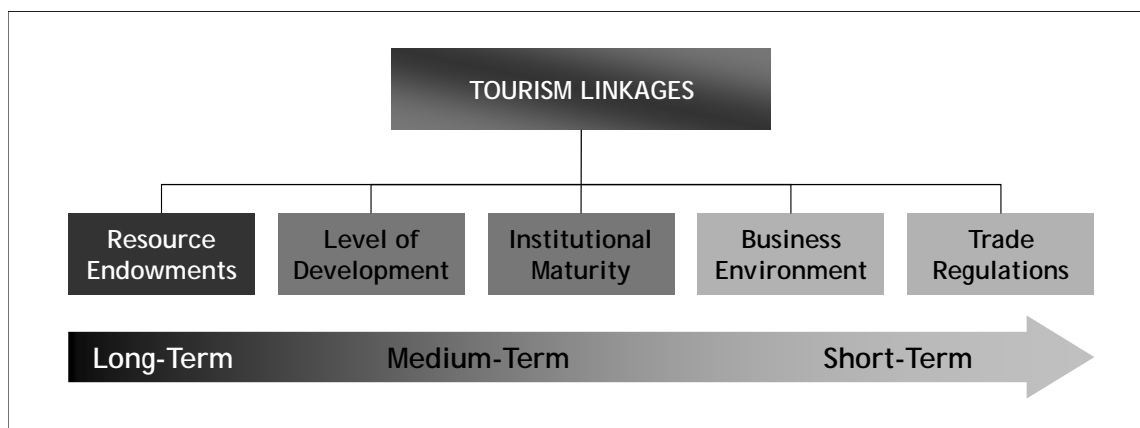
In order to address this question from an empirical perspective, an econometric model is specified to statistically test the significance of each of the above-mentioned domains in explaining countries' relative success or failure in generating tourism linkages. Identifying the country conditions that are most important can help policy makers understand, and to the extent possible, promote the coordination between local entrepreneurs and the foreign demand signals of the tourism economy.

The earlier discussion on the domains of tourism linkage determinants suggests the following model specification:

$$(LINK_i = \beta_{0i} + \beta_{1i}ENDOW_i + \beta_{2i}DEV_i + \beta_{3i}INST_i + \beta_{4i}BUS_i + \beta_{5i}TRADE_i + \varepsilon_i \qquad (1)$$

LINK, referring to tourism linkages, is the dependent variables in the regression. The explanatory domains correspond to the main country conditions discussed above, namely the host country's natural endowments (ENDOW), level of socio-economic development (DEV), institution maturity (INST), business environment (BUS), and trade regulations (TRADE). ε is a random error, which is independently and identically distributed.

We estimate the determinants of tourism linkages based on a large sample of 151 countries. The analysis draws on the Tourism Satellite Accounts (TSAs) research of the World Travel and Tourism Council (WTTC), which provides data on the indirect and direct effects on tourism spending in the host economies. The degree of tourism linkages is measured as the ratio of indirect to direct effects, that is, how much of a unit of tourist spending in the tourism economy (that is, hotels, tour operators, souvenir shops, etc.) reverberates through tourist

demand to non-tourism sectors of the economy (Figure 2). The higher the linkages, the greater are the demand and supply chains that exist between the tourism industry and the other domestic sectors of the general economy (Lejárraga and Walkenhorst, 2010).

Figure 2: Direct and Indirect Effects of Tourism
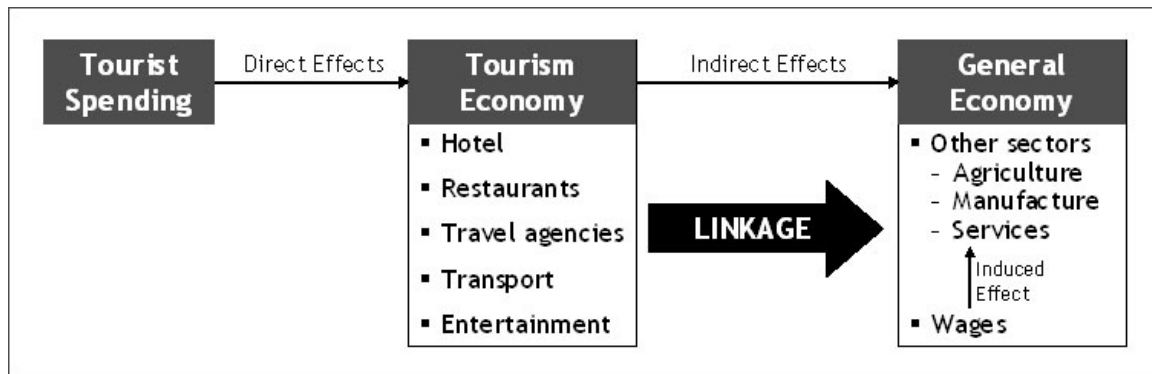
Unfortunately, not all countries publish TSAs that would make it possible to retrieve empirical information on tourism linkages. By early 2010, about 60 countries had produced or were in the process of preparing national TSAs. For other countries, only partial information is available that is supplemented in the WTTC database by estimates of missing values (WTTC and Oxford Economics, 2007). Despite this caveat on the availability of primary information, the WTTC remains the best available source of consistent cross-country data on tourism linkages.

There are a large number of potential explanatory variables that can proxy the five domains in equation (1). Yet, including all these potential determinants would result in severe problems of multicolinearity. Hence, it is necessary to reduce the model to contain only those explanatory variables that provide important information about the degree of tourism linkages.

We employ a standard stepwise regression procedure to select appropriate indicators for linkages out of an initial pool of 25 potential determinants. The latter were selected based on their relevance for the five domains and on the availability of data for a large sample of countries. Those indicators that emerged as statistically significant in a stepwise estimation were taken to the final model (see equation (2) below) as explanatory variables for that domain.

Table 1 shows a list of the indicators representing each domain. Of these, those that emerge as statistically significant for each domain are shaded in grey. Data sources are provided in Annex I.

Table 1: Results of Stepwise Regression

Natural Endowments	Socioeconomic Development	Institutional Maturity	Business Environment	Trade Regulations
Land	Human Development	Democracy	Business Start-up Time	MFN Tariffs
Population	Gini Coefficient	Government Size	Corporate Tax Rate	Non-tariff Barriers
Labor force	Gender	Informal Sector	Labor Market	Export Diversification
Capital	Environment	Crime &Violence	Internet Users	Signatures to Import
Agricultural Machinery	Infrastructure	Price Controls	Foreign Direct Investment	Quality of Ports
111 observations	91 observations	89 observations	87 observations	85 observations

Note: Shaded boxes denote factors that emerge as significant in each of the domains at a significance threshold of p≤0.15.

The results of the stepwise estimation procedure outlined above generate the following equation, which is estimated using standard Ordinary Least Squares:

$$LINK_i = \beta_{0i} + \beta_{1i}ENDOWAG_i + \beta_{2i}DEVHDI_i + \beta_{3i}DEVGINI_i + \beta_{4i}DEVGEN_i + \beta_{5i}INSTDEM_i$$
$$+ \beta_{6i}INSTINF_i + \beta_{7i}INSTSEC_i + \beta_{8i}BUSTAX_i + \beta_{9i}BUSLAB_i + \beta_{10i}BUSINT_i$$
$$+ \beta_{11i}TRADEMFN_i + \beta_{12i}TRADENTB_i + \beta_{13i}TRADEDIVER_i + \beta_{14i}TRADESIGN_i + \varepsilon_i$$

$$(2)$$

Where,

- ENDOW/AG denotes gross capital formation in agricultural machinery stock, DEV/HDI, DEV/GINI, and DEV/GEN are measurements of human development, income inequality, and gender participation, respectively;

- INST/DEM, INST/INF, and INST/SEC gauge the extent of democracy, size of informal institutions, and level of security, respectively;

- BUS/TAX, BUS/LAB, and BUS/INT correspond to the cost of setting up a business, corporate tax rates, labor market regulations, and use of internet, respectively;

- TRADE/MFN, TRADE/NTB, TRADE/DIVER, TRADE/SIGN represent average MFN tariffs, non-tariff barriers, degree of economic diversification, and number of administrative import procedures, respectively; and

- ε_i is a standard error term.

The results of the estimation are displayed in Table 2. The model yields a very high explanatory power, accounting for 71 per cent of the total cross-country variation in tourism linkages. In order to ensure the robustness of the estimates, the Ramsey regression equation specification error test (RESET) was performed. Multicollinearity was checked and does not appear to constitute a problem.

The final sample consists of 75 countries for which data for the above indicators are available. In addition, separate regressions were run for a sub-sample of countries with relatively lower levels of tourism (tourism < 2.5 M, that is less than 2.5 million annual tourist arrivals), as well as for the sub-sample of countries with large tourism markets (tourism >5.0 M, that is more than 5 million annual tourist arrivals). This sub-sample analysis is motivated by the hypothesis that a larger level of tourism demand might stimulate more pronounced linkages with other productive sectors of the host economy than a small-scale tourism cluster.

Table 2: Estimation Results

(Dependent Variable: Tourism Linkages)

Variables	All Countries	Tourism<2.5M	Tourism>5.0M
ENDOW/AGM	.162344 (0.20)	.0553926 (0.80)	.3326256** (0.01)
DEV/HDI	.124751** (0.03)	.2293415** (0.02)	.4116614* (0.06)
DEV/GINI	-.0681011 (0.47)	.0040343 (0.96)	.3350986* (0.12)
DEV/GEN	.1370716* (0.12)	.0766925 (0.53)	.6519206*** (0.00)
INST/INF	.0488461 (0.71)	-.0695743 (0.67)	.6321267*** (0.00)
INST/DEM	.0727417 (0.52)	.0188654 (0.90)	.0969869 (0.60)
INST/SEC	-.1815027* (0.07)	-.0846718 (0.56)	.2171546 (0.23)
BUS/TAX	-.2430787*** (0.00)	-.0887392 (0.39)	-.4127033** (0.02)
BUS/LAB	-.1559057** (0.05)	-.238327* (0.08)	-.108777 (0.60)
BUS/INT	.3082481** (0.02)	0.5285811** (0.02)	.1517195 (0.69)
TRADE/MFN	-.3022097*** (0.00)	-.2761406 (0.19)	-.1069309 (0.47)
TRADE/NTBs	-.3800706*** (0.00)	-.2399873** (0.06)	-1.320357*** (0.00)
TRADE/EDI	-.1227112* (0.11)	-.2402884** (0.03)	-.2760479 (0.23)
TRADE/TF	-.0073597 (0.95)	.2375628 (0.30)	-.6281615** (0.04)
R2	0.7142	0.8214	0.8318
Obs.	75	38	27
F	24.66***	37.95***	14.49***
DF	(14, 60)	(14, 23)	(14, 12)

*Note: Regressions correspond to (a) all countries in the sample, (b) countries with international tourism arrivals of less than 2.5 million (tourism<2.5M), and (c) countries receiving more than 5.0 million tourists (tourism>5.0M). All regressions are estimated using OLS, with heteroskedasticity-consistent p-values reported in parentheses. The coefficients reported are standardized Beta coefficients, to facilitate comparability. The constants are not reported. F denotes the F-Statistic; DF the degrees of freedom. Obs. is the number of observations. Significance at 10% level: *, 5% level: **, and 1% level: ***.*

3. DISCUSSION OF ESTIMATION RESULTS

The broad lesson that can be inferred from the analysis is that promoting tourism linkages with the productive capabilities of a host country is a multi-faceted approach influenced by a variety of country conditions. Among these, fixed or semi-fixed factors of production, such as land, labor, or capital, seem to have a relatively minor influence. Within the domain of natural endowments, only agricultural capital emerged as significant. This is a result that corresponds to expectations given that foods and beverages are the primary source of demand in the tourism economy. Hence, investments in agricultural technology may foment linkages with the tourism market. It is also worth mentioning that for significant backward linkages to emerge with local agriculture, a larger scale of tourism may be important. According to the regression results, a strong tourism-agriculture nexus will not necessarily develop at a small scale of tourism demand.

It appears that variables related to the entrepreneurial capital of the host economy are of notable explanatory significance. The human development index (HDI), which is used to measure a country's general level of development, is significantly and positively associated with tourism linkages. One plausible explanation for this is that international tourists, who often originate in high-income countries, may feel more comfortable and thus be inclined to consume more in a host country that has a life-style to which they can relate easily. Moreover, it is important to remember that the HDI also captures the relative achievements of countries in the level of health and education of the population. Therefore, a higher HDI reflects a healthier and more educated workforce, and thus, the quality of local entrepreneurship. Related to this point, it is important to underscore that the level of participation of women in the host economy also has a significantly positive effect on linkages. In sum, enhancing local entrepreneurial capital may expand the linkages between tourism and other sectors of the host country.

Formal institutions and their regulatory control of the market, proxied by the size of the government and price controls, were not found to have significant effects on linkages formation. Despite the importance of democratic governance, this was not identified as a key determinant either. On the other hand, the significance of informal institutions accords with the clustering dynamics inherent in tourism, in which linkages are formed on the basis of self-enforcing 'relations-based' governance. Also, informal structures cost less than formal, rules-driven institutional frameworks for entrepreneurship. Therefore, highly formalized regulations can deter the spontaneous and cost-driven coordination among potential local suppliers and the potential buyers of the tourism economy.

One type of formal institutions that do matter are institutions for policing and vigilance. As would be expected, the results show that countries with higher incidence of violence or crime have significantly less linkages. Indeed, the coordination of providers in tourism clusters depends fundamentally on trust among local entrepreneurs—and trust can hardly flourish in an environment characterized by social conflict. Equally important, the perception of violence

on the part of tourists and hotels will dissuade tourists from venturing beyond the safe boundaries of the 'enclave' hotel resort. Finally, hotel managers and other foreign investors in the tourism economy will be less inclined to maintain productive relations with the host economy in the absence of predictability and stability. Therefore, investments in institutions that maintain safety—and a perception of safety—in the host economy may be critical for spawning coordination.

While all country domains play a role in fostering or hindering linkages, the business environment has an overriding influence on linkages. After controlling for a country's natural endowments, level of development, and institutional maturity, the business environment on its own explains almost 20 percent of cross-country variations in linkages. In particular, the level of corporate taxes in the host economy has the most significant adverse effect on the formation of linkages, in conformity with the lower-cost motivation underlying tourism-led linkage creation. Also, a widespread availability of internet connections has a positive effect in the ability to orchestrate coordination.

Finally, the results suggest that there is a role for government in improving trade facilitation and reducing transportation costs. Also, maintaining an open trade regime is critical for the emergence of linkages. This underscores the importance of not protecting inefficient economic activities and opening potential products for the tourism demand to competition. Although trade barriers may indeed serve to prod investors in the tourism economy to procure domestic goods, they will also hinder the competitiveness of local producers. Shielded from imports, local producers will not have the incentives to meet the international quality standards of the products needed by the tourism economy. Yet, quality expectations, possibly more than costs, will likely inform the procurement decisions of the tourism economy.

4. CONCLUSIONS

This study explored a number of country-specific conditions that may influence the level of tourism linkages in a host economy. Foremost, those factors that facilitate a low-cost business environment (such as low corporate taxes, high use of internet, and liberal labor regulations) as well as low-cost, informal supporting institutions help foster linkages between tourism activities and the general economy. Related to this, the quality of entrepreneurial capital and the participation of women in public life are also important determinants. In addition, the results suggest that an open trading environment spurs more linkages than protectionist policies. On the contrary, the findings indicate that more fixed country conditions, such as a country's natural endowments or its levels of development, have less influence in the extent of linkages forged.

The findings have potentially important economic policy implications. All the determinants identified are amenable to improvements via policy decisions, and for most determinants the required changes can be undertaken in the short to medium term. Hence, policy makers eager to foster linkages between tourism activities and the general economy will have the opportunity to implement appropriate measures and see results over the near term. Also, many of the identified determinants, such as a business-friendly environment and open trade policy, are not only advantageous for the formation of tourism linkages, but desirable for more general economic development, so that the findings from this study reinforce many existing economic reform programs rather than add extra measures or requirements to the to-do-list of policy makers in developing countries.

By luring tourism investors and tourists to their countries, developing economies can diversify their production and export portfolios. This study investigated a secondary diversification effect by asking how countries can foster linkages between tourism and the general economy, such that the non-tourism parts of the economy can shift into activities that service the tourism sector and thereby amplify the economy-wide benefits from tourism. A tertiary avenue of productive diversification consists of domestic enterprises learning about international market requirements through the demand signals of the tourism sector and in response developing "new" agro-food or manufacturing products for export through a process of "self-discovery", as discussed by Hausmann and Rodrik (2003). Establishing the factors that enable and facilitate this tertiary form of tourism-related diversification appears to be a promising route for further research, which we are planning to pursue in the near future.

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ANNEX 1.

Data Description and Sources

Name	Variable	Description	Units	Trans	Source
Tourism	Tourism Arrivals	Total number of international tourists per year.	Count	Raw	World Tourism Organization
Linkages	1+Ratio Multiplier	Tourism's indirect GDP contribution to general economy divided by total GDP contribution.	Ratio	Sqrt inv.	Author calculations, data from World Tourism and Travel Council
ENDOW/LAND	Arable Land	Total hectares of arable land, as defined by the Food and Agriculture Organization.	Hectares	Log	World Development Indicators (World Bank)
ENDOW/POP	Population	Total population, based on the de facto definition of population.	Count	Log	World Development Indicators (World Bank)
ENDOW/LAB	Labor Force	Total population that is economically active, as defined by International Labor Organization.	Count	Log	World Development Indicators (World Bank)
ENDOW/CAP	Gross Capital Formation	Gross capital formation	2000 US$ Constant	Log	World Development Indicators (World Bank)
ENDOW/AG	Agricultural Machinery	Total number of tractors per 1000 hectares of arable land.	Ratio	Log	World Development Indicators (World Bank)
DEV/HDI	Human Development Index	Combined measurement of life expectancy, level of education, and GDP per capita.	Ratio	Raw	Human Development Report (UNDP)
DEV/GINI	Gini Coefficient	Measurement of the degree of inequality of the distribution of income.	Ratio	Sqrt	Human Development Report (UNDP)
DEV/GENDER	Women in Parliament	Share of seats held by women in parliament.	Ratio	Sqrt	World Development Indicators (World Bank)
DEV/ENVIRON	Protected Areas	Percentage of environmentally protected areas.	Ratio	Sqrt	World Development Indicators (World Bank)
DEV/INFRAST	Paved Roads	Percentage of paved roads.	Ratio	Log	World Development Indicators (World Bank)
INST/DEM	Democracy	Rating of democratic accountability	Index	Raw	International Country Risk Guide (Political Risk Services)
INST/GOVT	Size Government	Size of government expenditures, taxes and transfers,	Index	Sqrt	Economic Freedom of the World

Name	Variable	Description	Units	Trans	Source
		and enterprises.			(Fraser Institute)
INST/INF	Informal	Percentage of businesses who perceive a large informal sector	Index	Cube	Global Competitiveness Report (World Economic Forum)
INST/SEC	Crime & Violence	Percentage of businesses who incur on costs due to crime and violence incident	Index	Log	Global Competitiveness Report (World Economic Forum)
INST/PC	Price Controls	Extent of governments control in setting prices.	Index	Raw	Economic Freedom of the World (Fraser Institute)
BUS/COST	Bus. Start-up Cost	Cost to register a business as percentage of GNI	Ratio	Sqrt	World Development Indicators (World Bank)
BUS/TAX	Business Tax	Corporate tax rates	Ratio	Sqr	Index Fiscal Burden Data (Heritage Foundation)
BUS/LAB	Labor Market	Measurement of labor regulations including minimum wages, hiring and firing practices, etc.	Index	Sqrt	Economic Freedom of the World (Fraser Institute)
BUS/INT	Internet Users	Number of users with access to the worldwide network (per 1000 people).	Count	Log	World Development Indicators (World Bank)
BUS/FDI	Foreign Direct Investment	Net inflows of foreign direct investment as percentage of GDP.	Ratio	Raw	World Development Indicators (World Bank)
TRADE/MFN	MFN Tariffs	Most-favored nation tariffs.	Count	Raw	World Integrated Trade Solution (World Bank)
TRADE/NTB	Hidden Import Barriers	Import barriers other than published tariffs and quotas.	Index	Raw	Economic Freedom of the World (Fraser Institute)
TRADE/EDI	Diversification Index	Difference between the structure of trade of the country and the world average.	Ratio	Raw	Handbook of Statistics (UNCTAD)
TRADE/FAC	Signatures to Import	Number of signatures required to import goods.	Count	Log	Doing Business Report (World Bank)
TRADE/FT	Ports	Quality of ports	Index	Sqr	Global Competitiveness Report (World Economic Forum)
Note: All data refer to the year 2004.					

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